Data Article

Dataset of international students’ acceptance of online distance learning during COVID-19 pandemic: A preliminary investigation

Steve Shi-Hui, Lee Yen Chaw, Eugene Cheng-Xi Aw, Rohana Sham

UCSI Graduate Business School, UCSI University, No. 1, Jalan Menara Gading, UCSI Heights (Taman Connaught), Cheras, Kuala Lumpur 56000, Malaysia
Faculty of Business and Management, UCSI University, No. 1, Jalan Menara Gading, UCSI Heights (Taman Connaught), Cheras, Kuala Lumpur 56000, Malaysia

Article history:
Received 26 October 2021
Revised 20 April 2022
Accepted 27 April 2022
Available online 1 May 2022

Dataset link: Dataset related to Online Distance Learning (Original data)

Keywords:
Online learning
E-learning
Online education
UTAUT model
Institutions of higher learning (IHLs)
Malaysia

Abstract

The dataset describes factors affecting international students’ acceptance of Online Distance Learning (ODL) mode while pursuing oversea education during COVID-19 pandemic. The recruited respondents comprised of international students who were pursuing undergraduate degree programmes in the institutions of higher learning (IHLs) in Malaysia. Respondents were invited to participate in an online survey via Google Forms. A purposive sampling technique was adopted in this research whereby a total of 207 valid questionnaires were obtained and used for data analysis. Data outputs such as respondents’ profile, Partial Least Squares Structural Equation Modelling, and importance-performance matrix analysis were presented. The data can be used as a reference source to identify areas of improvement by educators, academic management, and policy makers of IHLs.

© 2022 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/)

* Corresponding author.
E-mail address: chawly@ucsiuniversity.edu.my (L.Y. Chaw).

https://doi.org/10.1016/j.dib.2022.108232
2352-3409/© 2022 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/)
Specifications Table

| Subject       | Education          |
|---------------|--------------------|
| Specific subject area | Online learning |
| Type of data   | Table and Figure  |
| How the data were acquired | Data was collected using Google Forms, an online survey platform. |
| Data format    | Raw. analysed. Filtered. Descriptive and inferential statistics. |
| Description of data collection | Data were collected from international students of five randomly selected universities in Malaysia namely UCSI University, Taylor’s University, Asia Pacific University of Technology & Innovation (APU), University of Nottingham Malaysia and University Science Malaysia (USM) using the purposive sampling technique. Before the survey link was disseminated to the international students, the researchers had obtained prior consent from the School Representatives of the five universities for data collection. In the survey form, it was indicated that the respondents’ identity will remain anonymous and confidential. The final sample size consisted of 207 valid responses. |
| Data source location | Data were collected from four private universities which are located in Klang Valley of Malaysia and one public university from the northern region of Malaysia. |
| Data accessibility | All the data is attached with the article and in Mendeley Data: https://data.mendeley.com/datasets/9gbr7sjk32/1 |

Value of the Data

• The data collected enable IHLs to identify vital factors that influence international students’ decision in accepting ODL mode for overseas education during COVID-19 pandemic.
• The data revealed areas of improvement in terms of teaching and learning mode that can be addressed by academic management or policy makers of the institutions.
• The dataset covers majority of the programmes offered by IHLs which can be used for further analysis.
• The dataset can be reused by educators or academic researchers who want to compare similar dataset as a preliminary investigation purpose.

1. Data Description

In this article, Online Distance Learning (ODL) is defined as a teaching method that is conducted online whereby instructors and students can interact by means of electronic channels and meetings [1,2]. Using a power level of 0.80, alpha value of 0.05 and effect size of 0.15, the minimum sample size generated by G*Power (version 3.1.9.4) was 85 samples. The final sample size of 207 obtained was more than the required threshold.

The data survey file was saved in Microsoft Excel spreadsheet accompanied this article which contained 207 rows and 24 columns. Each item was assigned a code as shown in Table 1. Items were measured by nominal, ordinal, or scale.

Table 2 shows respondents’ profile. Of the 207 respondents, 49.8% were male students and 50.2% were female. Majority of the students were age 21 and above. Most students were from Business and Management as well as Engineering and Architecture programmes. 57.5% of respondents have prior experience with ODL whereas 42.5% do not.

In order to achieve the research’s purposes, four core constructs, namely performance expectancy, effort expectancy, facilitating conditions and social influence are derived from the unified theory of acceptance and use of technology (UTAUT) model [3] to understand international students’ acceptance of ODL. Performance expectancy emphasizes on the expected benefits that can be provided by a system or technology. Effort expectancy is related to the easiness in using
the system or technology. Facilitating conditions refers to the resources and support provided to perform a behaviour. Social influence indicates the extent to which users perceive their others such as peers or family members believe the technology to be important [3,4].

Based on the suggestion by Ringle and Sarstedt [5], Hair et al. [6] and Henseler et al. [7], the data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). Similar to Yuan et al. [8], Foo et al. [9], Tang and Chaw [10] and Aw et al. [15], a two-phases process was followed whereby the measurement model was assessed before the structural model. For measurement model assessment, the convergent validity and discriminant validity were evaluated. As shown in Table 3, the composite reliability (CR) and average variance extracted (AVE) values were above the thresholds of 0.70 and 0.50, respectively [6]. In addition, all item loadings were in the acceptable range between 0.633 and 0.871. Thus, it can be said that the convergent validity was achieved. Next, the discriminant validity was assessed using the heterotrait-monotrait

| Constructs      | Items                     | Code | Measure |
|-----------------|---------------------------|------|---------|
| Gender          | Male                      | 1    | Nominal |
|                 | Female                    | 2    | Nominal |
| Age             | Below 18                  | 1    | Ordinal |
|                 | 18–19                     | 2    | Ordinal |
|                 | 19–20                     | 3    | Ordinal |
|                 | 21 and above              | 4    | Ordinal |
| Programme Name  | Business/Management       | 1    | Ordinal |
|                 | IT/Computer Science       | 2    | Ordinal |
|                 | Engineering/Architecture  | 3    | Ordinal |
|                 | Education                 | 4    | Ordinal |
|                 | Hospitality/Tourism       | 5    | Ordinal |
|                 | Performing Arts/Design    | 6    | Ordinal |
|                 | Law                       | 7    | Ordinal |
|                 | Medicine/Nursing/Pharmacy | 8    | Ordinal |
|                 | Linguistics/Literature    | 9    | Ordinal |
|                 | Applied Science           | 10   | Ordinal |
|                 | Others                    | 11   | Ordinal |
| Prior Experience| Yes                       | 1    | Nominal |
|                 | No                        | 2    | Nominal |
| Performance Expectancy | ODL is useful | PE1 | Scale   |
|                   | ODL gives me flexibility  | PE2  | Scale   |
|                   | ODL fits my purpose       | PE3  | Scale   |
| Effort Expectancy | ODL improves my learning | PE4  | Scale   |
|                   | ODL is clear              | EE1  | Scale   |
|                   | ODL is easy to follow     | EE2  | Scale   |
|                   | ODL is easy to master internet skills | EE3 | Scale |
|                   | ODL easy to understand    | EE4  | Scale   |
| Social Influence  | Parents or guardians      | SI1  | Scale   |
|                   | Friends or classmates     | SI2  | Scale   |
|                   | Lecturers or professors   | SI3  | Scale   |
|                   | My institution            | SI4  | Scale   |
| Facilitating Conditions | Necessary resources | FC1  | Scale   |
|                     | Necessary knowledge       | FC2  | Scale   |
|                     | Technical support         | FC3  | Scale   |
|                     | Academic support          | FC4  | Scale   |
| Acceptance behaviour | Use ODL for oversea education | BI1 | Scale   |
|                     | Use ODL if learning content| BI2 | Scale   |
|                     | Seriously thought of accepting ODL | BI3 | Scale |
|                     | Plan to use ODL for future education | BI4 | Scale |
Table 2
Respondents’ profile.

| Gender       | Frequency | Valid Percent | Cumulative Percent |
|--------------|-----------|---------------|--------------------|
| Male         | 103       | 49.8          | 49.8               |
| Female       | 104       | 50.2          | 100.0              |

| Age          | Frequency | Valid Percent | Cumulative Percent |
|--------------|-----------|---------------|--------------------|
| Below 18     | 26        | 12.6          | 12.6               |
| 18–19        | 58        | 28.0          | 40.6               |
| 19–20        | 57        | 27.5          | 68.1               |
| 21 and above | 66        | 31.9          | 100.0              |

| Programme name | Frequency | Valid Percent | Cumulative Percent |
|----------------|-----------|---------------|--------------------|
| Business/Management | 46      | 22.2          | 22.2               |
| Engineering/Architecture | 39      | 18.8          | 41.0               |
| Performing Arts/Art Design | 21      | 10.2          | 51.2               |
| Applied Science   | 13        | 6.3           | 57.4               |
| Education         | 12        | 5.8           | 63.2               |
| IT/Computer Science | 12      | 5.8           | 69.0               |
| Hospitality/Tourism | 9        | 4.3           | 73.3               |
| Medicine/Nursing/Pharmacy | 9      | 4.3           | 77.6               |
| Law              | 8         | 3.9           | 81.5               |
| Linguistics/Literature | 7       | 3.4           | 84.9               |
| Others           | 31        | 15.0          | 100.0              |

Table 3
Measurement model.

| Constructs            | Indicators | Item loadings | CR    | AVE  |
|-----------------------|------------|---------------|-------|------|
| Performance expectancy| PE1        | 0.847         | 0.879 | 0.649|
|                       | PE2        | 0.633         |       |      |
|                       | PE3        | 0.868         |       |      |
|                       | PE4        | 0.850         |       |      |
| Effort expectancy     | EE1        | 0.855         | 0.878 | 0.646|
|                       | EE2        | 0.854         |       |      |
|                       | EE3        | 0.648         |       |      |
|                       | EE4        | 0.839         |       |      |
| Social influence      | SI1        | 0.816         | 0.844 | 0.578|
|                       | SI2        | 0.812         |       |      |
|                       | SI3        | 0.775         |       |      |
|                       | SI4        | 0.620         |       |      |
| Facilitating conditions| FC1      | 0.806         | 0.883 | 0.654|
|                       | FC2        | 0.858         |       |      |
|                       | FC3        | 0.802         |       |      |
|                       | FC4        | 0.767         |       |      |
| Acceptance behaviour  | BI1        | 0.840         | 0.897 | 0.685|
|                       | BI2        | 0.793         |       |      |
|                       | BI3        | 0.871         |       |      |
|                       | BI4        | 0.804         |       |      |

ratio of correlations (HTMT) approach [7]. Table 4 showed that all HTMT values were below 0.90, indicating the establishment of discriminant validity.

The structural model assessment began with the evaluation of variance inflation factor (VIF). The findings indicated that the VIFs were between 1.936 and 2.509, below the threshold of 3.3, implying no significant threat of multicollinearity in the dataset [6]. The $R^2$ was 0.566, indicating 56.6% of variance in accepting ODL was explained by the proposed constructs. The model showed satisfactory model fit, with SRMR value (0.065) below the cut-off value of 0.08 [6]. Per-
Table 4
 Discriminant validity.

|                      | Effort expectancy | Facilitating condition | Acceptance behaviour | Performance expectancy | Social influence |
|----------------------|-------------------|------------------------|----------------------|------------------------|------------------|
| Effort expectancy    |                   |                        |                      |                        |                  |
| Facilitating conditions | 0.738             |                        |                      |                        |                  |
| Acceptance behaviour | 0.819             | 0.565                  |                      |                        |                  |
| Performance expectancy | 0.881             | 0.758                  | 0.786                |                        |                  |
| Social influence     | 0.754             | 0.778                  | 0.733                | 0.754                  |                  |

Table 5
 Relationships testing.

|                                    | Beta coefficient | T Statistics | p-value |
|------------------------------------|------------------|--------------|---------|
| Performance expectancy -> acceptance behaviour | 0.304             | 3.795       | 0.000   |
| Effort expectancy -> acceptance behaviour     | 0.363             | 4.310       | 0.000   |
| Social influence -> acceptance behaviour     | 0.260             | 3.659       | 0.000   |
| Facilitating conditions -> acceptance behaviour | −0.093           | 1.286       | 0.099   |

Table 6
 Importance-performance matrix analysis.

|                               | Importance | Performance |
|-------------------------------|------------|-------------|
| Performance expectancy       | 0.304      | 60.580      |
| Effort expectancy             | 0.363      | 58.411      |
| Social influence              | 0.260      | 58.997      |
| Facilitating conditions       | −0.093     | 62.096      |

taining to path significance, as shown in Table 5, performance expectancy ($\beta = 0.304, p < .05$), effort expectancy ($\beta = 0.363, p < .05$), and social influence ($\beta = 0.260, p < .05$) showed significant positive effects on the ODL acceptance. However, the impact of facilitating conditions on ODL acceptance was not significant ($p > .05$).

Finally, the Importance-Performance Matrix Analysis (IPMA) introduced by Ringle and Sarstedt [5] was performed to check the total effect and performance of proposed constructs (i.e., performance expectancy, effort expectancy, social influence and facilitating conditions). IPMA provided insights into the variables which were important but showed poor performance, thereby contributing to further managerial attention [11].

As exhibited in Table 6 and Fig. 1, the factor with highest importance is effort expectancy (0.363) and the factor with least importance is facilitating conditions (−0.093). In terms of performance, facilitating conditions (62.096) topped the list, followed by performance expectancy (60.580), social influence (58.997), and effort expectancy (58.411). In sum, the IPMA analysis pointed out that effort expectancy could be of managerial importance, given that it is the most important construct in explaining acceptance of ODL, yet underperformed by the practitioners. On one hand, practitioners seem to overkill on the least important construct, namely facilitating conditions.

2. Experimental Design, Materials and Methods

2.1. Questionnaire Design

A survey approached was adopted to gain insightful information with regard to international students’ intention to accept ODL mode for oversea education, particularly during COVID-19 pandemic period. The questionnaire consisted of two major parts. The first part included individual
demographic characteristics such as gender, age, programme name and prior experience in using ODL. The second part of the questionnaire is related to factors affecting behaviour of international students’ acceptance of ODL mode for overseas education. The items used to measure the constructs (i.e. performance expectancy, effort expectancy, social influence, facilitating conditions and acceptance behaviour) were derived from previous studies [3,4,12] to ensure content validity. Additionally, a pre-test was carried out with three academic experts in this area. With their feedback, minor modifications were made on the questions and questionnaire layout. A 5-point Likert scale ranged from “1” (strongly disagree) to “5” (strongly agree) was employed to measure each of the main constructs in the questionnaire. Each of the constructs has 4 items, thus a total of 20 items appeared in the questionnaire.

2.2. Data Collection

The data were collected from international students of five randomly selected universities in Malaysia namely UCSI University, Taylor’s University, Asia Pacific University of Technology & Innovation (APU), University of Nottingham Malaysia and University Science Malaysia (USM). Before the survey link was disseminated to the international students, the researchers have obtained prior consensus from the School Representatives of the five universities for data collection. In the survey form, it was indicated that the respondents’ identity will remain anonymous and confidential. The total duration of the data collection lasted two months from June to August 2020. Due to the reason that the sampling frame is not available for researchers, non-probability sampling technique was adopted. The approach has been widely adopted in similar situations or contexts [13]. We chose purposive sampling technique as it is suitable in achieving the research’s purposes [14].

A total of 270 questionnaires were received. After performing data cleaning in SPSS, 63 questionnaires were discarded because they were not properly completed and suffered from straight-lining issue, leaving a total usable response of 207 for further analysis.

Ethics Statements

Given that the research is a non-experimental voluntary survey, no ethical approval is necessary. Nevertheless, the consent of respondents to participate in the survey was still acquired beforehand, in an anonymous manner.
Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Dataset related to Online Distance Learning (Original data) (Mendeley Data).

CRediT Author Statement

Steve Shi-Hui: Conceptualization, Methodology, Investigation, Writing – original draft;
Lee Yen Chaw: Writing – original draft, Writing – review & editing, Visualization;
Eugene Cheng-Xi Aw: Writing – review & editing, Formal analysis, Visualization; Rohana Sham: Writing – review & editing.

Acknowledgment

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.dib.2022.108232.

References

[1] L. Heidrich, J.L.V. Barbosa, W. Cambruazzi, S.J. Rigo, M. Martins, R.B.S. Santos, Diagnosis of learner dropout based on learning styles for online distance learning, Telemat. Inform. 35 (6) (2018) 1593–1606, doi:10.1016/j.tele.2018.04.007.
[2] D. Keegan, Foundations of Distance Education, Psychology Press, 1996.
[3] V. Venkatesh, M.C. Morris, G.B. Davis, F.D. Davis, User acceptance of information technology: toward a unified view, MIS Q. 27 (3) (2003) 425–478 Management Information System, doi:10.2307/30036540.
[4] V. Venkatesh, J.Y.L. Thong, X. Xu, Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology, MIS Q. 36 (1) (2012) 157–178, doi:10.2307/41410412.
[5] C.M. Ringle, M. Sarstedt, Gain more insight from your PLS-SEM results the importance-performance map analysis, Ind. Manag. Data Syst. 116 (2016) 1865–1886, doi:10.1108/IMDS-10-2015-0449.
[6] J.F. Hair, J.J. Risher, M. Sarstedt, C.M. Ringle, When to use and how to report the results of PLS-SEM, Eur. Bus. Rev. 31 (2019) 2–24, doi:10.1108/EBR-11-2018-0203.
[7] J. Henseler, C.M. Ringle, M. Sarstedt, A new criterion for assessing discriminant validity in variance-based structural equation modeling, J. Acad. Mark. Sci. 43 (2015) 115–135, doi:10.1007/s11747-014-0403-8.
[8] Y.P. Yuan, G. Wei-Han Tan, K.B. Ooi, W.L. Lim, Can COVID-19 pandemic influence experience response in mobile learning? Telemat. Inform. 64 (2021) 101676, doi:10.1016/j.tele.2021.101676.
[9] P.Y. Foo, V.H. Lee, G.W.H. Tan, K.B. Ooi, A gateway to realising sustainability performance via green supply chain management practices: a PLS-ANN approach, Expert Syst. Appl. 107 (2018) 1–14, doi:10.1016/j.eswa.2018.04.013.
[10] C.M. Tang, L.Y. Chaw, Digital literacy: a prerequisite for effective learning in a blended learning environment? Electron. J. e-Learn. 14 (1) (2016) 54–65.
[11] L.Y. Yan, G.W.H. Tan, X.M. Loh, J.J. Hew, K.B. Ooi, QR code and mobile payment: the disruptive forces in retail, J. Retail. Consum. Serv. 58 (2021) 102300, doi:10.1016/j.jretconserv.2020.102300.
[12] X.M. Loh, V.H. Lee, G.W.H. Tan, K.B. Ooi, Y.K. Dwivedi, Switching from cash to mobile payment: what’s the hold-up? Internet Res. 31 (2021) 376–399, doi:10.1108/IntR-04-2020-0175.
[13] X.K. Loh, V.H. Lee, X.M. Loh, G.W.H. Tan, K.B. Ooi, Y.K. Dwivedi, The dark side of mobile learning via social media: how bad can it get? Inf. Technol. Front. (2021), doi:10.1007/s10796-021-10202-z.
[14] W. Zikmund, B.J. Babin, J.C. Carr, M. Griffin, Business Research Methods, 9th Ed., South-Western, Cengage Learning, U.S.A., 2013.
[15] E.C.X Aw, G.W.H. Tan, S.H.W. Chuah, K.B. Ooi, N. Hajli, Be my friend! Cultivating parasocial relationships with social media influencers: findings from PLS-SEM and fsQCA, Inf. Technol. People (2022), doi:10.1108/ITP-07-2021-0548.