Students’ Attitude towards Online Learning in Sultan Idris Shah Polytechnic

**\*Aishah Humaira binti Abdullah, Diana Lee Phooi Yan & Zuraimi bin Mohd Zuber**

Department of General Studies, Sultan Idris Shah Polytechnic (PSIS),

Sungai Lang, 45100, Sungai Air Tawar, Selangor

\*Corresponding author: hmraaisha@psis.edu.my

**ABSTRACT**

Throughout the centuries, teaching and learning in education have experienced a countless number of changes and transformation. Online learning in specific has gained much traction in attention by institutions and scholars alike contributing in a substantial manner and speed to the said changes. With the global pandemic that started in the early 2020’s, institutions, instructors, parents, and students alike are thrown into a major shift in education scenery, away from the comfort of the standard classroom. Despite the intense investment and positive responses towards learning technology even before the pandemic, questions remain about whether the Malaysian system is ready to fully adapt and support a remote learning environment for the students and what this could mean to their performance. The main objective of this study was to identify the main factors affecting students’ attitudes towards online learning and the relationship between students’ attitude and their academic performance. It is believed that students with lower academic performance will show negative attitudes while learners with higher academic performance will demonstrate positive attitudes.  65 participants were asked to complete the Attitude Scale. Pearson’s bivariate correlation test was computed to determine the relationship between attitude and academic performance. The findings revealed that students’ academic achievement has a weak correlation with students’ attitudes towards online learning. The results also showed that all the four studied factors, that is, collaboration, instructor support, perceived usefulness of online platforms and self-confidence play a role in affecting students’ attitude towards online learning with instructor support being the significant one. As the findings were limited to this sample, it is suggested that future studies should involve a larger number of samples with more diversity.

*Keywords:* Attitude, Online Learning, Tertiary Education, Academic Performance.

**1. INTRODUCTION**

**1.1 Background of the Study**

Following the closure of institutions and industries in response to the Covid-19 global pandemic, schools and universities have migrated into online learning mode. The change of study mode from the long-standing history of face-to-face learning to home-based learning facilitated by remote connection and digital devices has posed some challenges unbeknownst before to the students, educators, and administrators. Despite some efforts made by the institutions, specifically the Ministry of Education in uplifting the mood of the nation in continuing the sessions amidst the pandemic (Han, 2021; Asri & Roslan, 2021; Yassin, 2020; Internet Allowance, 2020), there are still some challenges and limitations faced by the students that need to be overcome.

This has resulted in a multitude of attitudes by those affected in regards to education in the new norm, online learning. As it is understood that attitudes can either partly or largely affect students’ progress, this study seeks to understand the truth about students’ attitudes towards online learning, the main factors affecting their attitude and how their attitude correlates with their academic performance as a whole.

**1.2 Research Objectives**

1. To identify the main factors affecting students’ attitude towards online learning.
2. To identify the relationship between students’ attitude and students’ academic performance.

**2. LITERATURE REVIEW**

**2.1 Online Learning in Malaysia**

Online learning is a form of learning that happens remotely between the learner and the instructor, in which some type of technology with internet connection is used to connect students to the learning materials or the instructors (Selvanathan, Hussin & Azazi, 2020; Anderson, 2008). Also known as “e-learning, Internet learning, computer-assisted learning, web-based learning, and distance learning” (Anderson, 2018 p.16), students follow online learning under what is known as synchronous and asynchronous methods (Selvanathan et al. 2020) providing them with both the convenience and access to learning materials/instructors (Singh and Thurman, 2019).

In light of the pandemic restriction, online learning could be witnessed taking its full fledge of practice within the national education system. Fortunately, in Malaysia, the effort to gradually enforce the practice of online learning had started as early as the late 1900s (Hussin et al., 2009). Considering its advantages in promoting independent learning as well as the development of new skills, (Dhawan, 2020), this effort is further welcome by the Malaysian Ministry of Education in its application of technology as an integral component of higher education and lifelong learning as stated in the Malaysian Education Blueprint 2015-2025 (Higher Education).

However, despite the overwhelmingly positive and exciting advantages often associated with the technology of online learning, there are many challenges and issues faced by students, teachers, and parents alike. According to Nor Fauziana (2020), although there are multiple online applications that can be used to support online classes during the pandemic, the challenges remain in terms of the commitment required from the aspect of knowledge and skills necessary in information technology, the allocation of digital devices for learning, the stability of internet connection, as well as the preparation of appropriate assessment methods for students’ progress. On top of the technical challenges, a Malaysian study reported, that a number of other elements like personal characteristics such as gender, ethnicity, course year level, and financial aid status could also affect students’ online learning readiness (Lau and Shaikh, 2012).

Additionally, Wan (2020) highlighted the issue of digital disparity among the students in Malaysia who come from various economic/geographical backgrounds, concluding it as a reflection of weak digital preparedness on the side of the national education system. Many authors also touched on the issue of teacher training and instructors’ preparedness (Wan, 2020 & Rahayu et. al, 2020) with Dhawan (2020) emphasising with a hopeful note that despite the challenges, this forced situation might be able to provide benefits to the education system and pave the way for many educational innovations in the future.

**2.2 Attitudes and Academic Performance**

The main understanding of attitude is rooted in its potential and capacity of influencing the behaviour of individuals and society towards a certain notion. One of the most cited pioneers in the studies of attitudes, Allport (1935) described that attitude as “A mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related” (p.810).

In relation to students in an academic setting, this concept indicates that students’ attitude can be used to predict their behaviour towards learning. Several studies have concluded ‘attitude’ as one of the most formidable factors that relate to achievement (e.g., Ma & Kishor, 1997; Meece, Parsons, Kaczala, & Goff, 1982) as it provides grounds for better understanding (Osman, Halim, and Ikhsan, 2003) and more effective learning strategies (Yousaf et. al, 2021). Majority of studies regarding attitude in relation to achievement have also described positive and significant correlation between the two (Hussain, Mahmood, Nasreen, 2017).

Literature has shown the significance and benefits students could gain from online learning. However, students’ attitudes still vary. The results of a study by Safi and Wael (2021) revealed that students’ attitudes towards online learning during the COVID-19 pandemic are generally negative. Respondents revealed that face-to-face classroom is preferred compared to online learning as it affords them a direct contact with the instructors (Safi & Wael, 2021). A study by Agormedah et al. (2020) on Ghanaian students on the other hand revealed that students have positive attitudes towards online learning although at the same time reported that the online learning challenges have negatively impacted their progress.

Pertinent to the learning environment change brought about by the current pandemic, this study is determined to learn about students’ attitudes towards online learning. Although there are ample studies exploring attitudes towards online learning too, the factors affecting the attitudes of students in this unique unprecedented shift during the pandemic are still deficient in the current literary work (Ngah et al. (2021). Understanding attitude as highly influential in the behavioural formation of students, it is important to find out what shapes their attitudes towards online learning and how it relates to their academic progress during the online learning period. Studying these elements would help lecturers, instructors, and management to better craft and exploit the necessary tools and approaches in delivering quality education within the online environment.

**3. METHODOLOGY**

**3.1 SUBJECTS**

The sample for this study comprised 65 semester 3 Politeknik Sultan Idris Shah students. In terms of gender, 20 of the sample are male and 45 of them are female. The sample which consists of 58 Malays and 7 Indians is chosen randomly from various departments in the institution.

**3.2 INSTRUMENTATION**

The data required for this research was collected using a survey questionnaire which was distributed to students through Google Forms. The questionnaire consists of the following:

**3.2.1 BACKGROUND QUESTIONNAIRE**

The background questions within the survey were designed to obtain basic demographic data (e.g., age, gender, race, academic programme, CGPA etc.). The survey also comprises questions related to tools, facilities, and platforms used for online learning.

**3.2.2 ATTITUDE SCALE**

Yunkul and Cankaya’s Edmodo Attitude Scale (EAS) was modified and used as a measurement instrument for students’ attitudes toward online learning. The scale is a five-point Likert type scale from “1= Strongly Agree” to “5 = Strongly Disagree”. The scale is composed of 18 items covering four factors namely Collaboration, Usefulness, Instructor Support, and Self Confidence.

**3.3 PROCEDURES**

The questionnaire was converted to Google Form and later distributed randomly to PSIS semester 3 students through link sharing. In completing the questionnaire survey, students were instructed to answer the questions based on their experience of attending online English classes in the previous semester. Respondents were required to indicate their answers on the same questionnaire by choosing a scale point indicating their agreement or disagreement with the statements provided in the survey. The questionnaire was completed by students at their own comfort of time and space.

**3.4 DATA ANALYSIS**

In order to break down the basic information about the study sample, a descriptive analysis on students’ demographic data was carried out. The data obtained from the Attitude Scale was computed to  SPSS to obtain the mean and standard deviation as well as determine the relationship between both variables. Factor analysis and reliability tests were carried out for all studied factors. Pearson’s bivariate correlation test was also conducted in order to identify the relationship between students’ academic performance and their attitude towards online learning.

**4. RESULTS AND DISCUSSION**

**4.1 Descriptive Statistics**

Table 1a showed the descriptive statistics of students’ demographic information (i.e., gender & race). Most respondents were female (n= 45, 69%), whilst male (n=20, 31%). Out of a total of 65 respondents, 58 (89%) respondents were Malay and 7 (11%) respondents were Indian.

|  |  |  |
| --- | --- | --- |
| **Demographic Information** | **Frequency** | **Percentage (%)** |
| **Gender**  Male  Female | 20  45 | 31  69 |
| **Race**  Malay  Indian | 58  7 | 89  11 |

Table 1a: Distribution of students’ demographic information (gender and race)

In this study, the online platform used for online English classes and the online platform that students preferred the most were investigated as shown in Table 1b.

|  |  |  |
| --- | --- | --- |
| **Online Platforms** | **Frequency** | **Percentage (%)** |
| **Online platforms used for online English class:**  Cisco Webex  Microsoft Teams  Google Meet  Zoom | 3  62  24  1 | 5  95  37  2 |
| **Online platforms that students preferred the most:**  Microsoft Teams  Google Meet | 62  3 | 95  5 |

Table 1b: The frequency and percentage of online platform used and preferred among students

There were four online platforms that are commonly used interchangeably by the lecturers for an online lesson, namely, Cisco Webex, Microsoft Teams, Google Meet and Zoom. Microsoft Teams was reported to be the most popular online platform used for online teaching and learning with the frequency (f = 62, 95%), followed by Google Meet (f = 24, 37%). The usage of Cisco Webex and Zoom was rather low with the frequency of 3(5%) and 1 (2%) respectively.

Out of the four mentioned online platforms, Microsoft Teams and Google Meet were the preferred online platforms by students with the former reported to be the most preferable one (f = 62, 95%) and the latter (f = 3, 5%).

**4.2 Attitude Scale**

In this study, students’ attitude towards online learning is measured using the questionnaires adapted from Edmodo Attitude Scale (EAS) by Yunkul and Cankaya (2017). This Edmodo Attitude Scale comprises four factors (i.e., Collaboration (7 items), Usefulness (6 items), Instructor support (3 items) and Self Confidence (2 items)). As the scale developed by Yunkul and Cankaya (2017) was meant for determining learners’ attitudes towards social learning networks, hence, factor analysis and reliability tests were conducted for all the items for each studied factor in this study.

**4.2.1 Factor Analysis**

The factor analysis was run to identify the values of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity. This was to find out whether the factor analysis is useful with the data collected. A high value (about 1.0) indicates that factor analysis is useful with the data and a low value (i.e., less than 0.5) means the results of the factor analysis would not be very useful. Table 2 shows the Kaiser-Meyer-Olkin (KMO) results were high with a KMO of 0.893 and Bartlett's test of sphericity reported a significant value (less than 0.05). This confirmed that there is a substantial correlation in the data and the factor analysis was useful for further analysis of data collected in this study.

|  |  |  |
| --- | --- | --- |
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.890.890 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 0.893 1222.204 |
| df | 136 |
| Sig. | .000 |

Table 2: KMO and Bartlett's Test

The reliability test conducted revealed that the scale items of the studied factors, that is, *self-confidence, instructor support and collaboration,* reported high reliability with coefficient Cronbach alpha of 0.921, 0.905 and 0.854, respectively. Whilst the scale items for *usefulness* reported a moderate coefficient Cronbach alpha of 0.598. Overall, the Cronbach alpha of the adapted attitude scale in this study was 0.907, which was considerably higher than the reported value (α = 0.868) of the Edmodo Attitude Scale by Yunkul and Cankaya (2017).

Table 3 shows the descriptive statistics for the four factors in determining students’ attitudes towards online learning. As the Likert scale is from 1 to 5, thus, the midpoint for the mean scores is 2.5. Mean scores above 2.5 indicate a positive attitude towards online learning and mean scores below 2.5 indicate a negative attitude towards online learning.

|  |  |  |
| --- | --- | --- |
| **ATTITUDE SCALE** | | |
| **FACTORS** | **MEAN** | **SD** |
| Collaboration | 4.059 | 0.611 |
| Usefulness | 3.677 | 0.629 |
| Instructor Support | 4.339 | 0.739 |
| Self Confidence | 4.162 | 0.875 |
| Attitude Towards Online Learning | 4.119 | 0.655 |

  Table 3: Means and standard deviations of factors affecting students’ attitude towards online learning.

Students’ attitude towards online learning was examined based on the four factors (i.e., collaboration, usefulness, instructor support and self-confidence) as shown in Table 3. Results showed that all four factors have a mean value above 2.5 and this indicated that collaboration, perceived usefulness, instructor support and self-confidence have a positive influence on students’ attitudes towards online learning. As can be seen, students’ attitudes towards online learning were much influenced by instructor support which reported the highest mean value of 4.339. This indicated that the students were positive and satisfied with the online platform used by the lecturer which enabled two-way communication between students and teachers. Besides, students were content with the real-time feedback given by the lecturer through the online learning platform.

The findings also showed that students were positive about their confidence level as far as online learning is concerned with the second-highest mean value of 4.162. The use of an online platform for virtual learning has indirectly helped to boost students’ self-confidence as the platform enables students to participate more and enables them to express their thoughts more freely during the online lesson. This could be because the students are not only able to unmute themself to express their thoughts verbally but they can express their thought non-verbally through the use of emoticons as well as the chat function provided on the online platform. This would encourage the students, especially those who are afraid to speak out to express their ideas through the chat function and their emotions through emoticons provided on the online platform. Hence, this has indirectly increased students’ self-confidence to express themselves and collaborate with other students.

Another studied factor was collaboration, recorded with a mean value of 4.059. This result inferred that collaboration which includes pair or group works, sharing and discussion between student-lecturer and student-student implemented via the online platform were feasible and supported students’ virtual learnings. This is because the online platform used by students such as Microsoft Teams provides adequate features that support online learning. For example, the chat function, conversation within channels and teams, video calling, online meetings, audio conferencing and etc enable students to collaborate easily.

Students’ attitude towards the usefulness of online platforms for virtual learning was positive but perceived as less influential compared to other studied factors (i.e., collaboration, instructor support and self-confidence) with a moderate mean value of 3.677. In other words, online platforms do bring an impact but that is not the major factor in affecting students’ attitudes towards online learning.

Overall, the average mean (4.119) of the four studied factors (i.e., collaboration, instructor support, usefulness and self-confidence) inferred that the students have a positive attitude towards online learning.

**4.3 Attitude and Academic Performance**

This study also aims to find out whether students’ academic performance influences their attitude towards online learning (RO2: To identify the relationship between students’ attitude and students’ academic performance).

Students’ academic performance was measured based on their current Cumulative Grade Points Average (CGPA) results and was categorised into three categories as shown in Table 4 below.

|  |  |  |
| --- | --- | --- |
| **Category** | **CGPA** | **Level of Academic performance** |
| 1 | 0.00 - 2.66 | Low |
| 2 | 2.67 - 3.66 | Medium |
| 3 | 3.67 - 4.00 | High |

Table 4: The level of students’ academic performance

Students with current CGPA within the range of 0.00 - 2.66 were put under category one and were labelled as students with low academic performance. Students under category two with CGPA from 2.67 to 3.66 were labelled as students with moderate academic performance. Whilst, category 3 comprised students with high academic performance who obtained CGPA above 3.67.

As can be seen from Table 5, there were 31 students who obtained CGPA within the range of 2.67 - 3.66 and were identified as students with moderate academic achievement. Whilst, there were 34 students with high academic achievement, that is, those who obtained CGPA within the range of 3.67 - 4.00.

|  |  |  |
| --- | --- | --- |
| **CGPA** | **Number of students** | **Percentage (%)** |
| 2.67 - 3.66 | 31 | 48 |
| 3.67 - 4.00 | 34 | 52 |

Table 5: Students' Academic Performance

In this study, Pearson’s bivariate correlation test was conducted in order to identify whether there is any relation between one’s academic achievement and attitude towards online learning. The findings as shown in Table 6 revealed that students’ academic achievement has a weak correlation with students’ attitudes towards online learning (*R = 0.149, p > 0.1)*. This indicates that regardless of high or low academic achievement among students does not bring a significant impact on students’ positive attitude toward online learning.

|  |  |  |
| --- | --- | --- |
|  | Attitude towards online learning | Academic Achievement |
| Attitude towards online learning  Pearson Correlation    Sig. (2-tailed) N | 1  65 | 0.149  0.237  65 |

Table 6: Correlation between students’ academic performance and students’ attitude towards online learning.

Regression analysis was conducted as well to determine the predictive power of academic performance on students’ positive attitudes towards online learning. The results in Table 7 showed that only 2.2% of students’ attitudes towards online learning can be explained by the variable. Though the result showed that more than 90% of the R square attitude towards online learning is caused by other factors, an R square value as low as 0.2 or below is more than sufficient to explain the dependent variables in the field of social science (Hair et al., 2010).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 0.149a | 0.022 | 0.007 | 0.63581 | 1.947 |

a Predictors: (Constant), Academic performance

b Dependent Variable: Attitude towards online learning

Table 7: Regression analysis of academic performance and attitude towards online learning.

**5. CONCLUSION**

This study aimed to investigate students’ attitudes towards online learning based on the adapted attitude scale which comprises four factors, that is, collaboration, instructor support, perceived usefulness of online platforms and self-confidence. In general, the findings revealed that the students possess a positive attitude towards online learning. This positive attitude towards online learning among the students was highly affected by the support provided by the lecturer during the virtual lesson. Hence, instructor support was found to be the main factor that contributes to a positive attitude toward online learning among the students. This is followed by the students’ self-confidence. Self-confidence is related to trust and acceptance of oneself, thus, it can be said that the students are relatively trusting and accepting themselves as far as online learning is concerned. Next, the collaboration which involves engagement with peers and lecturer during the virtual activity conducted such as discussion and sharing of ideas either in pair or group played a role in building this positive attitude. Though the online platforms such as Ms Team, Cisco Webex and etc have a moderate impact on online learning, the features provided in the online platforms have enabled contribution and active engagement from students during the online lesson. Thus, it is believed that the active involvement by students has helped to raise their confidence levels and has further developed their love for learning. Furthermore, the findings also revealed that one’s academic performance has no significant influence on attitude toward online learning. This is supported by the data retrieved from this study whereby both the moderate and high academic achievement students showed a positive attitude towards online learning.

As this study comprises a small scale of sample size, hence, it is suggested that future research be carried out with a larger sample size and a diverse sample of students with the three categories of academic achievement (i.e., high, medium and low) to measure the effects of academic performance on attitude towards online learning. Future researchers who are interested in conducting research in relation to attitude may adopt Yunkul and Cankaya’s Edmodo Attitude Scale (EAS).   
**REFERENCES**

Agormedah, E. K., Henaku, E. A., Ayite, D. M. K., Ansah, E. A. (2020). Online learning in higher education during COVID-19 pandemic: A case of Ghana. Journal of Educational Technology & Online Learning, 3(3), 183.

Allport, G. W. (1935). Attitudes. In C. A. Murchison (Ed.), A handbook of social psychology (pp. 798 – 844). Worcester, MA: Clark University Press.

Asri, S., & Roslan, S. (2021, Mac 6). *Inisitatif, insentif terbaik.* Hmetro. Inisiatif, insentif terbaik (hmetro.com.my) Retrieved from https://www.hmetro.com.my/mutakhir/2021/03/681159/inisiatif-insentif-terbaik&sa=D&source=docs&ust=1644381601423435&usg=AOvVaw0j2Xl5MpODnbUD7XMeoA4d

Dhawan, S. (2020). Online Learning: A Panacea in the Time of Covid-19 Crisis. Journal of Educational Technology Systems, 49(I) 5-22. doi:10.1177/0047239520934018. https://www.researchgate.net/publication/342344822

Hair, J. F. Jr., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Han, Y. S., (2021, July 19). Kerajaan sentiasa sokong inisiatif perkasa pendidikan. *Utusan Borneo.* Retrieved from https://www.utusanborneo.com.my/2021/07/19/kerajaan-sentiasa-sokong-inisiatif-perkasa-pendidikan

Hussain, T., Mahmood, K., & Nasreen, A. (2017). Effect of students’ attitude towards technology on their academic achievement. Pakistan Social Sciences Review, 1(1), 135.

Hussin, H. Bunyarit, F. and Hussein, R. (2009) Instructional design and e-learning: examining learners’ perspective in Malaysian institutions of higher learning. Campus-Wide Information System 26(1): 4–19.

Internet allowance for B40 group is vital (2020, 12 June). New Straits Times. Retrieved from  https:// www.nst.com.my/opinion/letters/2020/06/599900/internet-allowance-b40-group-vital (accessed 12 June, 2020).

Lau, C. and Shaikh, J. M. (2012). The impacts of personal qualities on online learning readiness at Curtin Sarawak Malaysia (CSM). Educational Research and Reviews. 7 (20): pp. 430-444.

Ma, X., & Kishor, N. (1997). Assessing the relationship between attitude toward mathematics and achievement in mathematics: A meta-analysis. Journal for research in mathematics education, 26-47.

Meece, J. L., Parsons, J. E., Kaczala, C. M., & Goff, S. B. (1982). Sex differences inmath achievement: Toward a model of academic choice. Psychological Bulletin, 91(2), 324.

Ngah A.H. et al. (2022) Fostering Students’ Attitude Towards Online Learning: The Mediation Effect of Satisfaction and Perceived Performance. In: Al-Emran M., Al-Sharafi M.A., Al-Kabi M.N., Shaalan K. (eds) Proceedings of International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2021. Lecture Notes in Networks and Systems, vol 299. Springer, Cham. https://doi.org/10.1007/978-3-030-82616-1\_26

Nor Fauziana Mohd Salleh. (2020). Pandemik Coronavirus (Covid-19): Pembelajaran dan Pengajaran Secara Atas Talian Suatu Keperluan di Malaysia. Kolej Komuniti Bentong: Pahang.https://www.researchgate.net/publication/342886967\_PANDEMIK\_CORONAVIRUS\_COVID19\_PEMBELAJARAN\_DAN\_PENGAJARAN\_SECARA\_ATAS\_TALIAN\_SUATU\_KEPERLUAN\_DI\_MALAYSIA.pdf

Osman, K., Halim, L., & Ikhsan, Z. H. (2003). The Critical Thinking Attitudinal Profile of Some Malaysian Secondary Students: A Reflection of Scientific Attitudes. Journal of Science and Mathematics Education in Southeast Asia, 26(2), 143-166.

Rahayu Ahamad Bahtiar, Sham Ibrahim, Halijah Ariffin, Nor Hazimah Ismail & Wan Mohd Khairul Wan Isa. (2020). Peranan dan Cabaran Pemimpin Pendidikan Dalam Memastikan Matlamat dan Agenda Pendidikan Dilestari Dalam Tempoh Perintah Kawalan Pergerakan (PKP) Covid-19. Institut Aminuddin Baki: Kementerian Pendidikan Malaysia. https://iab.moe.edu.my/bahanportal/pemberitahuan/2020/2.%20PERANAN%20DAN%20CABARAN%20PEMIMPIN%20PENDIDIKAN.pdf

Selvanathan, M., Hussin, N. A. M., & Azazi, N. A. N. (2020). Students learning experiences during COVID-19: Work from home period in Malaysian Higher Learning Institutions. Teaching Public Administration. https://doi.org/10.1177/0144739420977900

Singh, V, Thurman, A (2019) How many ways can we define online learning? A systematic literature review of definitions of online learning (1988-2018). *American Journal of Distance Education 33(4)*: 289–306.

Mahfouz, S. M. & Salam, W. J. (2021) Jordanian university students’ attitudes towards online learning during the COVID-19 pandemic and lockdowns: obstacles and solutions. International Journal of Learning, Teaching and Educational Research, 20 (1), 142.

Yassin, Z. R. M., (2020, Mei 2). Menangani Cabaran Norma Baharu Pembelajaran dan Pengajaran Era Covid-19. *UTM News Hub*. Retrieved from https://news.utm.my/ms/2020/05/penjelasan-isu-pelajar-phd-utm/

Yousaf, F., Rafique, S., & Mahmood, S. (2021) Students' attitude towards online classes at undergraduate level. Review of Applied Management and Social Sciences, 4 (2), 448.

Wan, Y. S. (2020). Education during Covid-19. Brief Ideas No. 19. Institute for Democracy and Economic Affairs (IDEAS): Kuala Lumpur. https://www.researchgate.net/publication/340860261\_Education\_during\_COVID-19