

# The Relationship between Motivation and Academic Achievement During Covid-19 Pandemic

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## ABSTRACT

As per the government of Malaysia's movement control order during Covid-19 pandemic, students were required to take their classes online. This research aims to investigate the relationship between students' motivation and academic achievement, including how motivation differs by gender, place of residence, and academic year. Sixty-two Universiti Malaysia Sarawak's undergraduate students from various faculties participated in this study. The questionnaire includes the Academic Motivation Scale-College Version (AMS-C 28) by Vallerand *et al.* (1993). Findings demonstrated a positive correlation between students' motivation and academic achievement. Furthermore, motivation varies significantly depending on gender and place of residence but not academic year. The findings of this study can be used as a reference point for future educational planning by the institution.

Keywords: academic achievement, Covid-19 pandemic, gender, place of residence, student's motivation

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## INTRODUCTION

In the year 2020, Covid-19 triggered a pandemic that affected the whole world. Regardless of age, health, status, or nation, everyone was impacted by this. On March 18, 2020, the government of Malaysia started implementing the movement control order (MCO). All higher education sectors were instructed to close down as a result of the government's decree on the conditional movement control order (CMCO) in May 2020. The Ministry of Higher Education (MOHE) issued a media statement on May 27, 2020, instructing all higher educational providers to conduct teaching and learning activities through online or remote learning, with no traditional face-to-face teaching and learning permitted until December 31, 2020 (Ministry of Higher Education, 2020). Following this announcement, Universiti Malaysia Sarawak (UNIMAS) had conducted online classes throughout most phases of the Covid-19 pandemic. Therefore, conventional physical class routines for a university student were converted into comprehensive online teaching-learning sessions.

Online learning makes use of numerous technologies, including desktops, laptops, tablets, cellphones, and so forth. It involves either synchronous, asynchronous, or both types of learning, depending on the courses and lectures. Media like recorded lectures and discussion boards are used to support asynchronous online learning, with flexibility in learning being a crucial element. On the other hand, synchronous online learning is assisted by tools like video conferencing with the main objective of promoting two-way, real-time communication between the lecturer and students (Hrastinski, 2008). Both sessions might be challenging to complete online, particularly for students with restricted access to technological devices.

Students' motivation is important for online learning (Chiu, Lin, & Lonka, 2021; Hartnett, 2016). However, students' motivation for studies in these online sessions may vary, hence, it is important to investigate them. Some students could utilise the flexibility of learning to look for more sources and data for their studies, while others would use it to unwind and put their academics on hold. According to research, Indonesian institutions' enthusiasm for online learning may be having diverse impacts on higher education (Gustiani, 2020). It was also mentioned by Gustiani (2020) that some students were unmotivated to learn as a result of online learning, whereas others were highly motivated. In a research, Meeter *et al.* (2020) found that because present university students are less motivated and spend less hours studying, they value online learning less than traditional college education.

Based on studies on the estimated study hours and lack of attendance at lectures, Rahim, Wan Ab Razak, Mohd Anuar & A.Rahim (2021) claimed that this online learning session, which Malaysian students have been using for more than a year, influences their motivation and pleasure in education. Research by Neisler (2020), as cited in Hettiarachchi *et al.*, (2021) reported that the most common obstacle of online learning is keeping the students motivated as it affected their academic success and satisfaction. It was discovered that university students' motivation decreased during this session, but this had no effect on their results, which appeared to be better than what they expected if it had been a traditional learning session (Meeter *et al.* 2020). However, according to Maelan *et al.* (2021, as reported in Mak (2021), Norwegian students who performed poorly in their studies during the epidemic made fewer efforts to further their education. The findings of Mak (2021) which indicated that students with worse academic performance owing to the pandemic had less interest in learning provide more evidence for this. It was said that a student's academic performance and surroundings do have an impact on their drive to study. As poor achievers have weaker desire, self-efficacy, and engagement in their studies, it was also shown that there is a learning gap between students of high and low achievers during this pandemic (Maelan *et al.* 2021).

This study attempts to evaluate if academic achievement is impacted by students' motivation during the pandemic, considering these contradicting findings. It also aims to investigate how several other elements (such as gender, place of residence, and academic year) could affect students' motivation during the pandemic. Additionally, there is little research on the motivation of students from Malaysian universities in the current environment. University administration may learn more about student motivation at this time by using the information from this research. It will also help the university management prepare and take appropriate action if a similar situation occurs in the future. This study is helpful for lecturers and students to better understand themselves in these kinds of teaching and learning contexts.

The research questions for this study:

1. Is there a significant relationship between motivation and academic achievement?
2. Does student's motivation differ based on gender?
3. Does student's motivation differ based on place of residence during online learning?
4. Does student's motivation differ based on academic year?

### **Student's Motivation**

Student's motivation has become a topic of interest as it has been done in previous research. In research about motivation in adult education, Hubackova and Semradova (2014) found that the factors affecting their motivation were obtaining new qualification, getting a degree, and financial consideration. Another study on student motivation in online classes found that the reasoning for their participation resulted from their extrinsic desire to attain adequate participation marks for the course (Lee & Martin, 2017). Research by Rahim *et al.* (2021) found that although the students struggled to retain their motivation since they wanted the lessons to end sooner, they also intended to do their best in every assignment assigned to them. This indicates that both students and teachers must play a role in ensuring students' enthusiasm to learn. It also demonstrates how, depending on their circumstances, their motivation may influence their learning process.

### **Student's Motivation and Academic Achievement**

Motivation can boost a student's interest and involvement in a subject. This will improve their understanding of the subject and improve their results. According to Guey *et al.* (2010, as cited in Li & Zheng, 2017), a student's learning performance can be improved by establishing a setting that can motivate and encourage them. It is supported by another researcher, Pintrich (2003, as cited in Sivrikaya, 2019), who stated that motivation is a significant factor than is influencing one's accomplishment in the educational process. However, no relation between student's motivation and academic achievement was found in the research performed by Fortier *et al.* (1995, as cited in Sivriyaka, 2019). Another research by Amrai, Motlagh, Zalani and Parhon (2011) concluded that a weak relationship was found between motivation and academic achievement, but this may be linked to students' lack of accuracy in providing their mean score. During this Covid-19 pandemic, Mak (2021) found that students' engagement in academics were highly affected as evidenced by their poor performance. Despite these findings, it is not known if the undergraduate student's performance and motivation is affected during the pandemic. To fill this gap, this study is designed to investigate if motivation is a significant predictor of student's academic achievement especially in this period. This study also wanted to know if motivation is affected by the academic year of the students.

### **Gender and Student's Motivation**

It is believed that gender plays a role in the level of motivation which involve intrinsic and extrinsic motivation. According to a study conducted by Sölpük Turhan (2020) that it was found that the differences between gender towards motivation only appear at a lower significant level. This is further supported by research from Bedel

(2013, as cited in Sölpük Turhan, 2020) that gender did not affect a person's motivation in education. It is followed by another research by Rathakrishnan *et al.* (2021) that no significant difference between motivation and gender during online learning in this pandemic. However, there were research with opposite results. Mawson and Bodnar (2021) found in their study that females have greater level of motivation compared to males of corresponding age. Their findings were supported by research from D'Lima *et al.* (2014, as cited in Mawson & Bodnar, 2021) which found that females have a higher extrinsic motivational level compared to the same-age males. Another research found that female students have higher motivation towards learning compared to male students (Kenar, Kose, & Demir, 2016). Despite the findings mentioned above, there has been no research made on undergraduates' students from universities in Sarawak on whether motivation differs between genders.

### **Place of residence and Student's Motivation**

According to Williams and Burden (1997, as cited in Rahmat & Akbar, 2019), greater satisfaction towards education can be obtained by creating a similarity between an idealistic and real learning environment. This shows that the environment settings can affect a person's learning situation. Thus, it means that it is able to affect their motivation. When comparing two different education systems which are traditional and open, it was found that there is a significant difference between students in rural and urban areas for both systems (Singh & Singh, 2011). On the contrary, a report stated that students from rural and urban areas showed no difference in the level of motivation. The finding was noted by Rahmat and Akbar (2019) where the majority of students at rural areas possessed high motivational levels, while the majority of students at urban areas showed moderate motivational levels. Despite the findings mentioned, little is known if place of residence during this pandemic session will affect students' motivation especially during online learning in Malaysia. Hence, this study is relevant to understand if undergraduate students' motivation in online learning is affected by their place of residence.

The current study hopes to find more material to add to the existing literature. The relationship between motivation and academic achievement is studied using correlational analysis. Descriptive analysis is used to evaluate the characteristics that influence motivation, which include gender, residence, and academic year. It would be fascinating to incorporate studies based on local students' perceptions of their motivation in education, particularly in light of the current situation.

## **MATERIALS & METHODS**

### **Research Design**

This study employed quantitative research, which is defined as systematic research that collects and analyses measurable data using statistical, mathematical, or computer approaches. Survey research through online questionnaire was performed for this study. The data collected from the questionnaires were analysed using the SPSS Statistics tool.

### **Population, Sample & Sampling Procedure**

The study's population consists of UNIMAS undergraduate students. The students used as the sample were from the cognitive science undergraduate program. The sample method used was simple random sampling method which gives equal chances for each participant of being chosen as a sample for analysis. The sample size for this study comprised of sixty-two individuals, made up equally of male and female participants from second and third year students of the cognitive science program from the Faculty of Cognitive Science and Human Development (FCSHD).

### **Instruments**

The survey questionnaire was divided into two parts labelled as part A and part B. Part A consist of the participants' demography which include their age, gender, ethnicity, faculty, program taken, current academic year, CGPA and place of residence during online learning. Meanwhile, part B consist of the Academic Motivation Scale – College version (AMS-C 28) questionnaire. This questionnaire was originally in French before being translated into English. It was developed by Vallerand *et al.* (1993) as a new measure of motivation toward education. This questionnaire includes seven subscales with a total of 28 items which are Intrinsic motivation (to know), Intrinsic Motivation (toward accomplishment), Intrinsic Motivation (to experience stimulation), Extrinsic Motivation (Identified), Extrinsic Motivation (introjected), Extrinsic Motivation (external regulation) and Amotivation. The response format is a 7-point Likert scale (1=does not correspond at all to 7=corresponds exactly). The total score of the AMS questionnaire is known as the Self Determination Index (SDI). The SDI scale runs from -18 to +18, with higher scores indicating higher self-determination. It is used to indicate the motivational level of the respondents.

### Data Analysis Procedure

The data collected was analyzed using SPSS Statistics program for descriptive analysis, independent T-test, and Spearman's correlation. Descriptive analyses were used to determine the mean and standard deviation. Four hypotheses were developed for this study as stated below:

- a)  $H_{01}$ : There is no relationship between motivation and academic achievement
- b)  $H_{02}$ : There is no difference in motivation based on gender
- c)  $H_{03}$ : There is no difference in motivation based on place of residence
- d)  $H_{04}$ : There is no difference in motivation based on academic year

The hypotheses were established in accordance with the research purpose, which is to explore the relationship between motivation and academic achievement, as well as the factors influencing student motivation.

### RESULTS

There was a total of 62 undergraduates from cognitive science program of FCSHD participated in this study. Table 1 shows the demographic analysis of participants in this study. The age of the participants ranged from 21 to 26 years old. Due to ethical considerations, they all had signed informed consent and agreed on their participation in this study.

**Table 1.** Summary of respondents' demography

Demographic Variables	Frequency	Percentage (%)
Gender		
Female	32	51.6%
Male	30	48.4%
Age group		
21 - 22 years old	30	48.4%
23 - 24 years old	29	46.8%
25 - 26 years old	3	4.8%
Ethnicity		
Malay	35	56.5%
Chinese	3	4.8%
Bumiputera Sarawak	20	32.3%
Bumiputera Sabah	4	6.5%
Program		
Cognitive Science	62	100.0%
Academic year		
2nd year students	30	48.4%
3rd year students	32	51.6%
CGPA		
2.50 - 2.99	7	11.3%
3.00 - 3.49	30	48.4%
3.50 - 4.00	25	40.3%
Place of Residence during Online Learning		
Rural	20	32.3%
Urban	42	67.7%

### Mean and Standard Deviation of Motivation Among Students

The results from Table 2 shows the mean and standard deviation of seven different motivational frameworks. Briefly, the students' motivating frameworks were fairly distributed between intrinsic and extrinsic motivation, but the highest mean score is extrinsic motivation - introjected, and the least mean score was for the seventh subscale, amotivation. Overall, despite the online learning methods during the pandemic, the students were still motivated to continue their education based on the mean value for their SDI which is 2.79. It shows that the participants are moderately self-determined in their education, and they are not negatively affected by the pandemic.

**Table 2.** Mean and standard deviation of motivation among students.

	N	Mean	Standard Deviation
Intrinsic motivation – to know	62	5.47	.598
Intrinsic motivation – toward accomplishment	62	5.26	.493
Intrinsic motivation – to experience stimulation	62	5.35	.529
Extrinsic motivation - identified	62	5.41	.589
Extrinsic motivation - introjected	62	5.56	.554
Extrinsic motivation - external regulation	62	5.50	.582
Amotivation	62	3.90	.403
Self-Determination Index (SDI)	62	2.79	1.30

### Spearman’s Correlation between Motivation and Academic Achievement

A Spearman Correlation analysis is shown in Table 3. Based on the result, there was a correlation between motivation and academic achievement, which was statistically significant ( $r_s(62) = .300, p = .018$ ). From the result, the  $p$ -value was less than 0.05, which shows a relationship between two variables and thus,  $H_{01}$  was rejected. Hence, there is a relationship between motivation and academic achievement. Overall, there is a weak and positive correlation between motivation and academic achievement during online learning. As the student’s motivation increases, their academic achievement also increases.

**Table 3.** Spearman’s Correlation for the relationship between motivation and academic achievement (CGPA)

			SDI	CGPA
<b>Spearman's rho</b>	Self-Determination Index (SDI)	Correlation Coefficient	1.000	.300*
		Sig. (2-tailed)	.	.018
		N	62	62
	CGPA	Correlation Coefficient	.300*	1.000
		Sig. (2-tailed)	.018	.
		N	62	62

\*. Correlation is significant at the 0.05 level (2-tailed).

### Independent $t$ -test between Gender and Motivation

Analysis conducted by independent  $t$ -test for gender and motivation is shown in Table 4. Based on the report, the null hypothesis is rejected as the  $p$ -value was less than 0.05. Hence, there is a significant difference in student’s motivation based on gender,  $t(60) = -2.464, p = .017$ . This study found that male students have lower motivation to study ( $M = 2.39, SD = 1.38$ ) compared to female students ( $M = 3.17, SD = 1.11$ ).

**Table 4.** Independent  $t$ -test between gender based on motivational level.

Gender	N	M	SD	$t(60)$	$p$
Male	30	2.39	1.38	-2.464	0.017
Female	32	3.17	1.10		

### Independent $t$ -test between Residential Area During Online Learning and Motivation

Analysis conducted by independent  $t$ -test for residential area and motivation is shown in Table 5. Based on the report, the null hypothesis is rejected as the  $p$ -value is less than 0.05. Hence, there is a significant difference in student’s motivation based on place of residence during online learning,  $t(60) = 2.65, p = 0.01$ . This study found that students in rural areas have lower motivation to study ( $M = 2.19, SD = 1.15$ ) compared to students in urban areas ( $M = 3.08, SD = 1.28$ ).

**Table 5.** Independent  $t$ -test between residential area during online learning based on motivational level.

Residential area	N	M	SD	$t(60)$	$p$
Urban	42	3.08	1.28	2.650	0.010
Rural	20	2.19	1.15		

### Independent $t$ -test between Academic Year and Motivation

Analysis conducted by independent  $t$ -test for academic year and motivation is shown in Table 6. From the results shown, null hypothesis is accepted as the  $p$ -value is more than 0.05. Hence, there is no significant difference in student’s motivation based on academic year,  $t(57.74) = .868, p = .389$ .

**Table 6.** Independent *t*-test between academic year based on motivational level.

Study year	N	M	SD	<i>t</i> (57.737)	<i>p</i>
2nd year students	30	2.94	1.39	0.868	0.389
3rd year students	32	2.66	1.21		

## DISCUSSIONS

### Motivational Level of the Respondents

A total of 62 undergraduate students from cognitive science program of the Faculty of Cognitive Science and Human Development were involved in this research. The scores on motivation were fairly distributed for the six subscales, but the highest mean score is extrinsic motivation introjected regulation, and the least mean score was for the seventh subscale, motivation. Thus, it can be said that the undergraduates were multi-motivated, and could mean that the students continued to pursue their study to prevent shame or to achieve sense of self-worth or dignity (Ryan & Deci, 2000). Hence, the students proved that they were capable to pursue their study under pressure as long as they were motivated.

Overall motivation level of the students is represented by the SDI. The mean of SDI based on the finding is 2.79 ( $\pm 1.30$ ), which shows that the majority of the students have moderate self-determination in pursuing their studies. The findings are consistent with another study on students who took their lectures online during the Covid-19 pandemic. Munir, Anwar, and Kee (2021) discovered that the average motivation of their students was 2.90, attributed to their cognitive problem-solving skills and social presence during online learning. It was claimed that their motivation was lower than average during the pandemic because they appeared to be concerned that the virus might influence their socioeconomic status and increase risk of income loss, especially for those located near Covid-19 hotspots. These results were in line with prior findings by Rahim *et al.* (2021) that found that students were still motivated to continue their study despite struggles faced due to the spread of the virus. This outcome was also in line with Ajlouni, Rawadieh, Almahaireh and Awwad (2022) who found that students were more extrinsically driven and less motivated during online learning. This showed that the pandemic has had little effect on academic motivation. More studies in the future may be able to further confirm this.

### Students' Motivation and Academic Achievement

In accordance with the main purpose of this study, the data collected shows that there is a weak, positive relationship between motivation and academic achievement, and it was statistically significant. This result was consistent with the findings of Bakar, Alsmadi, Ali, Shuaibu, and Solahudin (2022), who discovered a positive correlation between motivation and undergraduate academic achievement during online learning sessions. The study also discovered that motivation is the second most influential factor in students' academic performance. According to research by Yu (2021), who also found the correlation between the two variables, motivation is crucial in predicting academic achievement as well as future contentment and well-being in the chosen field. The result supported the claims of prior researchers (Guey *et al.*, 2010, as cited in Li & Zheng, 2017; Amrai *et al.*, 2011; Mak (2021)) where it was claimed that there is a positive correlation between these two variables. As they had been performing their studies online for over two years due to Covid-19, the students were already equipped with their own ways for sustaining their motivation. Thus, motivation does have an impact on a student's success. Students who achieve high levels of academic performance are more motivated than their peers who showed a lower level of achievement.

### Gender Differences and Motivation

The different in motivation based on gender was measured using independent *t*-test. Null hypothesis was rejected as it was found that there was significant difference in motivation depending on gender, with female students being more motivated to study than male students. According to Ajlouni *et al.*, (2022), the significant difference in motivation between male and female students indicates that female students were more self-determined than men and tended to be more independent, as the findings also matched the results of the study. Another study by Fuertes, Blanco Fernandez, Garcia Maa, Rebaque Gomez and Pascual (2020) revealed that females outperform males in learning, intrinsic motivation, and group work, implying that females have stronger academic drive. Prior researchers found similar findings (Kenar *et al.*, 2016; D'Lima *et al.*, 2014, as mentioned in Mawson & Bodnar, 2021; Mawson & Bodnar, 2021). Despite the cultural perception that men are masculine and more assertive than women, Koyuncuoglu (2020) theorizes that the discrepancies may be caused by the academic and social expectations for males and females. Their motivation is shaped by this cultural norm since women are encouraged to pursue higher education while men are often required to learn how to support their family as they age. As a result, the data leads to a clearer understanding that female students were more motivated to continue their study during online learning compared to male students.

### **Place of Residence and Motivation**

The statistics show a significant difference in motivation depending on residential area, which is consistent with previous study findings (Singh & Singh, 2011). According to Hariyati *et al.* (2021), students who enrolled for online learning in urban areas were more motivated than students enrolled in rural areas. These data suggest that the locations of students' lives during online learning have an impact on their motivation to learn. It is critical for students to have the readiness and accessibility to technological devices to assist their learning process to sustain their motivation throughout online learning (Kadiresan, Sujin, Ab Rahim & Rasu, 2021). Frustration may arise among students if the learning sessions are frequently disrupted, making the session more challenging. (Selvanathan, Hussin & Azazi, 2020). Based on the most recent Gu's (2022) research, urban students have access to the internet and technology for online classes, but they want appealing academic content to increase their motivation in school. For rural areas, there are complications with internet connectivity and availability of digital equipment to connect to the internet for learning purposes. A strong internet access is required to connect and support the online lecture sessions, either in synchronous or asynchronous learning. It also affected the efficacy of the learning session, as well as students' attention and understanding throughout lessons. In research from Thandevaraj *et al.* (2021), it is advised that the government sector take effort in supporting students with poor internet access and lack of devices to make sure that students able to fully experience the online education environment. With increased infrastructure and internet network support, students should be more motivated to continue their education.

### **Academic Year and Motivation**

The last analysis discovered that academic year was not a significant predictor for students' academic motivation. It is found to be statistically insignificant in determining students' motivation to study. This demonstrates that academic year has no effect on the student's motivation in education during online learning. This might be related to the students' capacity to adjust to online learning, which they have had for over two years. This allows students to build their own rhythm in online education and keep their motivation based on their previous semester's experience.

## **CONCLUSION**

The study supports earlier studies that indicated a positive relationship between student motivation and academic achievement during the pandemic. It was shown that students' academic success increased along with their enthusiasm to study. Additionally, it was revealed that a person's motivation to continue their education might vary depending on their gender and area of residence. Males were shown to be less motivated than females. For online learning sessions, it was shown that students who resided in urban areas were more motivated than those who lived in rural areas. It is argued that since they have better access to technology for online learning, students in urban areas are more assured and passionate about their education. On the contrary, there is no significant difference in motivation by academic year. For future research, it is recommended that a larger-scale study be carried out, incorporating students from all the university's faculties as well as from nearby universities. Further study can investigate the additional factors affecting students' motivation or academic success, such as socioeconomic status, online learning technologies, the cost and dependability of the internet, relationships between both educators and students, and peer participation. Future research should examine this given that several learning frameworks were used throughout the online learning session A motivational research study may also focus on students who moved from online learning to traditional teaching-learning sessions during the endemic phase. This allows us to evaluate the students' motivation and performance during and after the pandemic.

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