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To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v12-i8/14536 DOI:10.6007/IJARBSS/v12-i8/14536

Received: *14* June 2022*,* ***Revised:*** *15* July 2022*,* ***Accepted:*** *29* July 2022

Published Online: *12* August 2022

In-Text Citation: (Rashid et al., 2022)

To Cite this Article: Rashid, N. F. W. A., Karim, B. A., & Othman, A. S. (2022). Students' Emotions towards Online Learning During The Covid-19 Pandemic: A Preliminary Study. *International Journal of Academic Research in Business and Social Sciences*, *12*(8), 418 – 430.

Vol. 12, No. 8, 2022, Pg. 418 – 430

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Students' Emotions towards Online Learning During The Covid-19 Pandemic: A Preliminary Study

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Abstract

The novel coronavirus disease (COVID-19) emerged in November 2019 and has since been declared as a pandemic by the World Health Organization. The pandemic initiated a new norm of living, pioneering various forms of communication by creating new teaching-learning activities and pathways particularly at higher education institutions (HEIs). Traditional learning methods have been replaced with online learning as a mean to reduce the spread of the pandemic in compliance to the social distancing requirements. It has forced many HEIs to adopt remote teaching and learning. Students and lecturers of Kolej Universiti Poly-Tech MARA (KUPTM) also had to immediately change from physical teaching and learning methods to online learning. The adaptability of the students to the new norm is an important concern to the management of KUPTM. As such, this study was conducted to investigate how undergraduate students cope with the new situation and seek to understand their emotions. The students' emotions towards the new learning method are evaluated using a 24-item questionnaire to measure enjoyment, pride, anxiety, anger, hopelessness, and boredom. Eighty two respondents who took mathematics and statistics courses during semester of April 2021 participated in the study. The descriptive and correlation analyses indicate that the respondents enjoyed and pride themselves in attending online class during pandemic. Interestingly, the research also proved respondents' have low scores on anger, hopelessness, and boredom during the class. Correlation analysis also found that pride, enjoyment, hopelessness, and anxiety have weak correlation with students' CGPA. Alternatively, household income and stability of the internet connection do not have significant correlation with students' emotions during online learning. This study concludes that students can adapt themselves to new norms in teaching and learning methods.

Keywords: Correlation, COVID-19, Pandemic, Emotions, Online Learning

Introduction

The coronavirus disease (COVID-19) outbreak has caused disruption in everyone's way of life since the end of 2019. The increased number of infected and fatal cases forced the sudden closure of all academic institutions. Policymakers decided to temporarily suspend the

activities in higher learning institutions (HEIs) as large gatherings posed a higher risk during this pandemic (Selvanathan et al., 2020). This disease has a significant impact on higher education and caused major changes that affected students due to the imposition of social distancing, quarantines, isolation measures, campus closure, border closures, and travel restrictions (Selvanathan et al., 2020).

Traditional learning methods have been replaced with various online learning methods through many platforms to limit social contact to reduce the spread of COVID-19. Universities were forced to adopt online teaching platforms, regardless of students' or teachers' degree of technical competency or readiness (Almusharraf & Khahro, 2020). This transition of learning method had affected students' performance and their emotions (de la Fuente et al., 2021).

After the announcement of Higher Education Ministry of Malaysia that all teaching and learning programs in universities should be conducted through online platforms from 1 April 2020 (Mokhtar, 2020), Kolej Universiti Poly-Tech MARA (KUPTM) immediately adapted the new learning and teaching method, whilst other administrative processes such as student registration became entirely online. This change has various effects on lecturers and students both in positive and negative ways. Most would find this new norm in teaching and learning has contributed to a major development in students' skills, especially in learning and the use of technology in academics. However, some drastic transitions would definitely have its own issues and challenges.

In this study, descriptive analysis and Spearman correlation coefficient was used to evaluate the students' emotions towards online learning method during the COVID-19 pandemic and to understand if there is a relationship between demographic characteristics and students' emotions on how students perceived online learning. The demographic characteristics that were taken into consideration are students' CGPA, household income, and internet connection stability. In addition, the students' emotions were measured based on the six dimensions: pride, enjoyment, hopelessness, anxiety, boredom, and anger. All data was obtained via online survey from students within the duration of one week.

Literature Review

Online Teaching

Teaching strategies have the utmost effect towards the learner's enthusiasm, knowledge, skills, abilities, and duration of their impact on the learner's mind (Elraiss, 2020). The COVID-19 pandemic has encouraged many countries to implement the online learning methods at all educational levels in accordance with the national health protocols. Anshari et al (2016) believed that online learning systems are highly popular and provide suitability for students who do not have a lot of flexibility in their daily routines. However, Anuwar (2004) stated that even though online learning has transitioned from traditional learning, Malaysians are still unfamiliar with the concept of online learning. Students enrolled in open and distance learning (ODL) programs in Malaysia have long been introduced to online learning, i.e. during the 1960s, those who were working and desirous to advance in their careers, would enrol in distance learning or external degrees programmes offered by the HEIs.

Online learning is focused on technical-based tuition and training, which immerses students in a virtual environment. Typically, there are two types of online learning: synchronous and asynchronous. Synchronous technology (e.g., audio conferencing, video conferencing, online chats, etc.) allows for "live" interaction between the teacher and the students, whereas asynchronous technology includes large time delays between instruction and its receipt such as E-mail, earlier video recording, discussion forums (Khalil et al., 2020). Online learning differs from traditional methods of learning as it allows individual learning from home rather than in groups or classes (Al-Rahmi et al., 2018). Due to the exponential expansion of the internet and information technology, online learning has experienced substantial transformation (Biasutti, 2017). As such, innovations in learning technology will continue to have a significant influence on methods of teaching and learning in the future years (Anshari et al., 2016). The use of technology in online learning is undeniable. Technologies have been widely used in online and blended learning and have the potential to improve the learning experience (Smart & Cappel, 2006).

According to Huang (2021), the Online Learning Model created by Anderson, which was developed from a constructivist approach and emphasises the relationship between student and teacher, and four different types of learning lenses, carries the potential components for successful online learning. The four overlapping lenses—learner, knowledge, evaluation, and community—that go into interactive online learning are highlighted in this paradigm (see Figure 1). The foundation of the online learning process is the interaction typologies, such as student-student, student-teacher, student-content, teacher-content, and teacher-teacher interactions.

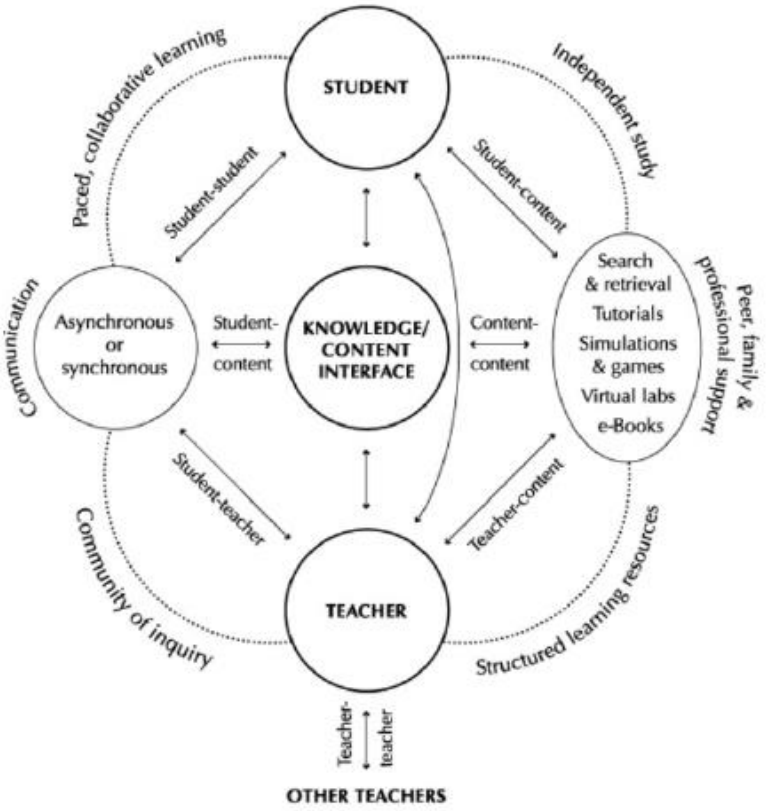

Figure 1: Anderson's Online Learning Model (Adopted from Huang, 2021)

Studies have exposed various findings in relation to the quality of interaction for online classes comparing to physical classes. According to Horspool and Lange (2012), students experience high-quality communications with the instructor where they are encouraged to attend the online course to suit their scheduling, task, and commuting requirements. Nonetheless, there are also other studies that produced contradictory outcomes. Platt et al (2014) indicated that online courses provide fewer possibilities for interaction than face-to-face classes and uncertainty about the evaluation of certain tasks. Time consumption and communication problems were the main dissatisfactions for students in implementing online learning (Waldman et al., 2009). In addition, studies showed that students experienced difficulty in engagement with both instructors and peers during online course requirements (Horspool & Lange, 2012; Waldman et al., 2009).

However, the authors believe that there are many benefits that can be derived from online learning as there are numerous research and studies conducted to find out about the advantages of using online learning. Learners can access the content of the subject whenever they want and study anywhere they want (Anuwar, 2004). They can use various operating systems such as window-based, Mac-based, or UNIX-based computer to access the information. It is relatively affordable to disseminate e-content both domestically and internationally once it has been generated and uploaded to the server. This allows the content of the lesson to be sent or delivered easily, regular material updates, as well as rapid access to all learners. Online learning encourages collaboration, which leads to more interesting and richer learning experiences. With little effort, content can be given to a small or large group of learners. D'Errico et al (2016) revealed that students' good emotions are higher than negative emotions across various online learning activities, particularly during synchronous activities involving an instructor and peers. The research also discovered that pleasant emotions experienced during exam preparation are highly linked to students' motivation, which supports their learning process and outcome.

As discussed earlier, there are also challenges and issues when implementing online learning. The difficulties faced by the learners and lecturers in online learning include lack of contents, insufficient infrastructures, and the digital divide. A diverse mix of multimedia components is required for engaging content. However, there are also issues regarding the bandwith and internet limits that lead to delayed responses and other technical complications. These issues caused learners to get frustrated and bored, thus impacting their ability to learn (Anuwar, 2004). One of the most important aspects in assessing the success of an online learning programme is active learner engagement. Online learning necessitates a high level of self-motivation, which many researchers discovered to be lacking among undergraduates. In addition, learners also might have a hard time transitioning from traditional learning to the new online learning paradigm.

Emotions

Emotions are another critical aspect to consider when comprehending students' learning and achievement. Students' emotional engagement is connected to students' learning and academic accomplishment, along with factors like motivation, personal interest, and student-lecturer communication (Bhansali et al., 2020). In this current study, the Achievement Emotions Questionnaire (AEQ) was used to measure students' performances. University students are characteristically susceptible to developing stress disorder and

depression and the possibilities of such implications are expected to grow in the times of COVID-19 quarantine due to the psychologically challenged conditions that they are faced with every day (Fawaz & Samaha, 2020). According to Pekrun et al (2011), AEQ was designed to measure nine different emotions occurring in three different academic achievement settings. The finding confirmed that these emotions have a significant relationship to students' learning and performance. This finding also supported by Rosas (2015) stated that these nine emotions scales were reliable, internally valid, and externally valid in terms of relationship with social academic self-efficacy, achievement goal, and student performance. Based on Peixoto et al (2015), AEQ was conducted to preadolescents' class and test-related emotions toward mathematics courses. The results stated high reliability and internal validity of the AEQ. It also revealed a similar finding in a study by Pekrun et al (2011) where there is a positive relationship between emotions of the same valence and a negative relationship between emotions of different valence.

Methodology

Sample

In this research, a sample of 82 students from Kolej Universiti Poly-Tech MARA (KUPTM) who took mathematics and statistics courses for Semester April 2021 was selected. Students enrolled for this study were from three different faculties named Faculty of Computing and Multimedia, Faculty of Business and Social Sciences, and Faculty of Education, Humanities and Arts. The survey was conducted via an online platform using Google Forms. All of these students are currently attending online learning classes due to the Movement Control Order (MCO) implemented nationwide.

Data Collection

The AEQ instrument (Peixoto et al., 2015) which comprises 24 items to represent 6 emotions used in this study. The emotions were divided into two groups, namely positive and negative emotions. Positive emotions included enjoyment and pride; while the negative ones were boredom, anger, hopelessness, and anxiety as shown in Table 1.

Table 1
Positive and Negative Emotion

Positive Emotion	**Negative Emotion**
Enjoyment	Boredom
Pride	Anger
	Hopelessness
	Anxiety

This survey focused on class-related emotions during mathematics and statistics course. All items are arranged in order and distributed to respondents based on three phases: pre-class (before), during class and post-class (after). A clarification briefing was given before answering the survey to ensure all items were understood. Students rated their emotional experience on a ten-point Likert scale from (1) strongly disagree to (10) strongly agree. There is a variant of a 5-point scale in which neighbouring alternatives diverge from one another less drastically or more gradually than on a 5-point scale. This wider range of options gives participants greater freedom to select the precise option (Joshi et al., 2015). Based on research by Awang

et al (2016), the Likert scale's 10 points makes for a promising scale when used with related parametric. The questionnaire also contains demographic items, such as gender, cumulative grade point average (CGPA), household monthly income, a device used for an online class, data/ internet plan, internet connection stability, and academic programs as shown in Table 2 below. The collected data were then analysed using descriptive statistics in Excel and Statistical Package for the Social Science (SPSS). The next section will discuss the finding of data analysis.

Table 2
Frequency and Percentages of Demographic Characteristics

Demographics		Frequency	Percentages, %
Gender	Male	38	46.3
	Female	44	53.7
CGPA	0.00 – 1.99	1	1.2
	2.20 – 2.99	4	4.9
	3.00 – 3.66	36	43.9
	3.67 – 4.00	41	50.0
Household monthly income	RM2000 and below	37	45.1
	RM2001 – RM4000	21	25.6
	RM4001 – RM6000	7	8.5
	RM6001 – RM8000	7	8.5
	RM8001 – RM10000	6	7.3
	RM10001 and above	4	4.9
Device used	Desktop	8	9.8
	Laptop	65	79.3
	Smartphone	9	11.0
Data/ Internet plan	Home plan	35	42.7
	Mobile data	42	51.2
	Others	5	6.1
Internet connection stability (1 – Least stable, 5 – most stable)	1	2	2.4
	2	12	14.6
	3	36	43.9
	4	28	34.1
	5	4	4.9
Academic program	AA102	4	4.9
	AA201	43	52.4
	AB201	2	2.4
	AB202	1	1.2
	AC201	5	6.1
	CC101	27	32.9

Result and Findings

Descriptive Analysis

Figure 2 presents descriptive statistics on the respondents' emotions toward online learning during the COVID-19 pandemic. The findings revealed that the overall mean score of student emotions in online learning during the pandemic was 4.80. The study found that the mean score for positive emotion is high (m = 7.59) while the mean score for negative emotion

is low (m = 3.42). The highest score for positive emotions was enjoyment (m = 7.65, SD = 1.59), followed by pride emotion (m = 7.52, SD = 1.64). This outcome demonstrates that students generally enjoy online class and take pride in attending the online mathematics and statistics class during the COVID-19 pandemic. This signifies that the respondents are motivated to join the mathematics and statistics online class, enjoy and are glad listening to the lecturers during online classes. They also take pride in being able to keep up with the mathematics and statistics class and with the contributions they have made in the online class.

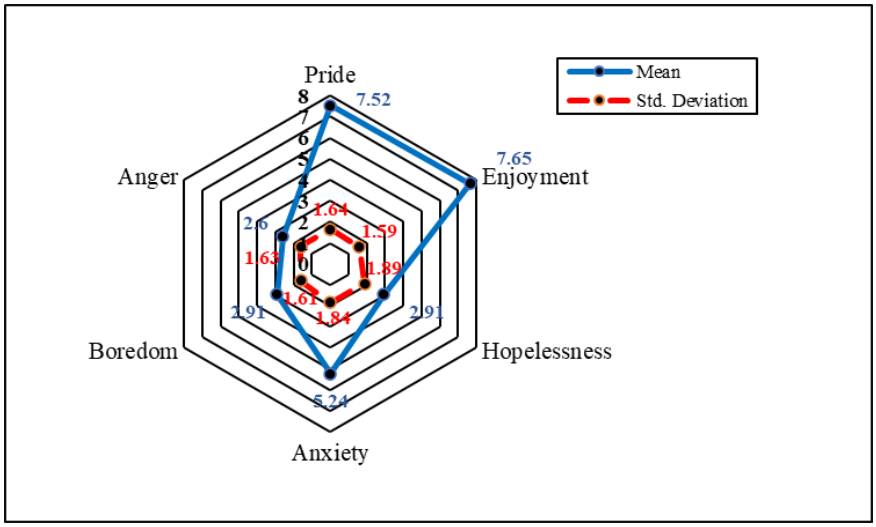

Figure 2: Mean Score and Standard Deviation of Students' Emotions Towards Online Learning

Additionally, there are three negative emotions that indicate low mean score where the lowest mean score was on anger (m = 2.6, SD = 1.63), followed by hopelessness (m = 2.91, SD = 1.89) and boredom (m = 2.91, SD = 1.61). It seemed that most of the respondents tend to disagree that they are feeling angry, hopeless, and bored during online learning. Despite the result on the three negative emotions mention above, respondents result on anxiety emotion showed otherwise (m = 5.24, SD = 1.84). Students seem to agree that they have anxiety. This is probably because of the things they might be asked to do during mathematics and statistics class or are scared to state something wrong. Similarly, Patricia Aguilera-Hermida (2020) also has found the existence of anxiety among students during online learning due to COVID-19. High anxiety can withstand motivation and have a negative impact on the implementation of online learning (Patricia Aguilera-Hermida, 2020).

Furthermore, Figure 3 depicts the minimum and maximum response of students' emotions toward online learning during the COVID-19 pandemic. The minimum response for pride and enjoyment is 4 which shows that students slightly disagree that they have pride and enjoy attending mathematics and statistics class while the maximum response is 10, indicating that they strongly agreed that they enjoy and have pride in attending online classes. While the minimum response for hopelessness, anxiety, boredom, and anger emotion is 1 which shows that there are students who strongly do not agree that they are hopelessness, anxiety, boredom, and anger on attending the online class. While the maximum response is 10 which indicates that there are students who strongly agree that they have hopelessness, anxiety, boredom, and anger attending the online class. Based on these findings, it can be assumed that most students have positive emotions towards online learning during the COVID-19 pandemic but there were also a number of students who have negative emotions.

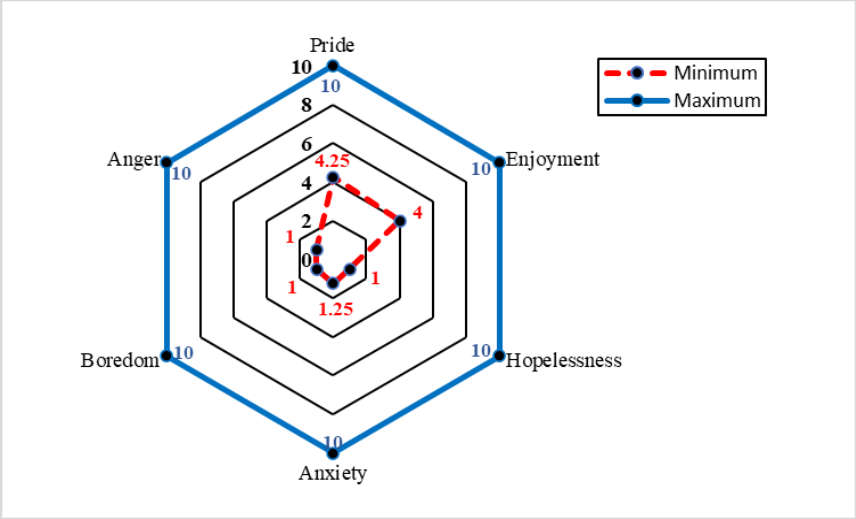

Figure 3: Minimum and The Maximum Response of Students' Emotions Toward Online Learning

Normality Test

In order to determine the appropriate correlation test, a data normality test must be performed first. The normality test for the six students' emotions toward online learning which are boredom, hopelessness, anger, anxiety, enjoyment, and pride were used by Kolmogorov Smirnov as these are multi-item dimensions. However, three variables of the demographic characteristics namely CGPA, internet connection stability, household monthly income are single item dimensions and are ordinal data.

Table 3
Test of Normality

Dimensions	Kolmogorov-Smirnov[a]		
	Statistic	df.	Sig.
Boredom	.129	82	.002
Hopelessness	.157	82	.000
Anger	.163	82	.000
Enjoyment	.120	82	.005
Pride	.094	82	.073
Anxiety	.083	82	.200*

Based on the Kolmogorov-Smirnov in the Table 3, the significance value for the pride and anxiety is greater than 0.05 indicating normality of their distribution. However, the other four dimensions are not normally distributed. Therefore, all six dimensions were transformed to ordinal measure to facilitate the application of the Spearman Correlation (Girlani, Roswiyani & Satyadi, 2022) as the other three demographic variables are ordinal data as well.

Correlation Analysis

According to Ismail et al (2013) correlation analysis is used to determine the strength and direction of a linear relationship between two variables. The correlation coefficients are scaled from –1 to +1, with 0 indicating that there is no linear or monotonic relationship. If the correlation coefficient approaches the value of 1, it indicates the relationship gets stronger and ultimately approaches a constantly increasing or decreasing curve in Spearman correlation coefficient (Schober et al., 2018).

Table 4 illustrates the correlation analysis and significant values (p) between students' emotion and selected ordinal data demographic characteristics which consist of CGPA, household monthly income, and internet connection stability.

Table 4
Correlation Analysis Between Students' Emotion and Demographics Characteristics

Emotions	CGPA	Household income	Internet connection stability
Pride	**.269***	-0.046	0.134
Enjoyment	**.264***	-0.001	0.203
Hopelessness	***-.335****	0.066	-0.077
Anxiety	***-.221****	0.157	0.141
Boredom	-0.181	0.095	0.066
Anger	-0.172	0.067	0.019

*p< .05; **p< .01

Only four pairs of variables correlated significantly with each other in this table (bold values indicate a positive correlation and bold italic values indicate a negative correlation). The correlation coefficient for pride and enjoyment of emotion towards CGPA is r_{pride}=0.269 and $r_{enjoyment}$=0.264 respectively. This indicates that pride and enjoyment emotions during online classes have a weak positive correlation with CGPA. In other words, if students feel enjoyable and proud when joining online classes, their CGPA tends to increase. Similarly, Villavicencio & Bernardo (2013) found that enjoyment and pride both have a positive relationship with academic achievement. Both positive emotions were associated with gains in academic achievement and as a function of an increase in self-regulation (Villavicencio & Bernardo, 2013). While CGPA shows a weak negative correlation with the hopelessness with $r_{hopelessness}$=-0.335 and anxiety with $r_{anxiety}$= -0.221. This shows that, if student has high feelings of hopelessness and anxiety, their CGPA tends to decrease. The same results were found by (Buric & Soric, 2012; Patricia Aguilera-Hermida, 2020). Students who feel hopeless, frustrated, and lack confidence in their abilities will make their academic performance worse (Buric & Soric, 2012). While Patricia Aguilera-Hermida (2020) found that anxiety that is too high can withstand motivation and have a negative impact on academic performance. Emotions of boredom and anger showed no significant relationship with CGPA. The other demographics characteristics which are household income and internet connection stability, showed no significant relationship with students' emotions toward online learning during the COVID-19 pandemic.

Conclusion

This study explored the student's emotions towards online learning during COVID-19 pandemic. Descriptive analysis showed that the students enjoy and having pride in themselves for attending the mathematics and statistics online class during pandemics. The study also showed that students disagreed that they have had angry emotions, hopelessness, and boredom during online classes. However, there still exists a feeling of anxiety when attending online classes. This is probably because of worriedness about the difficulties that may be encountered if they were asked to do difficult things during class mathematics and statistics or afraid of saying something wrong. However, it can be concluded that students can adapt themselves to new norms in teaching and learning methods. Based on the results of the correlation analysis, the study found that there were four emotions experienced by

students during online learning are pride, enjoyment, hopelessness, and anxiety that have a weak correlation with students' CGPA. While emotion boredom and anger have no significant relationship with the CGPA. Household income and internet connection stability also are found to have no significant relationship with students' emotions towards online learning during the COVID-19 pandemic. Thus, it can be concluded that there are other variables that determine students' CGPA other than students' emotions. While household income and internet connection stability did not affect students' emotions towards online learning during the covid-19 pandemic. Therefore, the authors suggest further research on this area would consider other demographic characteristics to study the correlation with students' emotions. In addition, it is also recommended to include qualitative method interviews such as interview and observation for better understanding of the phenomenon.

Acknowledgements

We are grateful to the Faculty of Computing and Multimedia, Kolej Universiti Poly-Tech MARA (KUPTM) for supporting us in conducting this study and to the students who are willing to become respondents in this research activity. Special thanks to KUPTM for the financial support. We are also very grateful and would like to thank the reviewers for their valuable ideas, which have led to a great improvement of the article.

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