

Perception of Undergraduate Students Toward Mode of Learning in Higher Education Institution: The Impact of COVID-19

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Abstract

Hybrid mode of learning is an education method that combines online learning and traditional learning (face to face). In semester A212, Universiti Utara Malaysia (UUM) was conducted hybrid mode of learning in delivering classes. This selection of method has raised different opinions from the students. Therefore, this study examines the UUM undergraduate students perception towards mode of learning in the university. Convenience sampling method was used to collect the data. While frequency analysis and simple logistic regression analysis were adopted as statistical methods in analysing the data. Whereas R programming, Statistical Package for Social Science (SPSS) and Excel software was used as data analysis tools. Two hundred sixty-eight (268) UUM undergraduate students were chosen as respondents in this study. They were given a set of question regarding the mode of learning. Student's academics in the form of Cumulative Grade Point Average (CGPA), their major reasons to support and against hybrid mode of learning, student's preference of study environment, and their total daily hours spending on their study during hybrid mode of learning are investigated to determine the relationship between the mode of learning and respondents CGPA. The result indicates that the major reason that students supported hybrid mode learning is because this mode of learning helps in a way of reducing the internet connection problem. This is because the university took seriously in making sure that the internet facilities is at the best condition. Overall, students have a preference for hybrid mode learning and there is no relationship between total daily hours that they spent on study during hybrid mode learning towards their CGPA.

Keywords: *Hybrid Mode Learning, Academic Performances, University*

INTRODUCTION

Universiti Utara Malaysia (UUM) had conducted the hybrid mode of learning in semester A212. During the implementation, there are 720 slots that has been conducted face-to-face while the remaining 1407 slots were conducted through online. In order to implement this hybrid mode of learning, students were instructed to return to the campus. This announcement has raised different opinions from the students. Most of the students had voice out their opinions in the most popular and active Facebook group in UUM namely N.E.W.S.E.E.D. This group includes all the UUM students, staffs, and management team. From the students feedback, some of them voices their opinion which is against the hybrid mode of learning since they afraid that the face-to-face classes would increase the risk of Covid-19 diseases. Although at that period of time, the Covid-19 cases in Malaysia are in control, but they thought that it is not reasonable for UUM to make it compulsory for the students to return to campus. However, there were also students that agreed with the action taken by UUM management team. They believe that the hybrid mode of learning will allow students to have a flexible study hour and at the same time

maximizes the chances of recovering into the situation before the pandemic.

The Covid-19 pandemic has resulted in the change of learning mode for university students. This action was taken as a method to reduce the risk of getting infection among students in the university. In the beginning of the pandemic, remote learning was implemented. After two years and one months, there was announcement by UUM to conduct the hybrid mode of learning and the management of the university make it compulsory for the students to return to the campus. During the implementation period, there are voices from the students regarding hybrid mode of learning. Therefore, this research is aimed to study the perception of UUM undergraduate students toward mode of learning.

LITERATURE REVIEW

Covid-19 pandemic has thrown a wrench in the world's normal functioning, including in learning and education. This had brought a huge impacts towards the education system. For example, there are many universities implemented the emergency online learning mode to reduce the risk of getting Covid-19. Therefore, students was required to accept the new trend in learning which is online learning and at the same time enhance the technology used. However, a lot of problems arise due to the implementation of online learning such as the internet connection problem, lacked of two-way communication, and difficulties in adopting to new teaching method. Thus, the study on students' perception and satisfaction toward the mode of learning is vital for better understanding from students point of view.

1. Students Satisfaction toward Online Learning and Physical Learning

According to the research by Hasnan Baber (2020), 100 undergraduate students from different universities who taking online courses during pandemic in South Korea and India were selected as respondents and data was collected through research instrument that conducted in English language. The study shows that classroom interaction, student motivation, course structure, teacher knowledge, and facilities have a beneficial impact on students' satisfaction and perceived learning outcome. They also found that there was also no significant difference between students' perceived learning outcome and student's satisfaction towards online learning.

During the Covid-19 pandemic, universities started to change from physical learning to online learning. However, there are many factors that affect the students' satisfaction and perceived effectiveness when introducing the hybrid mode learning (combination of physical learning and online learning) such as previous learning experience, personal preferences, and teacher variables. Chang Zhu (2017) findings shows that the background and situation of students, perceived the effectiveness of hybrid mode of learning. Part-time and international students are more preferred and have high satisfaction in this hybrid mode of learning. Besides, the competency, support from teacher is the most important factor of students' satisfaction with the hybrid mode of learning.

From the research by Patricia (2020), students' attitude, motivation, self-efficacy, and technology use have influences on the students' academic performances. The motivation and self-efficacy decrease when emergency online learning conducted during Covid-19 pandemic, but the technology use increases. There are also respondents who preferred physical learning rather than online learning. This is because physical learning had the overall study environment such as libraries, learning centres and others.

2. Study Environment Between Physical Learning and Online Learning

Research by Deepika Nambiar (2020) stated that, there were major differences in study environment between physical learning and online learning in India during Covid-19. The sample included 70 teachers and 407 students from Bangalore's colleges and universities. Online survey was used for purpose of data collection. From their findings, the comfort level of teachers and students with online class design, structure, level of student-faculty interaction, quality and quantity of class content, technical support, and overall experience with online class delivery all have an impact on the overall teaching and learning experience and determine the online mode of education's ultimate success or failure.

There are the differences in study environment between physical learning and online learning. One of major difference is social presence, academic self-concept, and students' attitudes toward learning process. The social presence of students when physical learning is significantly higher than online learning. However, there are no significant difference in students' academic self-concept. Therefore, students will require more social interactions and chances to present idea during online learning compared to physical learning (Zehui Zhan & Hu Mei, 2013).

3. How Online Learning Affected Students' Academic Performance

In the study by Alex and Patriann in 2016, 149 respondents at a major university in the South-eastern United States were collected as datasets. Data was collected via online survey with distributing the questionnaire through email to the students. Analysis of Variance (ANOVA) and Chi-Square test were used in investigated between the online learning mode and students' academic performances. The result show that there was no relationship between the satisfaction towards online learning and students' academic performances. However, there was a relationship between the technology use, the number of online course taken, the program of study and students' academic performances.

METHODOLOGY

This section discusses the data collection procedure. The instrument for data collection is questionnaire. The sampling technique used is convenience sampling and uses the Cochran formula to calculate the sample size. The population in the study is all A212 UUM undergraduate students. Frequency analysis will be used as statistical method. For example, Pareto charts and bar charts will be used to identify the major reason and student's preference of study environment while boxplots in measure students' academic performance (CGPA). Moreover, simple logistic regression analysis will be used to investigate whether the total daily hours spent on study during hybrid mode learning can affect UUM undergraduate students' CGPA. R programming software, Statistical Package for Social Science (SPSS) and Excel software will be the statistical tools used in data analysis in the study.

1. Data Collection

Primary data will be used and collected through an online platform. The respondents are semester A212 UUM undergraduate students. Online survey was done by distributing questionnaires via google form and shared between UUM undergraduate students. The questionnaire using 5-points scale, close-ended and open-ended questions. The 5-point scale is in the arrangement of agreement from (1) Strongly disagree to (5) Strongly agree. There are four sections in the questionnaire which are respondent's demographic, student's preference of study environment, perception of UUM undergraduate students toward mode of study and academic performance. The purpose and process of online survey will be explained to the respondents, along with the instructions of filling questionnaire and the confidentiality and anonymity of the data gathered. Besides that, the questionnaire will keep short and simple. This will allow participants to answer it within five minutes and be able to get the response at a higher rate.

2. Sample Size and Sampling Method

To calculate ideal sample size, the determination of margin error and confidence interval are required. The margin of error, e tells us how many percentage points will result from the population's actual value. It is also the amount of error that we can tolerate. The confidence interval measures how definite or uncertain a sampling technique is. The range of numbers that are fairly confident to where the real value falls is known as the confidence interval. Therefore, the e is 5% is assumed while the confidence interval is 95%. After that, the assumption of the proportion, p is 0.5 which indicates that 50% of UUM undergraduate students are taking fully online classes, while the population of UUM undergraduate students, N is 22932 (Universiti Utara Malaysia (UUM) - Malaysia Students Web, 2022). Thus, the sample size is calculated by using Cochran formula with finite population correction (Stephanie Glen, 2021) as follows:

$$n = \frac{z^2 \times \frac{p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)}$$

$$n = \frac{1.6449^2 \times \frac{0.5(1-0.5)}{0.05^2}}{1 + \left(\frac{1.6449^2 \times 0.5(1-0.5)}{0.05^2 (22932)} \right)}$$

$$n = \frac{270.5696}{1.0118}$$

$$n \approx 267.4144 = 268$$

In this study, two hundred sixty-eight ($n=268$) samples who fill in the questionnaire will be selected and used as sources of data in the research.

3. Method of Data Analysis

In this study, a few tests will be used in analyzing the data that have been obtained from this research. In the beginning, pilot test analysis has been done to check the reliability and validity of the questionnaire. After all variables are reliable, descriptive analysis has been conducted in which to show the frequency and percentages on respondents' demographic characteristic. After that, logistics regression analysis was used to analyse the relationship.

4. Frequency Analysis

In order to measure the major reason and student's preference of their study environment, frequency analysis was adopted. The major reason of UUM undergraduate students supporting and against the learning mode will be presented clearly by Pareto charts whereas the student's preference of study environment will be showed by bar charts. In addition, boxplots will provide visual summary of students' academic performance in CGPA form.

5. Logistics Regression Analysis

For statistical models, simple logistic regression analysis was used to examine the relationship of one dependent variable (nominal variable with only two categories or levels) with one independent variable (categorical or continuous). In this study, the dependent variable will be the students' CGPA which was divided into two categories (i) 3.50 and above and (ii) below 3.50. The continuous independent variable is the students' total daily hours spent on their study during the implementation of hybrid mode of learning. Logistic regression analysis was conducted to determine whether the total daily hours spent on study during hybrid mode learning has effect on UUM undergraduate students' CGPA. Before conducting the logistics regression analysis, there are assumptions that need to be checked for model adequacy. Assumptions of logistics regression are:

- i. all populations involved follow a normal distribution.
- ii. all populations have the same variance (homoscedasticity).
- iii. the samples are randomly selected and independent of each other.

RESULTS AND DISCUSSION

Major reason for the students to supports or against hybrid mode of learning are displayed clearly by Pareto charts. Besides, bar charts are also presented to investigate the student's preference of their study environment. Before analysing the data using logistics regression analysis, the model adequacy checking has been done. Logistics regression analysis will be used in analysing the relationship between total daily hours spent on study during hybrid mode learning and their CGPA.

1. Reliability Test

Cronbach's Alpha test was conducted by using SPSS software to test the reliability of the questionnaire.

A Cronbach's Alpha value that higher than 0.7 indicate that the data is reliable (George & Mallery, 2003). Table 1 have shown the result of reliability statistics of the questionnaire. The result indicate that is a good result for the questionnaire design because the Cronbach Alpha is 0.819 that higher than 0.7. Therefore, the questionnaire is reliable. Table 2 shows the reliability test of the study. From the table above, all the factor is reliable with Cronbach's Alpha value above than 0.7. This indicate that all variables are reliable.

Table 1 Reliability statistics after pilot test

Variable	Cronbach's Alpha	Number of Items
All Variables	0.931	16
Study Environment	0.948	6
Hybrid Learning	0.970	8

Table 2 Reliability statistics after data collection

Variable	Cronbach's Alpha	Number of Items
All Variables	0.823	16
Study Environment	0.875	6
Hybrid Learning	0.905	8

2. Descriptive Analysis

a. Demographic Profile

From descriptive analysis, it is found that this study involve more females (112 - 41.8%) respondents as compared to male respondents. There are 12.3% of the respondents from School Quantitative Sciences (SQS), followed by School of Business Management (SBM) and School of Economics, Finance and Banking (SEFB), which is about 11.6%. The remaining respondents are from other faculty. Most of the respondents are currently studying in semester 5, 6, 7 and above (32.1%), followed by 31% in semester 3-4 and 4.9% in semester 1-2. There are 32.5% of the respondents who have experience with online learning since semester A201 and followed by 31.7% since semester A192. The remaining respondents have the experience of online learning since semester A211, A202, and A212 respectively.

According to Figure 1, the respondents' CGPA in semester A212 is in the range of 2.96 and 4.00. This figure shows that the lowest CGPA by the respondent is 2.96 and the highest is 4.00. Most of the students have their CGPA around 3.51 which is in second upper class. This is because of the implementation of hybrid mode of learning in semester A212 which is the combination of online learning and physical learning. Students have to adapt in this new study environment. For examples, change in course structure such as physical quizzes and final examinations.

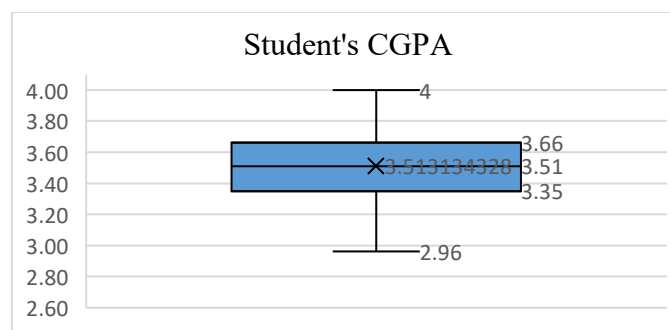


Figure 1 Students' CGPA in semester A212 in boxplots form

b. Major Reason to Support and Against Hybrid Mode Learning

From the Figure 2, the major reason respondents supporting the hybrid mode of learning is while implementing this mode, it helps in reducing the internet problem (33.2%). There are 31.0% of the respondents suggested that time flexibility is the reason why they supported hybrid mode of learning. Following that, communication with students and lecturers (26.5%) and more learning materials (9.3%) during hybrid mode learning are also the reason in supporting hybrid mode learning by the respondents.

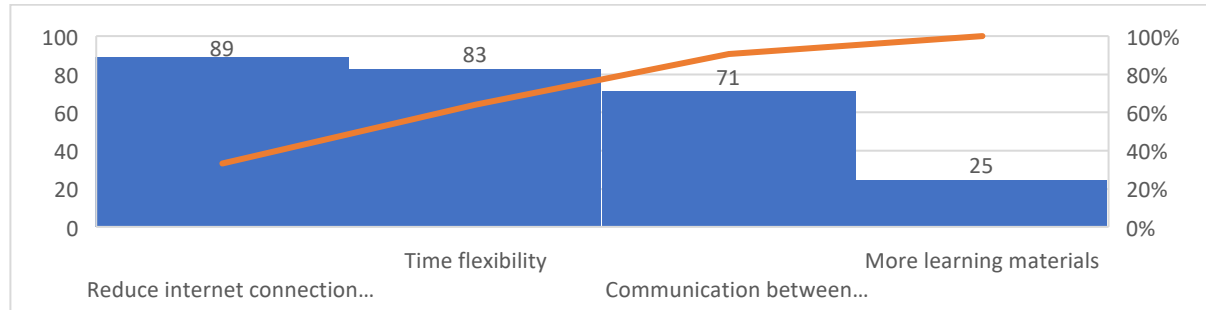


Figure 2 Reason support hybrid mode learning

Figure 3 shows that there are 37.3% respondents think that school facilities are the major reason they against hybrid mode of learning. For examples, lack of places or full of people in student lounge when they wanted to attend online classes. The second reason against the hybrid mode of learning is the gap between class hours (25.0%). Technological infrastructure (19.0%) likes the use of computer software is become harder when hybrid mode learning conducted. This is due to there are no recording video about lesson. The last reason is the course structure (18.7%). This is because of the combination of physical and online learning.

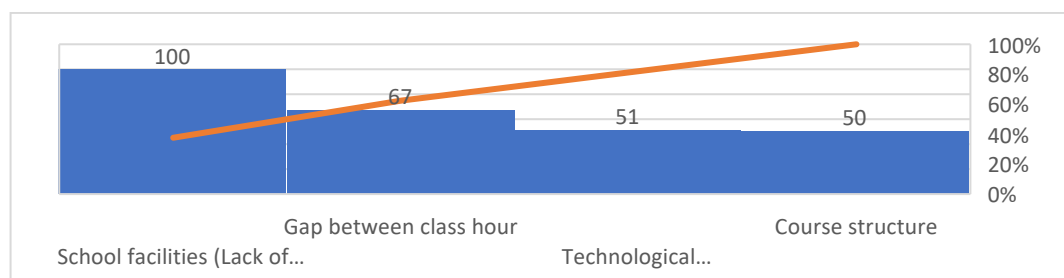


Figure 3 Reason against hybrid mode learning

c. Student's Preference of Study Environment

Figure 4 illustrates the opinion of respondents on their preference study environment towards online learning which provides comfortable and quiet study environment than physical learning. There are 106 respondents (39.6%) who has neutral opinion with comfortable and quiet study environment provided, followed by 75 respondents (28.0%) who agree, 40 respondents (14.9%) who disagree and 38 respondents (14.9%) who strongly agree about it. There are only 9 respondents (3.4%) who strongly disagree about the statement. Figure 5 portrays the opinion of respondents on their preference of study environment towards online learning practices better time management among students than physical learning. 98 respondents (39.6%) chose neutral answer with better time management is practiced during online learning, while 80 respondents (29.9%) agree with it. 49 respondents (18.3%) disagreed and 34 respondents (12.7%) strongly agreed about it. There are only 7 respondents (2.6%) who are strongly disagree about the statement.

Figure 6 shows the opinion of respondents on their preference study environment towards online learning which provides more flexibility and self-paced learning than physical learning. From this figure, 92 respondents (34.3%) agree with the statement, followed by 84 respondents (31.3%) having neutral opinion which is neither disagree nor agree and 51 respondents (19.0%) who strongly

agree. There are 32 respondents (11.9%) who disagree and 9 respondents (3.4%) who strongly disagree with it.

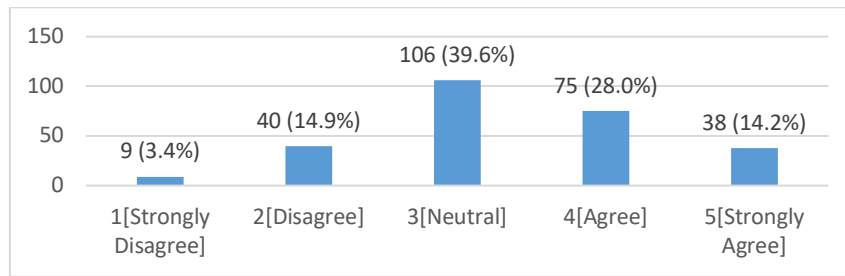


Figure 4 Online learning provides comfortable and quiet study environment than physical learning

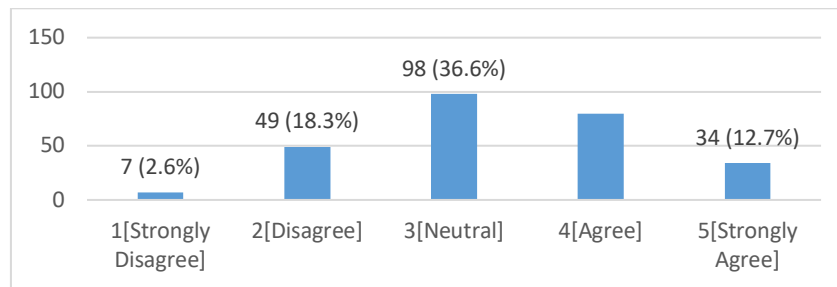


Figure 5 Online learning practices better time management among students than physical learning

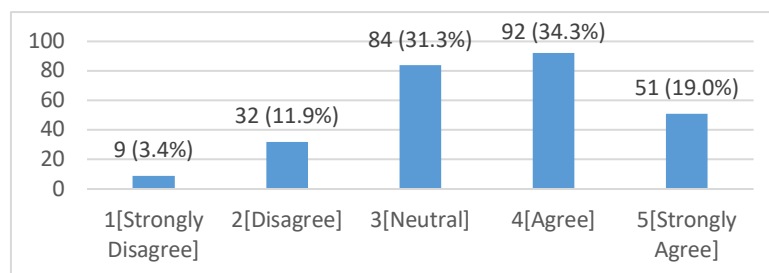


Figure 6 Online learning provides more flexibility and self-paced learning than physical learning

Respondents' opinion (Figure 7) on their preference study environment towards learning and knowledge transfer happens more for online learning. Based on Figure 4.7, 100 respondents (37.3%) who stand for neutral, followed by 80 respondents (29.9%) agree and 55 respondents (20.5%) who disagree with the statement. There are 24 respondents (9.0%) who strongly agree and 9 respondents (3.4%) who strongly disagree with learning and knowledge transfer happens more in online learning. Figure 8 represents the respondents' opinion regarding their preference study environment towards online learning is less structured than physical learning. There are 94 respondents (35.1%) and 93 respondents who stand for neutral and agree, followed by 45 respondents (16.8%) strongly agree with the statement. 33 respondents (12.3%) who disagree and only 3 respondents (1.1%) who strongly disagree with online learning is less structured than physical learning.

Figure 9 illustrates the respondents' preference on study environment towards learning and knowledge transfer happens more in online learning. 94 out of 268 respondents (35.1%) stand for neutral, followed by 62 respondents (23.1%) agree and 59 respondents (22.0%) disagree with it. There are 30 respondents (11.2%) who strongly agree and 23 respondents (8.6%) who strongly disagree with the statement.

Overall, most of the respondents are having neutral opinion regarding their study environment. They are neither disagree nor agree with the study environment whether online or physical learning.

The remaining respondents preferred the online learning study environment. They are agreeing that online learning have provided comfortable and quiet environment than physical learning. Besides, online learning practice better time management and enhances social skills among students as compared to physical learning. Learning and knowledge transfer also happens to be more in online learning. However, most of the respondents agree that online learning is less structured than physical learning due to online learning is only based on internet.

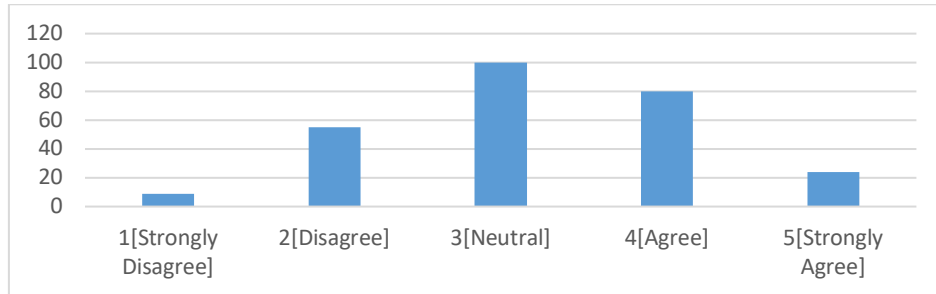


Figure 7 Learning and knowledge transfer happens more in online learning

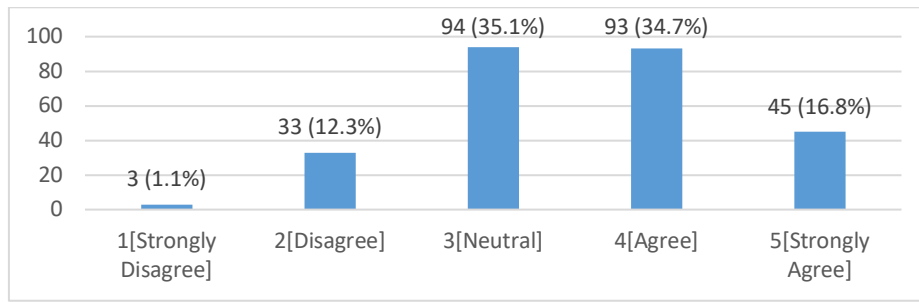


Figure 8 Online learning is less structured than physical learning

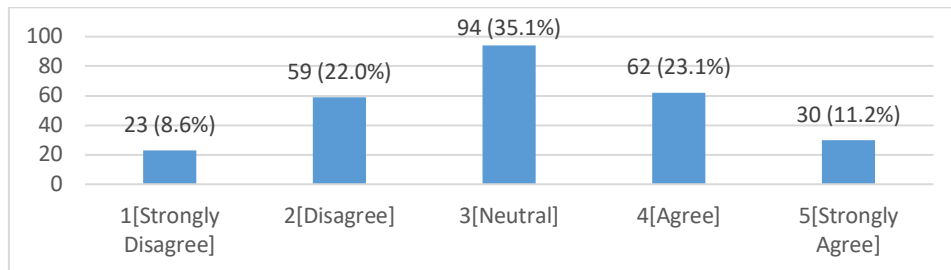


Figure 9 Learning and knowledge transfer happens more in online learning

3. Logistic Regression Analysis

a. Model Adequacy Checking

Normality

H_0 : The data is normally distributed.

H_1 : The data is not normally distributed.

$\alpha = 0.05$

Based on the output in Table 3, p - value (Sig. .200) $> \alpha = 0.05$. Hence, failed to reject H_0 which indicates this data is normally distributed.

Table 3 Descriptive of normality test

			Statistic	Std. Error		
Current CGPA	Mean		3.5131	.01391		
	95% Confidence Interval for Mean	Lower Bound	3.4857			
		Upper Bound	3.5405			
	5% Trimmed Mean		3.5138			
	Median		3.5100			
	Variance		.052			
	Std. Deviation		.22779			
	Minimum		2.96			
	Maximum		4.00			
	Range		1.04			
	Interquartile Range		.31			
	Skewness		-.008	.149		
	Kurtosis		-.576	.297		
Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Current CGPA	.039	268	.200*	.989	268	.045

*This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Equal Variance (Homoscedasticity) Test

H_0 : The data have equal variance.

H_1 : The data do not have equal variance.

$\alpha = 0.05$

From the output in Table 4, p -value (Sig. .610) $> \alpha = 0.05$, failed to reject H_0 which represents that the variances are homogeny.

Table 4 Results for homogeneity test

		Levene Statistic	df1	df2	Sig.
Current CGPA	Based on Mean	.718	5	262	.610
	Based on Median	.382	5	262	.861
	Based on Median and with adjusted df	.382	5	234.926	.861
	Based on trimmed mean	.699	5	262	.624

Independence Test

H_0 : The relationship between the data is independent.

H_1 : The relationship between the data is not independent.

$\alpha = 0.05$

Referring to the output in Table 5, Durbin Watson = 2.093 which is in the range 1.5 - 2.5 and this indicates that the residuals are independent of each other.

Table 5 Descriptive of independence test

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.086 ^a	.007	.004	.22738	2.093

a. Predictors: (Constant), Average hour(s) spend on study and doing assessment PER DAY apart from lecture classes during hybrid mode learning

b. Dependent Variable: Current CGPA

4. Total Daily Hours Spent on Study During Hybrid Mode of Learning and Student's CGPA

Table 6 and Table 7 shows the average hour(s) spend by the students on their study and assessment per day and student's CGPA, respectively.

Table 6 Average hour(s) spend on study and doing assessment per day apart from lecture classes during hybrid mode learning

Average Hour(s) Spend on Study and Doing Assessment Per Day	Frequency
None	16
1-2	126
2-3	71
3-4	29
4-5	13
5 hours and above	13

Table 7 Student's CGPA

Student's CGPA	Frequency
Below 3.50	93
3.50 and above	175

Omnibus Tests

H_0 : There is no significant difference among the groups.

H_1 : There is at least one significant difference among the groups.

$\alpha = 0.05$

From the output below (Table 8), the p -value (Sig. .325) $> \alpha = 0.05$, failed to reject H_0 which represents that there is a significant model and is a good fit to simple logistics regression analysis.

Table 8 Results for omnibus tests

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	5.809	5	.325
	Block	5.809	5	.325
	Model	5.809	5	.325

Hosmer and Lemeshow Test

H_0 : The model is a good fit to simple logistics regression analysis.

H_1 : The model is not a good fit to simple logistics regression analysis.

$\alpha = 0.05$

From the output in Table 9, p -value (Sig. .100) $> \alpha = 0.05$, failed to reject H_0 which represents that the model and is a good fit to simple logistics regression analysis.

Table 9 Results for Hosmer and Lemeshow test

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	.000	3	1.000

5. Simple Logistics Regression

Table 10 displays the ANOVA table of total daily hours spent by students for their study during hybrid

mode learning on their CGPA.

H_0 : There is no relationship between the total daily hours spent on study during hybrid mode learning and student's CGPA.

H_1 : There is a relationship between the total daily hours spent on study during hybrid mode learning and student's CGPA.

$\alpha = 0.05$

Table 10 ANOVA table of total daily hours spent on study during hybrid mode learning on student's CGPA

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	Average hour(s) spend on study and doing assessment Per Day apart from lecture classes during hybrid mode learning			5.659	5	.341			
	Average hour(s) spend on study and doing assessment Per Day apart from lecture classes during hybrid mode learning(1)	-.251	.535	.221	1	.638	.778	.273	2.217
	Average hour(s) spend on study and doing assessment Per Day apart from lecture classes during hybrid mode learning(2)	.237	.560	.179	1	.672	1.267	.423	3.799
	Average hour(s) spend on study and doing assessment Per Day apart from lecture classes during hybrid mode learning(3)	.241	.633	.145	1	.703	1.273	.368	4.399
	Average hour(s) spend on study and doing assessment Per Day apart from lecture classes during hybrid mode learning(4)	-.721	.761	.899	1	.343	.486	.109	2.160
	Average hour(s) spend on study and doing assessment Per Day apart from lecture classes during hybrid mode learning(5)	.560	.784	.509	1	.476	1.750	.376	8.140
	Constant	.251	.504	.249	1	.618	1.286		

Since all the p -values $> \alpha = 0.05$, failed to reject H_0 which represents that there is a no relationship between the total daily hours spent on study during hybrid mode learning and student's CGPA.

DISCUSSION

From this study, major reason that students supporting hybrid mode of learning is that hybrid mode of learning helps in reducing the internet connection problem (Singh, Steele & Singh, 2021). Since UUM conducted fully online learning starting from semester A192 until semester A211, there are few problems that faced by students which internet connection is the main problem. However, most of the students against the hybrid mode learning because of the school facilities. During semester A212, there is lack of places for students to attend online classes after finishing their physical classes. Students unable to attend class punctually and have to find the other suitable places.

Throughout the findings, most of the students have neutral opinion on study in both online and physical study environment. This is similar with the findings of research by Selvaraj, Radhin, Nithin, Benson and Mathew (2021). They are good in adapting themselves in all kinds of study environment (Shamsuddin & Kaur, 2020). The remaining respondents are preferring more in online learning rather than physical learning. This is due to the reasons that online learning has provide comfortable and quiet environment than physical learning. During online learning, time management and social skills have improved among students. Students are required to be self-motivation and plan a time schedule to arrange the task and handle multitasking (Alghamdi, Karpinski, Lepp & Barkley, 2020). Social interaction in online learning allows students to share their ideas with each other (Baber, 2022; Yuliansyah & Ayu, 2021; Mpungose, 2020). Learning and knowledge also transfer more with the effective ways likes the combination of technology and traditional teaching method. Nevertheless, online learning is less structured than physical learning due to online learning is only based on internet (Nambiar, 2020; Tate & Warschauer, 2022). It can be seen through the limited resources and physical facilities in achieving learning outcomes.

The results are owing to the fact that hybrid mode learning is bringing positive impacts to the university students. The advantages of hybrid mode learning included its effectiveness especially in facilitation of instructor at the same time establishes better communication between students and lecturer while improves quality of discussion. In addition, hybrid mode learning is more convenient which provides more learning materials and encourages technology use as well as demonstrates self-motivation. The results reveal that there is a no relationship between the total daily hours spent on study during hybrid mode learning and student's CGPA. This is account to the reality that every students have their own pace in study, which the understanding towards lecture is not only contributed by duration of study but also affected by learning method, availability of resources and so on.

CONCLUSION

The mode of learning whether it be online learning, traditional learning or hybrid learning has significant practical implications for students' perceptions and experiences. These mode of learning offer flexibility in terms of time and location. This flexibility can positively impact students' perception by allowing them to tailor their learning experience to fit their individual schedules and preferences. The mode of learning can also influence the level of interactivity and engagement student experience. Interactive features in teaching can enhance students' perception toward the learning process and make it more engaging and enjoyable. There are many factors that can influence on how students perceive and engage with the learning process. Educators and institutions should consider these implication when designing different modes of learning to optimize students' experiences and outcomes.

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DATA AVAILABILITY STATEMENT

Data will be made available on request.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- Alghamdi, A., Karpinski, A. C., Lepp, A., & Barkley, J. (2020). Online and face-to-face classroom multitasking and academic performance: Moderated mediation with self-efficacy for self-regulated learning and gender. *Computers in Human Behavior*, 102, 214-222.
- Baber, H. (2020). Determinants of Students' Perceived Learning Outcome and Satisfaction in Online Learning during the Pandemic of COVID19. *Journal of Education and E-Learning Research*, 7(3), 285–292.
- Datamentor. (2022). *R Tutorial - Learn R Programming*. Retrieved from: <https://www.datamentor.io/r-programming/>
- Baber, H. (2022). Social interaction and effectiveness of the online learning—A moderating role of maintaining social distance during the pandemic COVID-19. *Asian Education and Development Studies*, 11(1), 159-171.
- D. Nambiar. (2020). The impact of online learning during COVID19: students' and teachers' perspective. *International Journal of Indian Psychology*, 8(2), 783-793.
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference*. 11.0 update (4th ed.). Boston: Allyn & Bacon.
- Kumi Yeboah, A., & Smith, P. (2016). Relationships Between Minority Students Online Learning Experiences and Academic Performance. *Online Learning*, 20(4).
- Mpungose, C. B. (2020). Is Moodle or WhatsApp the preferred e-learning platform at a South African university? First-year students' experiences. *Education and information technologies*, 25(2), 927-941.
- Nambiar, D. (2020). The impact of online learning during COVID-19: students' and teachers' perspective. *The International Journal of Indian Psychology*, 8(2), 783-793.
- Patricia Aguilera-Hermida, A. (2020). College students' use and acceptance of emergency online learning due to COVID-19. *International Journal of Educational Research Open*, 1, 100011.
- Paul Lavrakas. (2008). *Encyclopedia of Survey Research Methods*. Retrieved from: <https://doi.org/10.4135/9781412963947.n105>
- Statistics Solutions. (2021, August 10). *Factor Analysis*. Retrieved from: <https://www.statisticssolutions.com/free-resources/directory-of-statistical-analyses/factor-analysis/>
- Selvaraj, A., Radhin, V., Nithin, K. A., Benson, N., & Mathew, A. J. (2021). Effect of pandemic based online education on teaching and learning system. *International Journal of Educational Development*, 85, 102444
- Shamsuddin, N., & Kaur, J. (2020). Students' Learning Style and Its Effect on Blended Learning, Does It Matter?. *International Journal of Evaluation and Research in Education*, 9(1), 195-202.
- Singh, J., Steele, K., & Singh, L. (2021). Combining the best of online and face-to-face learning: Hybrid and blended learning approach for COVID-19, post vaccine, & post-pandemic world. *Journal of Educational Technology Systems*, 50(2), 140-171.
- Stephanie Glen. (2021). "Sample Size in Statistics (How to Find it): Excel, Cochran's Formula, General Tips" From StatisticsHowTo.com: Elementary Statistics for the rest of us! Retrieved from: <https://www.statisticshowto.com/probability-and-statistics/find-sample-size/>
- Tate, T., & Warschauer, M. (2022). Equity in online learning. *Educational Psychologist*, 57(3), 192-206. <https://doi.org/10.1080/00461520.2022.2062597>
- Tavakol, M. & Dennick, R. (2011). Making Sense of Cronbach's Alpha. *International Journal of Medical Education*, 2, 53-55.
- Universiti Utara Malaysia (UUM) - Malaysia Students Web. (2022). The Internet Archive. Retrieved from: <https://web.archive.org/web/20140122215101/http://web.malaysia-students.com/universiti-utara-malaysia-uum>
- Yuliansyah, A., & Ayu, M. (2021). The implementation of project-based assignment in online learning during covid-19. *Journal of English Language Teaching and Learning*, 2(1), 32-38.
- Zhan, Z., & Mei, H. (2013). Academic self-concept and social presence in face-to-face and online learning: Perceptions and effects on students' learning achievement and satisfaction across environments. *Computers & Education*, 69, 131–138. <https://doi.org/10.1016/j.compedu.2013.07.002>
- Zhu, C. (2017). University student satisfaction and perceived effectiveness of a blended learning course. *International Journal of Learning Technology*, 12(1), 66-83.

