

**OUM**  
**RESEARCH**  
**DIGEST**  
2022 ANNUAL ISSUE

# Credit Page

---

## **Publisher**

Open University Malaysia

## **Reviewer**

Assoc Prof Dr Thirumeni T Subramaniam

## **Editor**

Azeezah Jameelah Mohamed Mohideen

## **Project Coordinator**

Siti Hazrah Ahmad Sapiuddin

## **Desktop Publisher**

Ruhil Imal Mustafa

## **Web Master**

Mohd Aiman Junoh

**Copyright © 2022 by Open University Malaysia (OUM), Menara OUM, Block C, Kelana Centre Point, Jalan SS7/19, Kelana Jaya 47301, Petaling Jaya, Selangor.**

All rights reserved. No part of this work may be reproduced in any form or by any means without the written permission of the President of Open University Malaysia.

# Table of Content



Page  
**01**

Building Competency-  
Based Learning  
Framework with Distance  
Education in the Post-  
COVID-19 Era at Open  
University Malaysia

Page  
**16**

Online Assessment  
Practices During  
COVID-19 at OUM

Page  
**31**

Work Stress Level  
Among Lecturers During  
Covid-19: A Case Study  
at OUM

Page  
**41**

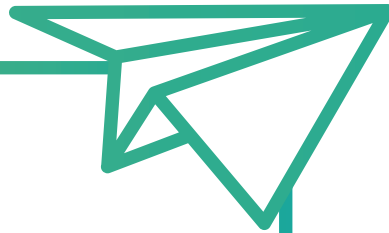
Learners' Perception on  
Online Distance Learning  
Market Segmentation  
Strategy

Page  
**56**

Development of Virtual  
Orientation for Online  
Learners: A Retention  
Strategy

Page  
**65**

*Model Kepuasan Pelajar  
Terhadap Interaksi Bagi  
Pembelajaran Matematik  
Dalam Talian di Universiti  
Terbuka Malaysia*



**Building  
Competency-Based  
Learning Framework  
with Distance  
Education in the  
Post-COVID-19 Era  
at Open University  
Malaysia**

Authors:

**Md Rosli Ismail  
Thirumeni T Subramaniam  
Fatimah Yusooff  
Eti Fairudz Zainuddin  
Wirawani Kamarulzaman**



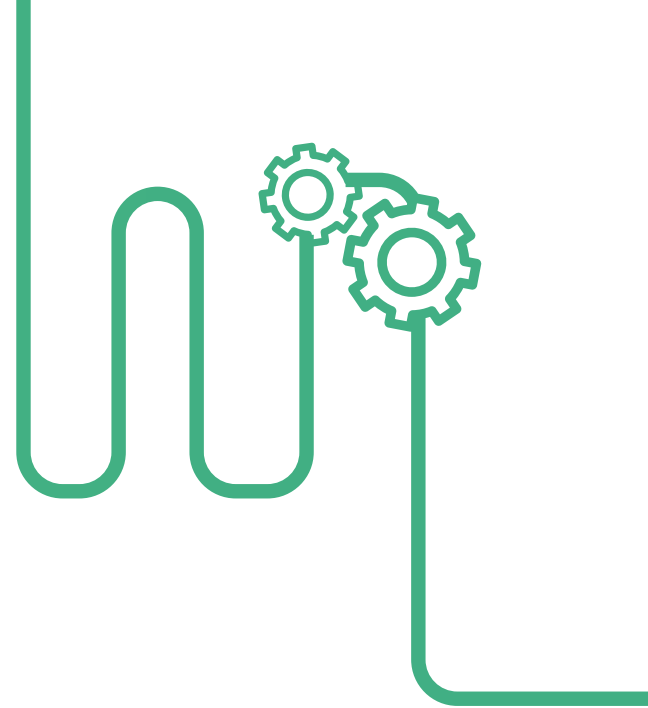
# Overview

The 4Cs (collaboration, communication, creativity, and critical thinking), which have become the key priority in the educational transition, are integrated into 21st century learning skills (known as 21st CLS). The Malaysian Education Blueprint's concepts have been introduced and supported by the Ministry of Education Malaysia (2012). Teachers in schools or higher learning institutions are responsible for advocating the 21st CLS. In the 21st CLS, educators must use a variety of strategies. For example, role-playing, games, and other learner-centred learning activities are appropriate for the subjects and skills acquired during the teaching and learning sessions.

Creativity emerges as the essential element that enables educators to use as many approaches as possible for producing ideas. The integration of information technology and media mainly facilitate and support the student's progression towards the 21st CLS by making it pertinent to pedagogy and instructional methods (Rahim & Abdullah, 2017). Technology integration offers students

the chance to gain 21st century skills like information literacy, collaboration, and self-access learning (Walser, 2008; Amran & Rosli, 2017). Due to the COVID-19 pandemic, online distance education has become the new norm, replacing face-to-face teaching. The first university in Malaysia to offer open distance learning (ODL) is Open University Malaysia (OUM). It has been putting ODL into practice for quite some time now. Developing a competency-based learning framework with its learners is more challenging nowadays as everything is online.

However, students are taught the OUMH1603 Learning Skills for 21st Century course in their first year of an undergraduate programme. The course covers all four of the 4Cs: topic five on creativity and innovation, topic six on



## Md Rosli Ismail

Open University Malaysia  
mdrosli@oum.edu.my

Dr Md Rosli Ismail received a scholarship under the Look East Policy programme to study at Keio University in Tokyo, Japan. He served 19 years in several corporations and later joined a university as an academic. He is currently a senior lecturer and the Master of Education programme director. He serves on the editorial board of the ASEAN Journal of Open and Distance Learning, Lentera Pendidikan (UIN Alauddin Makassar), and Selangor Humaniora Review (UNISEL). He is also an external examiner for two programmes at First City University in Selangor. He is actively involved in research and publications in the areas of education, literacy, and entrepreneurship.



critical thinking and reasoning skills, topic seven on communication skills, and topic eight on collaborative skills.

The pandemic has had a significant effect on education in addition to changing how individuals interact with one another. OUM has always offered open and distance learning, but this is now considered the new normal for traditional methods of instruction. Until recently, at least 20% of teaching and learning activities at OUM took place face-to-face. Everything must be online in the new normal. Instilling the 4C knowledge and abilities in students is, therefore, challenging. Prior research revealed that technology could improve higher-order thinking abilities (Ganapathy et al., 2017; Poppy, 2013). However, there is not enough research that studies how knowledge translates into skills and attitudes. Besides, in the post-COVID-19 era, limited studies examined competency-based learning models, including critical, creative, collaborative, and communication knowledge, even if there were a few studies on competency and distance learning (Ang et al., 2017; Sitermans, 2020). Therefore, it is crucial to investigate how much competency-based learning in the post-COVID-19 era may improve OUM students' acquisition of critical, creative, collaborative, and communication skills. In addition, it also considers how knowledge translates into attitudes and skills among OUM students.



## Literature Review

There are five themes of literature under review, which are competency-based learning, attitude towards the 4Cs, distance learning, 4Cs in the 21st century learning skills and description of 4Cs. These themes are crucial for in-depth understanding of 4Cs and distance learning which is the main elements in this study. Besides, the competency-based learning (CBL) framework is also presented.

### Thirumeni T Subramaniam

Open University Malaysia  
thirumeni@oum.edu.my

Assoc Prof Dr Thirumeni T Subramaniam is an academic with wide research experience in the areas of institutional research (analytics), green and sustainable solutions, and science, technology, engineering and mathematics (or STEM) education and photonics technologies. She is currently engaged in a project focusing on capacity building for educators, called BUKA, which is funded by Erasmus+. She is also working on several projects centring on predictive modelling using data analytics, open education solutions (system and creative content development), as well as green and sustainable solutions (postgraduate research projects).



# Competency-Based Learning

A method for developing academic programmes that places more focus on competencies, such as knowledge, skills, and abilities, than on classroom time is CBL (StrategyLabs, n.d.).

The Organization for Economic Cooperation and Development (OECD) through PISA (Program for International Student Assessment), in defining CBL, as "...a competency that is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing upon and mobilising psychosocial resources (including skills and attitudes) in a particular context. For example, the ability to communicate effectively is a competency" (O'Sullivan & Burce, 2014). Simply put, CBL programmes are founded upon the idea that it is more important to focus on outcomes – what a student knows and can do than on inputs such as how the student learns, where the student learns, or how long it takes for a student to learn. CBL programmes are free to experiment with novel methods for assisting students in their learning as well as new facets of what a course actually is. Open educational resources (including

textual materials, videos, recorded lectures, etc.) or hands-on, project-based learning are sometimes used in CBL programmes to enable students to learn in several forms. Another benefit of many programmes is that they allow students to develop at their own pace rather than follow a schedule determined by semesters or credit hours. Thus, highly motivated and productive students finish their degrees more quickly.

## Attitudes Towards 4Cs

It is inadequate to examine students' critical, creative, collaborative, and communicative knowledge and skills. The study is also interested in seeing how students feel about having such knowledge and skills. A study done by Sueb (2015) found that younger generations are more tolerant and open-minded towards skills. Mahmoodi-Shahrebabaki and

**Fatimah Yusooff**  
Open University Malaysia  
fatimah51@oum.edu.my

Prof. Dr Fatimah Yusooff is a professionally-trained counsellor who has taught psychology and counselling for many years at both the undergraduate and postgraduate levels. She has over 30 years of experience as an academic, and is currently a professor at OUM. Prof. Fatimah is also a family counsellor with a great deal of experience. She has been recognised for her work with three Excellent Service Awards, and also received an excellent lecturer certificate from Institut Sosial Malaysia. She is a member of a network of psychologists and counsellors, and has been involved in Malaysian psychological associations. She is also a member of the interviewing board for Malaysia's Counselling Association.






Yaghoubi-Notash (2015) supported this notion and reported that learners are more motivated to learn. However, the same study suggested that teachers feel distressed and dissatisfied with the new syllabus (Mahmoodi-Shahrebabaki and Yaghoubi-Notash, 2015). This is concurrent with a research by Kamarulzaman and Hashim (2018). They discovered that although teachers thought that teaching higher-order thinking abilities were crucial for students' development, it was hard to do so while completing the school curriculum. On the same note, Chatterjee and Correia (2020) explored the correlation between collaboration and a sense of community and found that students have positive attitudes towards collaborative learning. It is similar to another study that reported that students have positive attitudes towards learning communication skills (Kovac & Sirkovic, 2017). The current study will investigate whether OUM students can produce similar results to those of these authors.

## Distance Learning

There are several definitions of distance learning. Greenberg (1998:36) defines contemporary distance learning as “a planned teaching/learning experience



that uses a wide spectrum of technologies to reach learners at a distance and is designed to encourage learner interaction and certification of learning” (pp. 36). Teaster and Blieszner (1999:741) state that the teacher and the learner are separate in space and possibly time. Keegan (1995:7) gives the most thorough definition: “distance education and training result from the technological separation of teacher and learner, which frees the student from the necessity of travelling to a fixed place, at a fixed time, to meet a fixed person, to be trained“.

Valentine (2002) states that despite the clear benefits and promises of distance learning, there are still issues to be addressed. These issues include the quality of instruction, hidden costs, the misuse of technology, and the attitudes of instructors, students, and administrators. Each of these has an impact on the overall quality of distance learning as a product. Each of these issues is related to one another other in a variety of ways.

In the same argument, the students needed continuous human contact – the presence

**Eti Fairudz Zainudin**  
Open University Malaysia  
etifairudz@oum.edu.my


Eti Fairudz Zainudin joined OUM in 2014, after a 6-year tutoring and lecturing journey at INTEC and UiTM Shah Alam. Her research portfolio is in the area of TESL, linguistics, english communication, language skills, educational psychology and educational theories, and areas related to teaching and learning. Currently, she is pursuing her PhD at OUM, investigating the affective domain in 21st century learning.



of a teacher figure to guide their learning. The meaning of such frustrations is not well understood by many lecturers, possibly because a majority of them are products of a face-to-face (f2f) institution themselves (Hisham Dzakiria, 2012). He added that (i) they do not have any distance training and experience as far as developing distance course materials is concerned; (ii) they may be subject specialists, but with very little or no experience in ODL; (iii) they have not experienced the frustration that a distance learner does; and (iv) they may not understand what is involved for students when deprived of f2f interaction with their lecturers. The consequence is that the lecturers and educators have very little empathy for the learners (Markova et al., 2017).

## 4Cs in the 21st CLS

COVID-19 pandemic is still affecting many institutions, and it appears that the educational trends are virtually entirely moving towards online education. The emphasis on learning skills has, most critically, been constructively steered towards the adoption of 21st century skills in teaching and learning. Many individuals



and organisations have adopted learning standards that support cross-disciplinary skills at the beginning of the 21st century with the many advancements of technology and the economy (Levin-Goldberg, 2012; Alismail & McGuire, 2015, Stehle & Peters-Burton, 2019). Understanding the entire transition from industry-based economy to service-based economy is necessary to comprehend the 21st century skills concept, and this will require additional research.

The focus of education has shifted from being heavily cognitive to being noncognitive. The inclusion of noncognitive skills in the curriculum has been supported by a number of scholars. Additionally, Herrington and Kervin (2007) support this notion by saying, “A thinking curriculum provides a deep understanding of the subject and the ability to apply that understanding to the complex, real-world problems that the student will face as an adult” (p. 64).

In order to support the importance of 21st CLS, many researchers across disciplines like education, social work, and psychology

### **Wirawani Kamarulzaman**

International Islamic University Malaysia  
wirawani@iium.edu.my

Dr Wirawani Kamarulzaman is attached to the Department of Educational Psychology and Counselling at the Kulliyah of Education at International Islamic University Malaysia. Her research interests include education, educational psychology, thinking skills, teaching thinking, early childhood education, and assessments. Her current research explores the connection between anticipatory thinking skills and how they can promote a better mental health status.



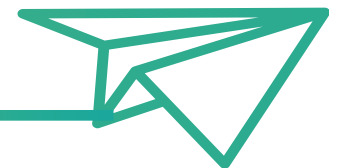
have an emphasis on some cognitive and noncognitive skills for academic success (Park, 2004; Tooley & Bornfreund, 2014; Jackson, 2018; Jinyan, 2022). Ultimately, the focus of this study is to explore the knowledge of 21st CLS as the more “essential” skills in education institutions. Under the main area of Learning and Innovation, there are FOUR essential skills, which are known as the 4Cs - (i) critical thinking and problem solving, (ii) creativity and innovation, (iii) communication, and (iv) collaboration. These skills are individual skills transferable from one assignment to another and later in life after school, college and university. National Education Association (2015) concluded that the 4Cs need to be fully integrated into learning and teaching to produce citizens and employees adequately prepared for the 21st Century.

## Critical Thinking and Problem Solving

A series of more complex mental operations are necessary for critical thinking, which improves students’ capacity to solve problems. Trilling and Fadel (2009) defined critical thinking as the ability to analyse, interpret, evaluate, summarise, and synthesise information. These processes can allow students to be successful. Knowlton (2003) mentioned that using problem-solving in teaching students can promote critical thinking skills that help them overcome challenges they may face in the real world. This approach allows students to learn through creative thinking and breakthrough thinking barriers to achieve unique 21st century learning skills. When teachers applied this strategy, they supported students’ capacities in critical thinking, self-directed learning, cooperation, and social interaction.

## Creativity and Innovation

In solving problems too, it is necessary to transform information into new knowledge, which is to find solutions to the problems. It is where creativity and innovation skills are essential. Other research has also reasoned that complex problems must be resolved with creative solutions (Kaufman, 2013). Creativity is related to the production of new and useful ideas on products, services, or processes that are both novel and potentially useful (e.g., Amabile, 2019; Luthans et al., 2021). In the working world, an employee’s creativity is subjected to an imperative for long-term organisational success (DiLiello & Houghton, 2008), thus, it has become a critical skill for organisations to lead or adapt to change.



# Communication

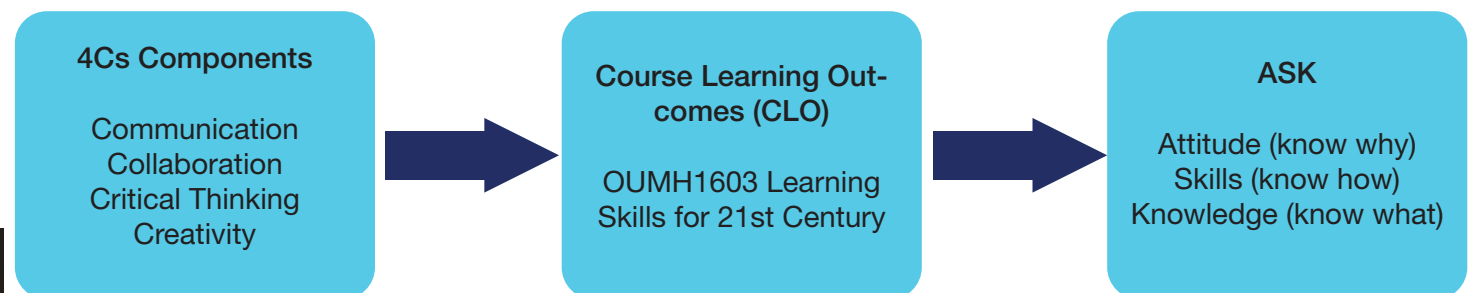
Communication skills are vital in the growing service sector and concern the ability to transmit information, ensuring that the meanings are effectively expressed by considering the audience and medium (Chalkiadaki, 2018; Van Laar et al., 2020). One must be able to effectively regulate one's needs and goals with those of the larger society to successfully navigate in the current social world (Voogt et al., 2013). Because of the interconnectedness of our global economy, employers demand people with communication skills (Teo, 2019).

# Collaboration

According to Herrington and Kervin (2007), researchers found that linking content with reality lets students engage in the learning environment effectively and promotes future skills such as critical thinking, problem-solving, and collaborative learning. Students will be able to make sense of their learning and create meaning with more value in collaborative learning.

# Competency-Based Learning (CBL) Framework

Figure 1 shows the competency-based learning (CBL) framework of 4Cs components (communication, collaboration, critical learning and creativity) towards knowledge transfer into attitude, skills and knowledge (ASK) through course learning outcomes (CLO) of OUMH1603 Learning Skills for 21st Century; a subject taught in the first year of undergraduate programmes.



**Figure 1.** Competency-based Learning (CBL) Framework

# Objectives of the Research

This study was designed to measure the following four-fold objectives:

1. Learners' prior knowledge of 4Cs (4Cs knowledge retained);
2. Learners' 4Cs skills applied to attain selected course learning outcomes;
3. Learners' attitude towards the use of 4Cs in achieving course learning outcomes; and
4. The correlation between 4Cs skills and attitude.

## Research Method

This study applied the quantitative approach using three different types of instruments: (i) multiple-choice questions (MCQs), (ii) components of the summative assessment, and (iii) a set of questionnaires.

The learners from the Written Communication course during the January 2022 semester were selected as the respondents for this study. These learners are generally in their third semester and have completed the OUMH1603 course (Learning Skills for 21st century) during their first semester where they were taught the 4Cs skills.

Based on attitude, skills and knowledge (ASK), this study was divided into three phases.

1. During the first phase, a test using multiple-choice questions (MCQs) was administered to determine the level knowledge on 4Cs that are retained by the respondents from their learning experiences related to 4Cs during their first semester when they enrolled in OUMH1603.
2. In the midst of this study, scores from selected components of the Written Communication course assignment were retrieved. During the Written Communication course, learners were guided through the use of 4C skills towards achieving the selected course learning outcomes (from the targeted course learning outcomes). The course assignment for the January 2022 semester was carefully designed to enable scoring of 4C skills as part of the assignment scoring.
3. In the final phase, the attitude of learners towards the knowledge of 4Cs skills for learning was evaluated using a perception-based questionnaire that utilises the 5-point Likert scale measurement – 5 (strongly agree), 4 (agree), 3 (neutral), 2 (disagree) and 1 (strongly disagree). The three sets of data were analysed using SPSS software to identify the level of knowledge retained, skills transferred, and attitude.



# Findings

A total 73 respondents (N=73) provided clean data that were analysed for this study. The MCQ prior knowledge questions were developed based on the four topics in OUMH1603, topics 5, 6, 7 and 8 on Creativity and Innovation, Critical Thinking and Reasoning Skills, Communication Skills, and Collaborative Skills respectively. The questions were then cross-reviewed and edited before creating an online test paper (4Cs Prior Knowledge Test) using SurveyMonkey. The link to the survey was posted to learners enrolled in the Written Communication course at the beginning of the course. The results from the MCQ tests measuring Prior Knowledge of Learners in 4Cs that were scores using a scale from 0 to 5 are shown in Table 1. It appears that the learners only retained knowledge about communication skills. OUM learners will also enrol in a course titled Introduction to Communication in their sixth semester to reinforce their communication skills. The mean score for all other skills were below 2.5. This raised a concern even when critical thinking is reinforced through a course on thinking skills and problem solving during the fourth semester.

4C Components	Mean
Creative thinking	1.79
Critical thinking	2.11
Communication skills	3.71
Collaborative skills	1.85

The Written Communication assignment for the January 2022 semester was designed in a way that allows the 4Cs skills to be scored (one of the researchers is the course leader for Written Communication). After the assignment papers were scored, the marks for the 4C components were extracted for learners who have taken the 4Cs Prior Knowledge Test. The assignment scores were converted into a scale from 0 to 5. These scores that indicate learners' ability to apply 4Cs skills in their assignment is much more promising as seen in Table 2. The values range between 3.32 and 3.57 with a small variation of 0.25. This is rather positive, suggesting that despite the limited knowledge retained by learners, they are able to develop the necessary skills needed to complete their assignment. This suggests the importance of competency-based learning.

4C Components	Mean
Creative thinking	3.50
Critical thinking	3.57
Communication skills	3.32
Collaborative skills	3.49

The questionnaire to measure attitude was developed based on a framework that was tested in a separate study. The questionnaire was also administered using SurveyMonkey. Only responses from the learners who have responded for the previous phases were analysed here. The highest score on the attitude of learners towards the use of communication skills matches the highest level of prior knowledge that the learners had. It is justifiable that the learners' attitude towards communication skills is most positive with a mean above 3. However, it is only higher by 0.09 as the variation between all 4Cs is 0.24.

**Table 3.** Attitude on 4Cs  
*Source: Fieldwork, 2022*

4C Components	Mean
Creative thinking	3.82
Critical thinking	3.97
Communication skills	4.06
Collaborative skills	3.95

The order of means in Tables 1 and 3 are exactly the same. Thus, the attitude of the learners with regard to the use of 4Cs skills in learning are very likely to be influenced by their prior knowledge. However, the same is not found between skills and attitude. This is proven by the Pearson correlation values recorded in Table 4.

**Table 4.** Correlations between 4Cs Skills and Attitude  
*Source: Fieldwork, 2022*

4C Components	Pearson Correlation	Sig. (2-tailed)
Creative thinking	-.013	.913
Critical thinking	-.012	.922
Communication skills	-.123	.301
Collaborative skills	.027	.822

Concerning prior knowledge test scores, the value 3.71 for communication skills demonstrates the course's success in teaching this skill. Sadly, the same was not in the other 4C skills, notably creative thinking, critical thinking, and collaboration skills. Their results were less than 2.5 (1.79, 2.11, and 1.85, respectively) and are somewhat disappointing, especially given that the learners had only completed one semester before enrolling in the Written Communication course. That necessitates a review of the three topics against the topic of Communication Skills.

For teaching improvement of the three skills (creative thinking, critical thinking, and collaborative skills), the module developer should update the module, review these skills' reinforcement and consider the curriculum design. It is possible to improve the achievement of learning outcomes connected to the 4Cs and others. As part of an initiative, the Creative Media team is developing four OERs to improve 4C skills.

Skill assessment yielded highly positive values ranging from 3.32 to 3.57, with a 0.25 variance. While learners' information retention within (creative thinking, critical thinking, and collaboration skills) is poor, their ability to develop these skills to complete their assignment revealed that the skills of learners are at a good level (above 3.3) for all 4Cs. This highlights the significance of competency-based learning. The order of means, however, differs from the order

of knowledge (and attitude). The Pearson correlation values also reveal that the association between skills and attitude are not significant for all 4Cs. This demands a re-examination of skill measurement. There is a requirement to link the information and essential skills under each of the four Cs.

The OUMH1603 assessment measures both knowledge and skills. In the second semester, these skills must be applied to achieve specific learning outcomes (Principle of Management course is suggested). Following the suggested revision of Topics 5, 6, and 8, both knowledge and skill (OUMH1603) and application of skills (Principle of Management) scores must be compared. This study should look for initiatives (self-learning or supported facilitation) that improve the use of 4Cs in the second semester. This would support the finding that learners may apply 4Cs skills to achieve specific course learning outcomes.

The level of prior knowledge that the learners had (3.71) is matched by the level of learner attitude towards the use of communication skills. Learners with a positive attitude towards using communication skills have a mean score of 4.06, which is higher by 0.09 than 3.97, the mean for Critical Thinking; This corresponds to a finding from a previous survey among OUM learners that indicated a positive attitude towards learning.

The order between the means in Tables 1 and 3 show that the attitude of learners towards using 4Cs skills in learning is likely to be influenced by their prior knowledge. This is important because courses like OUMH1603 which focus on important 4Cs skills in the first semester curriculum offered to all Diploma and Bachelor learners. Similar courses should be introduced at the postgraduate level to keep up with changes in global education and skills trends.

## Impact of the Research

This study evaluates the CBL framework in a distance education programme. The importance of CBL in the post-COVID-19 era is to provide an effective and efficient programme that promotes the 21st CLS in a digital education model. Despite the challenges faced in digital education, this model has broken some boundaries and expanded the global community. This study examined learners' 4C skills using the Attitudes, Skills and Knowledge (ASK) model. The study also evaluated the relationship between knowledge, skills and attitudes using the ASK model. The ability to retain knowledge is satisfactory in one of the 4Cs, i.e. communication skills. While the use of skills and attitudes is above average among all 4Cs, there is a close relationship between knowledge and attitudes in this study. As suggested in the focus group session, there is a need to explore the lack of a relationship between knowledge and skills and between skills and attitudes. The effectiveness of the current curriculum can be improved through assessment and consideration of three additional themes (creative thinking, critical thinking, and collaborative skills) for the course module.

## Acknowledgements

The study was made possible with the support of the university's internal grant (Grant No. OUM-IRF-2021-003) and the OU5 Network. The authors would like to acknowledge the support of Ms Nik Aisyah Nik Yahya and OUM's creative media team.

# References

- Alismail, H. A., & McGuire, P (Dr.) (2015). 21st century standards and curriculum: Current research and practice. *Journal of Education and Practice*, 6(6), pp. 150-155.
- Amabile, T. (2019). *Creativity in context*. Taylor & Francis Group.
- Ang, A., Harun, J., & Zaid, (2017). Competency-based learning in online learning environment: a review. *Man in India*, 97, pp. 193-202.
- Banerjee, Y., Tuffnell, C., & Alkhadragy, R. (2019). Mento's change model in teaching competency-based medical education. *BMC Medical Education*, 19(472), 1-18.
- Buheji, M., & Buheji, A, (2020). Planning competency in the new normal-employability competency in post-covid-19 pandemic. *International Journal of Human Resource Studies*, 10(2), 237-251.
- Chalkiadaki, A. (2018). A systematic literature review of 21st century skills and competencies in primary education. *International Journal of Instruction*, 11(3), 1–16, <https://doi.org/10.12973/iji.2018.1131a>
- DiLiello, T. C., & Houghton, J. D. (2008). Creative potential and practised creativity: identifying untapped creativity in organizations. *Creativity and Innovation Management*, 17(1), 37–46, <https://doi.org/10.1111/j.1467-8691.2007.00464.x>
- Efendi, R., Jama, J., & Yulastri, A. (2019). Development of competency-based learning model in learning computer networks. *Journal of Physics: Conference Series*, 1387(2019), 1-6. <https://doi.org/10.1088/1742-6596/1387/1/012109>
- Ganapathy, M., Mehar Singh, M. K., Sarjit Kaur, & Liew, W.K. (2017). Promoting higher order thinking skills via teaching practices. *The Southeast Asian Journal of English Language Studies*, 23(1), 75 – 85
- Herrington, J., & Kervin, L. (2007). Authentic learning supported by technology: 10 suggestions and cases of integration in classrooms. *Educational Media International*, 44(3), 219-236.
- Hisham Dzakiria. (2012). Theory of relatability as a possible alternative to the issue of generalising of research findings: the case of open and distance learning (ODL) at Universiti Utara Malaysia. *Journal of Distance Education*, 14(1), 41-58.
- Jackson, C. K. (2018). What do test scores miss? the importance of teacher effect on non-test score. *Journal of Political Economy*, 26(5).
- Jinyan, Z. (2022). *Non-cognitive skills and their influencing factors for children: An empirical evidence from China*. Routledge.
- Kamarulzaman, W., & Hashim, R. (2018). Primary school teachers' understanding of critical thinking in KSSR classroom and its importance to students. *International Journal of Engineering & Technology*, 7(4.15), 530-535.
- Kaufman, K. J. (2013). 21 ways to 21st-century skills: why students need them and ideas for practical implementation. *Kappa Delta Pi Record*, 49(2), 78-83, <https://doi.org/10.1080/00228958.2013.786594>

- Knowlton, D. (2003). Preparing students for educated living: virtues of problem-based Learning across the higher education curriculum. *New Directions for Teaching and Learning*, 24(95), 5-12.
- Kovac, M. & Sirkovic, N. (2017). Attitudes towards communication skills among engineering students. *English Language Teaching*, 3(10), 111-117.
- Levin-Goldberg, J. (2012). Teaching generation techX with the 4Cs: Using technology to integrate 21st century skills. *Journal of Instructional Research*, 1, 59-66.
- Luthans, F., Luthans, B. C., & Luthans, K. W. (2021). *Organizational behavior: An evidence-based approach*. (14th ed.). Information Age Publishing, Inc.
- Markova, T., Glazkova, I., & Zaborova, E. (2017). Quality Issues of online distance learning. *Procedia - Social and Behavioral Sciences*, 237, 685–691, <https://doi.org/10.1016/j.sbspro.2017.02.043>
- Mahmoodi-Shahrehabaki, M., & Yaghoubi-Notash, M. (2015). Teachers' and learners' attitudes towards critical thinking skills: A case study in the iranian EFL context. *Journal of Applied Linguistics and Language Research*, 2(2), pp. 93-106
- Ministry of Education Malaysia. (2012). *Pelan pembangunan pendidikan negara Malaysia: 2013-2025: Malaysian education development plan*. Ministry of Education Malaysia.
- National Education Association. (2015). *Preparing 21st-century students for a global society: an educator's guide to the "four Cs"*, <http://www.nea.org/assets/docs/A-Guide-to-Four-Cs.pdf>
- Park, N., & Peterson, C. (2005). The values in action inventory of character strengths for youth. In K. A. Moore & L. H. Lipman (Eds.), *What do children need to flourish: Conceptualizing and measuring indicators of positive development*, (pp. 13-23).
- R. Poppy Yaniawati, (2013). E-learning to improve Higher Order Thinking Skills (HOTS) of students. *Journal of Education and Learning*, 7(2), 109-120.
- Ritushree Chatterjee, & Ana-Paula Correia. (2020). Online students' attitudes toward collaborative learning and sense of community. *American Journal of Distance Education*, 34(1), 53-68.
- Sisternans, I, J. (2020). Integrating competency-based education with a case-based or problem-based learning approach in online health sciences. *Asia Pacific Education Review*, 21, 683–696.
- O'Sullivan, N., & Burce, A. (2014). E-learning\_2014\_belgrade. *The Fifth International Conference on E-Learning (ELearning-2014)*. Belgrade.
- StrategyLabs. (n.d.). *Understanding competency-based education*. <https://www.ecs.org/wp-content/uploads/CBE-Toolkit-2017.pdf>
- Stehle, S. M., & Peters-Burton, E. (2019). Developing student 21st-century skills in selected exemplary inclusive STM high schools. *International Journal of STEM Education*, 6(39), 1-15. <https://doi.org/10.1186/s40594-019-0192-1>
- Sueb, S. (2015). Students' attitude towards critical thinking practices in classroom discussion. *Proceeding of International Conference of Educational Research and Development*. State University of Surabaya.
- Teo, P. (2019). Teaching for the 21st century: a case for dialogic pedagogy. *Learning, Culture and Social Interaction*, 21, 170-178. <https://doi.org/10.1016/j.lcsi.2019.03.009>

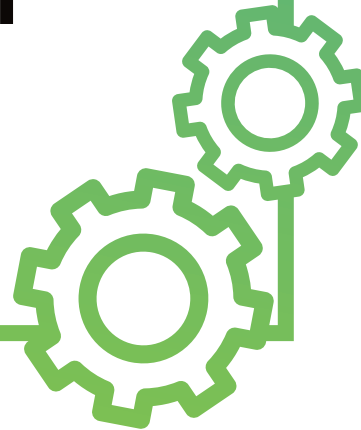
Tooley, M., & Borfreund, L. (2013). *Skills for success: Supporting and assessing key habits, mindsets, and skills in PreK-12*. New American Foundation. [https://www.newamerica.org/downloads/11212014\\_Skills\\_for\\_Success\\_T\\_ooley\\_Bornfreund.pdf](https://www.newamerica.org/downloads/11212014_Skills_for_Success_T_ooley_Bornfreund.pdf)

Trilling, B., & Fadel, C. (2009). *21st century learning skills*. John Wiley & Sons.

Van Laar, E., Van Deursen, A. J. A. M., Van Dijk, J. A. G. M., & de Haan, J. (2020). Determinants of 21st-century skills and 21st-century digital skills for workers: A systematic literature review. *SAGE Open*, *10*(1). <https://doi.org/10.1177/2158244019900176>

Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2013). Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of Computer Assisted Learning*, *29*(5), 403–413, <https://doi.org/10.1111/jcal.12029>

# Online Assessment Practices During COVID-19 at OUM



Authors:

Harvinder Kaur Dharam Singh  
Harvinder Kaur Mehedhar Singh  
Loo Fung Lan



# Introduction

The COVID-19 disease, first detected in Wuhan, China, spread to other countries by the year 2020. As a result, most economic and educational sectors were affected as businesses and schools were compelled to shut down (International Labour Organization, 2022; Tadesse & Muluye, 2020). In Malaysia, the Movement Control Order (MCO) which was implemented starting 18 March 2020, led to the bloom of online-based work strategies. The educational sector experienced a sudden shift because schools and universities had to conduct all lessons and assessments online. Open and distance learning (ODL) institutions in the country were no exception.

One of the most renowned ODL universities in the country, Open University Malaysia (OUM), responded to the shift by conducting all its educational activities online. Academics and students alike adapted to the change in a rather positive manner as classes and assessments could be conducted from the comfort of their homes. The implementation

of online assessment during the pandemic conveniently encouraged the use of laptops and desktops to replace paper and pen exams (Kundu & Bej, 2021).

Despite its convenience, the use of online assessments raised several concerns among academics (Adedoyin & Soykan, 2020; Newton, 2020). A plethora of research has been conducted to highlight the effectiveness and challenges of online assessment for teachers and students prior to the pandemic (Al-Maqbali & Hussain, 2022; Guangul et al., 2020; Schalk et al., 2022). However, little is explored concerning the implementation of online learning assessment in ODL universities during the pandemic. As OUM had successfully administered online assessments during the pandemic, it would be interesting to discover the practices and experiences of its academics in this matter as it has yet to be researched.

## Harvinder Kaur Dharam Singh

Open University Malaysia

harvinder@oum.edu.my

Dr Harvinder Kaur Dharam Singh is a senior lecturer at Open University Malaysia with a focus on instructional design and technology, mobile learning, online learning, online assessment, and recognition of prior experiential learning. Dr Harvinder plays a vital role in supervising and evaluating Master's and Doctoral theses, nurturing the next generation of scholars. Additionally, she serves as the programme director for the PhD programme and the Master of Instructional Design and Technology, showcasing her leadership and expertise in the field. Her vast knowledge and unwavering commitment continue to positively impact the field of education.





# Research Objectives

This research paper aims to achieve the following objectives which will be part of the main research:

- Examine the academics' conception of assessment at OUM;
- Review the academics' assessment practices at OUM before and during COVID-19;
- Identify the challenges of online assessments at OUM.

# Research Questions

The research questions in this study are:

- How do the academics conceive assessment at OUM?
- What are the academics' assessment practices of OUM during the COVID-19 pandemic?
- What are the challenges of online assessment at OUM?

**Harvindar Kaur Mehedhar Singh**  
Open University Malaysia

Dr Harvindar Kaur is a co-researcher in this research project. While her Bachelor and Master's degrees focused on the Teaching of English as a second language, her Doctor of Philosophy facilitated her specialisation in the field of inclusive education. Having a stunning teaching career spanning over 16 years, Dr. Harvindar has taught both local and international students from diverse cultures and backgrounds. She aspires to become a distinguished scholar in the fields of English Language Teaching, Special Needs Education, and curriculum and instruction.



# Literature Review



In the modern era of education, assessment is an integral aspect of measuring a learner's success and progress throughout a learning **process**. However, with the sudden outbreak of the novel COVID-19 pandemic, traditional modes of assessment were no longer feasible, and it became mandatory for educational institutions to switch to online assessments. The adoption of online assessments through the internet and technology has led to the introduction of various assessment methods, such as take-home exams and online multiple-choice question exams. While various studies have reported on the effectiveness and challenges of online assessments before the pandemic, most of these studies were conducted by conventional learning institutions, leaving a significant gap in research on online assessment in ODL.

## Academics' Conceptions

Academics' conception refers to how teachers perceive the purpose and role of assessment in their pedagogical practices. Brown's (2006) study found that teachers have four primary conceptions of assessment: (i) improving teaching and learning, (ii) holding students accountable for their performance, (iii) holding schools and teachers accountable for the quality of education, and (iv) being irrelevant and harmful to students. These conceptions influence how teachers design assessments and provide feedback to students. Brown (2008) developed the Teachers' Conceptions of Assessment (TCoA) Model to explore teachers' conceptions of assessment further. This model provides a more in-depth understanding of teachers' perspectives on assessment and how it shapes their instructional practices. Similarly, Remesal (2011) identified four aspects of assessment effects on teaching, learning, students' certification of learning, and teachers' accountability.

**Loo Fung Lan**  
Open University Malaysia  
loofunlan@oum.edu.my

Dr Loo Fung Lan is the programme director for the Bachelor of Early Childhood Education programme at OUM. Her areas of expertise include child psychology, pedagogy, and curriculum in early childhood education. She is actively involved in lecturing, research, training, and consultation in early childhood care and education.



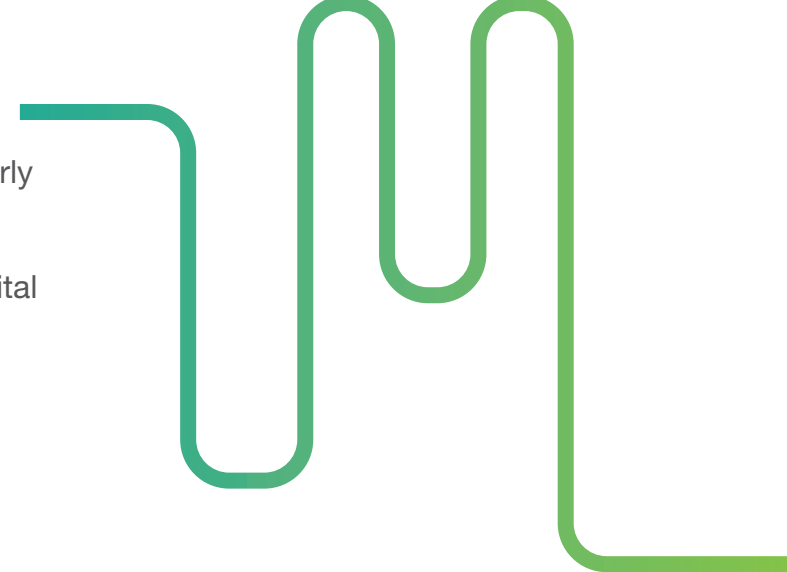
However, there is a lack of research on academics' conceptions of online assessment, particularly in open and distance universities. With the sudden shift to online learning due to the COVID-19 pandemic, there is a need to understand how academics in open and distance universities perceive online assessment and how they adapt their practices to meet the demands of the digital learning environment.

## Online Assessment Practices

The role of assessment in evaluating teaching practices and student performance is widely recognised. Ghaicha (2016) suggested that effective assessment practices can be measured through appropriate **evaluation methods**. In open universities, assessment is typically conducted through a two-tier system that includes formative and summative assessments. While both assessment forms are important, Chaudhury and Dey (2013) emphasised summative assessment in open universities. Summative assessment is used to certify student performance and occurs at the end of a course. Semester-end examinations are commonly used for summative assessment in open universities. In contrast, formative assessment is conducted regularly throughout the course to provide the teacher and student with information on how the student is progressing. Bakerson et al. (2015) suggested that formative assessment is an essential part of the learning process as it can help teachers plan accordingly to meet the student's needs. Most universities use assignments, in-text questions, and self-assessment activities for formative assessment.

Assessment practices are critical in ensuring the quality of education and the effectiveness of teaching and learning. To evaluate the quality of assessment practices, Norcini et al. (2011) proposed a set of good assessment criteria, including validity, reproducibility, equivalence, feasibility, educational effect, catalytic effect, and acceptability. These criteria provide a useful framework for evaluating assessment practices in online learning environments.

In the context of online assessment, Westhuizen (2016) provided a comprehensive guide for educators, covering various aspects of using technology for assessment. The guide included techniques for online assessment, criteria for good online assessment, principles of online assessment, and the use of learning management systems for online assessment. Some key aspects highlighted in the guide were the need for a balance between summative and formative assessments, the importance of authentic learning assessments, the development of 21st-century skills, and the application of Bloom's Revised Taxonomy. Furthermore, the guide emphasised the prerequisite for implementing online



assessment and best practice principles for online assessment. The different types of assessments and methods of assessments were also listed to provide teachers with a wide range of assessment techniques.

On the other hand, preserving academic integrity in online assessment processes is essential. However, maintaining academic integrity can be challenging with online assessments (Gamage et al., 2020; Guangul, et al., 2020). Online assessments can be divided into two categories: proctored online assessments with time limits and open-book online examinations with restricted and unfettered time limits. Online proctored examinations are administered at a predetermined time and monitored using various learning management systems, such as Moodle, Microsoft Teams, Canvas, and monitoring software, such as Proctortrack (Joshi et al., 2020). Webcams were also suggested to detect suspicious activity among students during assessments (Fiano et al., 2021).

## Challenges of Online Assessment

While online assessments provide several benefits, including flexibility and convenience, they also present various challenges to educators. Identifying and addressing these challenges are crucial to ensure that the online assessment process is fair, reliable, and effective. Educators have reported various difficulties, including adaptation to online practices, cheating and plagiarism, poor connectivity, and technical issues (Al-Maqbali & Hussain, 2022; Beleulmi, 2022). Teachers found it challenging to adapt to online practices when their subjects initially employed face-to-face assessment. Moreover, teachers encountered pressing issues such as students' reluctance to turn their cameras on, the extensive time required to develop online assessment materials, and the inability to curb cheating and plagiarism among students during online assessments. Poor connectivity was another hurdle, which resulted in delays in submitting completed assessments, especially for students living in rural areas (Yulianto & Mujtahid, 2021)

Despite the challenges, some academics were satisfied with online assessments. In terms of quizzes, feedback systems, videoconferencing, and online test administration, they indicated they would continue the practice of online assessment (Schalk et al., 2022). The shift in academic perspectives is one of the online assessment's most valuable achievements.

To summarise, online assessments have both advantages and disadvantages. As a result, it is critical to identify the academics' conceptions, practices, and challenges encountered when implementing the online assessment at OUM.

# Methodology

The research design for this study is a descriptive research design that aims to gather data on the academics' conceptions, practices, and challenges of assessment at OUM during the COVID-19 pandemic.

This design will allow the researchers to describe the current state of assessment practices and identify challenges faced by academic staff at OUM during the pandemic. The research questions will be answered using quantitative and qualitative data analysis methods, such as descriptive analysis using SPSS and content analysis using thematic themes.

The study will use convenience sampling to select the participants from the entire population of interest, which includes 90 academic staff at OUM. Data will be collected through a Google Form questionnaire consisting of four parts: demographic information, academics' conceptions of assessment at OUM using Brown's (2004) framework, academics' assessment practices during the COVID-19 pandemic using best practices from the literature, and challenges of online assessment at OUM using open-ended questions.

The study will adhere to ethical considerations such as informed consent, confidentiality, and anonymity. The participants will be informed about the purpose of the study and their rights before they provide their consent to participate. The data collected will be kept confidential and anonymous, and the participants will have the right to withdraw from the study at any time.

# Findings

## Demographics

The data in Table 1 presents demographic information such as gender, age, faculty, and teaching experience of the respondents. There were 17 male and 20 female academics, representing 43.6% and 56.4% of the total. The majority of academics were aged 41 to 50, with 16 people accounting for 43.2% of the group. In terms of faculty, the Faculty of Education had the most responses (11) representing 30.8% of the group, followed by the Faculty of Business (10) with 28.2%. There was an equitable distribution of teaching experience across the different categories. The biggest age group was 11-15 years, with 12 people comprising 33.3% of the group, followed by below 20 years (23.1%) and 16 to 20 years (23.1%).

Characteristics		Number	Percentage
Gender	Male	17	43.6
	Female	20	56.4
Age	< 30 years	0	
	31-40 years	9	
	41-50 years	16	
	51-60 years	9	
	>60 years	3	
Faculty	Faculty of Education	11	30.8
	Faculty of Social Sciences and Humanities	7	17.9
	Faculty of Business	10	28.2
	Faculty of Technology and Applied Science	9	23.1
Teaching Experience	< 5 years	0	
	5-10 years	7	17.9
	11-15 years	12	33.3
	16-20 years	9	23.1
	>20 years	9	23.1
Total		37	

**Table 1.** Demographics

## Analysis of Academics' Conception and Practices of Online Assessment

Table 2 shows mean and standard deviation scores for 9 different dimensions of TCoA, rated on a Likert scale of 1-5. The dimensions with the highest mean scores are "Improve Learning" (M=3.95), "Student Accountability" (M=3.89), and "Diagnose Abilities" (M=3.86), indicating that these are the most important dimensions according to the OUM academics.

On the other hand, the dimensions with the lowest mean scores are "Relevance" (M=2.33), "Accuracy (Inaccurate)" (M=2.59), and "Analysis (Ignored)" (M=2.89), indicating that these dimensions are the least important according to the academics.



It is also worth noting that the dimensions with the highest standard deviation scores are “University Accountability” (SD=0.80), “Validity” (SD=0.75), and “Improve Learning” (SD=0.67), indicating that there is more variability in the responses for these dimensions compared to others. This suggests that respondents have varying opinions about these dimensions.

**Table 2.** Academics’ Conception of Online Assessment

Dimension	Mean	Std Deviation
Improve Learning (3)	3.95	0.67
Student Accountability (1)	3.89	0.57
Diagnose Abilities (3)	3.86	0.71
Improve Teaching (3)	3.77	0.67
University Accountability (2)	3.68	0.80
Validity (3)	3.67	0.75
Analysis (Ignored)	2.89	0.96
Accuracy (Inaccurate)	2.59	0.70
Relevance (Intrude)	2.33	0.93

Table 3 presents the mean and standard deviation of the academics’ assessment practices at OUM during the COVID-19 pandemic. The mean score is an average of the responses given by the participants on a Likert scale of 1 to 5, where 1 indicates the lowest level of agreement with the statement and 5 indicates the highest level of agreement.

**Table 3.** Academics’ Assessment Practices During the COVID-19 Pandemic

Dimension	Mean	Std Deviation
Grading	4.03	0.53
Security Prevention	4.02	0.70
Transparency	3.97	0.61
Validity	3.86	0.87
Feasibility	3.81	0.70
Security Detection	3.71	0.92
Reliability	3.67	0.75
Security Remediation	3.65	0.87
Security Investigation	3.60	0.79
Fairness	3.45	0.94
Flexibility	2.13	1.01

The results show that the academics’ assessment practices are generally rated positively, with the mean scores ranging from 2.13 to 4.03. The highest mean score was found in the dimension of grading (M=4.03, SD=0.53), which indicates that the academics were able to grade student online assessments effectively during the pandemic. The dimension of security prevention (M=4.02, SD=0.70) also scored highly, indicating that effective security measures were taken to prevent cheating in online assessments.

The dimension of flexibility (M=2.13, SD=1.01) received the lowest mean score, indicating that the academics were not given the flexibility to conduct the format and types of online assessments during the pandemic. This could be due to the university's policy in standardising the assessment formats and constraints of the online environment in maintaining academic standards while ensuring fairness and validity of assessments.

## Analysis of Challenges of Online Assessments

In this part, the thematic analysis of the five open-ended questions of the survey are presented. The data are tabulated in accordance with the sequence of the open-ended questions.

### Q1: What went well with online assessment?

In this question, the tutors were asked about their positive experiences in relation to online assessment. The themes that emerged from the findings of this question are presented in Table 4.

**Table 4.** Themes on The Positive Aspects of Online Assessment

Question	Most Themes	Salient	Sub-Themes	Frequency
What went well with the OA?	1. Assessment procedures		Grading process	15
	2. Convenience		Submission flexibility	8

Table 4 indicates that the majority of the tutors felt that the assessment procedures were smooth during the pandemic with the grading process being the easiest as the theme emerged about 15 times in the open-ended questions. Meanwhile, others also believed that in terms of convenience, the submission of assessment was quite flexible. This includes exam and assignment questions that were submitted for online grading. This finding is parallel to the study conducted by Abduh (2021) who found that the largest number of their tutor respondents perceived entering grades into the system to be relatively easier and quicker compared to paper-based assessment.



## Q2: What aspect of online assessment did not go well / had unintended consequences?

This question explored the negative aspects of online learning as perceived by the tutor respondents. The themes that emerged from the findings of this question are presented in Table 5.

**Table 5.** Themes on The Negative Aspects of Online Assessment

Question	Most Themes	Salient	Sub-Themes	Frequency
What aspect of OA did not go well/had unintended consequences?	1. Technical matters		Internet connection; poor technical support	8
	2. Academic dishonesty		Cheating; discussion of answers;	7
	3. Time		Time management; inappropriate time allocation	6
	4. None		None; Not applicable	4

Based on Table 5, the most common themes indicated that the tutors faced technical issues in terms of poor internet connection and little technical support. They were also concerned about the issue of academic dishonesty whereby students were reported to be cheating and discussing answers to exam questions. The third frequent theme also implied that the tutors did not agree with the amount of time given for the assessment. Overall, these results are similar to the findings obtained by Ghanbari and Nowroozi (2021) in which their tutors reported poor technology access and cheating as issues faced during online assessment.

## Q3: What are the challenges faced with online assessment?

The hurdles and problems teachers encountered when implementing online assessment are discussed in this question. The themes that emerged from the findings of this question are presented in Table 6.

**Table 6.** Challenges Faced with Online Assessment

Question	Most Themes	Salient	Sub-Themes	Frequency
What are the challenges faced with online assessment?	1. Academic dishonesty		Cheated from online sources; Student integrity	10
	2. Technical matters		Unstable Internet connection; Poor digital literacy;	7

As shown in Table 6, the most pressing challenge faced by tutors was academic honesty. During the pandemic, students were reported to have cheated from online sources, affecting their integrity. This theme appeared 10 times during the analysis of the data followed by issues related to technical matters (repeated 7 times) such as poor digital literacy among the tutors and unstable internet connection. Yulianto and Mujtahid (2021) also reported that their teacher respondents felt that internet accessibility issues made it difficult for students to complete the online assessment and that there still were teachers and students who were not technologically competent.

#### Q4: If you had to do it all over again, what would you do differently for the online assessment?

In this open-ended question, the tutors were asked what could have been done differently if they had to cope with online assessment again from the beginning. The themes that emerged from the findings of this question are presented in Table 7.

**Table 7.** Themes on What Tutors Could Do Differently If They Had to Implement Online Assessment Again

Question	Most Themes	Salient	Sub-Themes	Frequency
If you had to do it all over again, what would you do differently for the online assessment?	1. Alternative assessment		Different assessment types; open book; more quizzes and games	7
	2. Academic integrity		Plagiarism checker; detection of plagiarism	6
	3. Time allocation		Time allocation should match F2F teaching	3

The most dominant themes from Table 7 indicate that alternative assessment and academic integrity were among the issues teachers would tackle if given the opportunity to conduct online assessment again. Recurring 7 times, the theme “alternative assessment” comprises their preference for various types of assessment, open book exams and the addition of games and quizzes into their lessons. Meanwhile, under the “academic integrity” theme which recurred 6 times, the teachers would utilise plagiarism checkers and would take steps to detect plagiarism if

only assessment were repeated under the same circumstances. Similarly, Meccawy et al. (2021) revealed through their study the need to train teachers to detect plagiarism and make students aware of the consequences of plagiarism.

### Q5: What recommendations would you make to others doing online assessments?

Explored in this final open-ended question were recommendations the tutors would make to their fellow counterparts who also conduct online assessment. The themes that emerged from the findings of this question are presented in Table 8.

Question	Most Themes	Salient	Sub-Themes	Frequency
What recommendations would you make to others doing online assessments?	1. Overcoming plagiarism issues		Copying and pasting of answers; authenticity check; action against cheaters	6
	2. Alternative assessment types		Promote HOTs; case study questions; creative assessment; open-book exam; interactive assessment	5
	3. Time limit revision		Limit to 5 hours; impose time limit	3

**Table 8.** Tutors' Recommendations to Others Doing Online Assessments

In Table 8, most of the tutors recommended resolving plagiarism issues. They felt that copying and pasting answers, checking the authenticity of student answers, and taking action against offenders were essential ways to curb plagiarism among students. Other studies, however, recommended using online proctoring (Arnold, 2022) and changing the format of assessment (Erguvan, 2021; Nguyen, et al., 2020) to lower the risk of cheating although the latter is not deemed effective by some teachers (Reedy et al., 2021).

# Conclusion

The findings of this study suggest that academic staff at OUM have a positive conception of online assessment, recognising its potential to make both students and the university accountable, as well as to improve education. However, the lack of flexibility in terms of allowing students to choose their assessment method is an area for improvement. While OUM's online assessment practices meet the best practices recommended in the literature, issues with academic dishonesty, exam time, and technical matters were identified. The recommendation is to provide a variety of assessments, revise the 24-hour assessment duration, and address academic dishonesty issues. It is interesting to note that despite academic dishonesty being identified as a major challenge, the security factor in the assessment practice was not rated poorly. This suggests that OUM may have an effective system in place for ensuring good online assessment practices. These findings could inform future efforts to enhance online assessment practices at OUM and other similar institutions.

# References

- Abduh, M. (2021). Full-time online assessment during COVID-19 lockdown: EFL teachers' perceptions. *Asian EFL Journal*, 28(1), 26-46.
- Al-Maqbali, A. H. & Hussain, R. M. R. (2022). The impact of online assessment challenges on assessment principles during COVID-19 in Oman. *Journal of University Teaching and Learning Practice*, 19(2), 73-92. <https://doi.org/10.53761/1.19.2.6>
- Arnold, I. J. M. (2022). Online proctored assessment during Covid-19: Has cheating increased? *The Journal of Economic Education*, 53(4), 277-295. <https://doi.org/10.1080/00220485.2022.2111384>
- Bakerson, M., Trottier, T., & Mansfield, M. (2015). The value of embedded formative assessment: An integral process in online learning environments implemented through advances in technology. In S, Koc, X, Liu & P, Wachira (Eds), *Assessment in online and blended learning environments* (pp. 3-20).
- Beleulmi, S. (2022). Challenges of online assessment during Covid-19 pandemic: An experience of study skills teachers. *Algerian Scientific Journal Platform*, 7(2), 49-62.
- Brown, G. T. (2006). Teachers' conceptions of assessment: Validation of an abridged version. *Psychological reports*, 99(1), 166-170.
- Brown, G. (2008). *Conceptions of assessment: Understanding what assessment means to teachers and students*. Nova Science Publishers.
- Chaudhary, S. V., & Dey, N. (2013). Assessment in open and Distance Learning System (ODL): A Challenge. *Open Praxis*, 5(3). <https://doi.org/10.5944/openpraxis.5.3.65>
- Erguvan, I. D. (2021). The rise of contract cheating during the COVID-19 pandemic: A qualitative study through the eyes of academics in Kuwait. *Language Testing in Asia*, 11(34). <https://doi.org/10.1186/s40468-021-00149-y>

- Fiano, K. S., Medina, M. S., & Whalen, K. (2021). The need for new guidelines and training for remote/online testing and proctoring. *American Journal of Pharmaceutical Education*, 85(8), 805-808.
- Gamage, K. A. A., de Silva, E. K., & Gunawardhana, N. (2020). Online delivery and assessment during COVID-19: Safeguarding Academic Integrity. *Education Sciences*, 10(11). <https://doi.org/10.3390/educsci10110301>
- Ghaicha, A. (2016). Theoretical framework for educational assessment: A synoptic review. *Journal of Education and Practice*, 7(4), 212-231.
- Ghanbari, N. & Nowroozi, S. (2021). The practice of online assessment in an EFL context amidst COVID-19 pandemic: Views from teachers. *Language Testing in Asia*, 11(27). <https://doi.org/10.1186/s40468-021-00143-4>
- Guangul, F. M., Suhail, A. H., Khalit, M. I., & Khidhir, B. A. (2020). Challenges of remote assessment in higher education in the context of COVID-19: A case study of Middle East College. *Educational Assessment. Evaluation and Accountability*, 32(4), 519–535. <https://doi.org/10.1007/s11092-020-09340-w>
- Joshi, A., Virk, A., Saiyad, S., Mahajan, R., & Singh, T. (2020). Online assessment: Concept and applications. *Journal of Research in Medical Education & Ethics*, 10(2), 49. <https://doi.org/10.5958/2231-6728.2020.00015.3>
- Nguyen, J. G., Keuseman, K. J., & Humston, J. J. (2020). Minimize online cheating for online assessment during COVID-19 pandemic. *Journal of Chemical Education*, 97(9), 3429, 3435.
- Norcini, J., Anderson, B., Bollela, V., Burch, V., Costa, M. J., Duvivier, R., Galbraith, R., Hays, R., Kent, A., Perrott, V., & Roberts, T. (2011). Criteria for good assessment: Consensus statement and recommendations from the ottawa 2010 conference. *Medical Teacher*, 33(3), 206–214. <https://doi.org/10.3109/0142159x.2011.551559>
- Meccawy, Z., Meccawy, M., & Alsobhi, A. (2021). Assessment in ‘survival mode’: Student and faculty perceptions of online assessment practices in HE during Covid-19 pandemic. *International Journal for Educational Integrity*, 17(16). <https://doi.org/10.1007/s40979-021-00083-9>
- Reedy, A., Pfitzner, D., & Ellis, L. (2021). Responding to the COVID-19 emergency: Student and academic staff perceptions of academic integrity in the transition to online exams at three Australian universities. *International Journal of Educational Integrity*, 17(9). <https://doi.org/10.1007/s40979-021-00075-9>
- Remesal, A. (2011). Elementary and secondary teachers’ conceptions of assessment: a qualitative study. *Teach. Teach. Educ.* 27(2), 472–482. doi:10.1016/j.tate.2010.09.017
- Schalk, A. E., McAvinia, C., & Rooney P. (2022). Exploring the concept of the digital educator during the COVID-19. *Australasian Journal of Educational Technology*, 38(2), 129-141.
- Westhuizen, D. (2016, November 1). *Guidelines for online assessment for educators*. Oasis Home. Retrieved April 3, 2022, from <http://oasis.col.org/handle/11599/2446>
- Yulianto, D. & Mujtahid, N. M. (2021). Online Assessment during Covid-19 Pandemic: EFL Teachers’ Perspectives and Their Practices. *Journal of English Teaching*, 7(2), 229-242.

# **Work Stress Level Among Lecturers During Covid-19: A Case Study at OUM**



Authors:


**Wong Huey Siew  
Amiraa Ali Mansor  
Fatimah Yusoff  
Oo Cheng Keat  
Mohd Tajudin Bin Md Ninggal**

# Overview

There has been a heightened awareness of the need to address workplace stress in the higher education sector. This is due to the competitive and demanding tasks and responsibilities that affect employees' physical and mental well-being within higher education institutions.

More specifically, workplace stress appears to be a significant issue for lecturers at open and distance learning (ODL) universities. Academics working in ODL universities often rely heavily on technology to meet the demands of education and service delivery in contrast to academic staff from traditional universities. They are also required to work during weekends for online classes and conduct workshops. Besides, when in the office, they have heavy responsibilities and workloads for academic-related administration work.

The work from home (WFH) policy implemented by the government during the Covid-19 pandemic also affected the teaching staff of higher educational institutions and this further influenced their job satisfaction, stress, and involvement in their work and families. This had the potential to reduce their quality of work-life balance (Francisca Sri Susilaningsih et al., 2021).



The main objective of this study is to identify the stress levels among lecturers at an ODL university in Malaysia. It employed a cross-sectional survey by administering the Health & Safety Executive's (HSE) Indicator Tools to measure the workplace stress level of academics at an ODL university. A total of 66 lecturers participated in this study. The findings indicated that academic staff, regardless of the faculty they belonged to, experienced high levels of stress at work as a result of their workload and responsibilities.

## Wong Huey Siew

Open University Malaysia  
wonghueysiew@oum.edu.my

Dr Wong the principal investigator for this study, is a senior lecturer in the Faculty of Social Sciences & Humanities. Dr Wong holds a Doctor of Philosophy in Special Education and Master of Arts in Industrial and Organizational Psychology degree. He is the programme director for the Master of Psychology programme in OUM.





# Literature Review

Workplace stress has become a rising phenomenon in every profession that we are involved in. It can be considered as an inevitable condition at least at one point in time or another; however, it can also be minimised to the extent that the productivity and health of employees are maintained, which could lead to a productive organisation. To a certain extent, workplace stress can cause harmful physical and emotional responses that happen when there is a conflict between job demands on employees and the amount of control they have in meeting these demands. In general, the combination of high demands in a job and a low amount of control over the situation can lead to stress.

As we observed, the Covid-19 outbreak significantly disrupted many facets of life around the world. The pandemic not only affected the physical health but also the mental health of many people around the world. The Covid-19 outbreak resulted in a great deal of anxiety and stress (Ozamiz-Etxebarria et al., 2021) and university lecturers are one of the groups of people who have been affected by the outbreak of

the pandemic (Miguel et al., 2021). This can be attributed to a number of constraints that the academic staff encountered, such as the abrupt replacement of classroom-based education with totally online teaching, as well as other ongoing responsibilities such as assessment matters, learning materials, supervised student research projects, and research and publication activities.

In the past, academic careers used to be thought of as a relatively stress-free occupation (Opstrup & Pihl-Thingvad, 2016). They were also perceived positively in terms of manageable workloads and flexibility, in addition to the perks that came with their jobs, such as attending international conferences and exchange programmes (Gillespie et al., 2001). Literature review, however, indicates that throughout the previous two decades, the academic environment has undergone profound changes (Way et al., 2019) and academics deal with a lot of workplace stress now (Kabito et al., 2020).

Meanwhile, academics working in ODL institutions largely rely on technology in order to keep their employability and meet

## Amiraa Ali Mansor

Open University Malaysia  
amiraa\_alimansor@oum.edu.my

Dr Amiraa is the programme director for the Psychology Programme and a senior lecturer at OUM. Her specialization in health psychology has driven her passion for investigating the intricate relationship between psychological well-being and various aspects of human life. Recognizing the importance of her research, Dr Amiraa has secured funding from the Ministry of Higher Education in Malaysia to lead her current research project. This support reflects the recognition of her expertise and the significance of her work in addressing the pressing issue of food security and its psychological implications.





the needs of their students at any time of the day or night. They must be accessible round-the-clock via computers, mobile devices, and email. As a result, one of the most frequently mentioned sources of stress in the context of distance education is the effort required to remain updated with information technology (Poalses & Bezuidenhout, 2018). These problems are further worsened when academics have little or no experience in online teaching, which may lead to technostress (Wang & Li, 2019). Research by Safaria (2013) made several interesting findings on work stress among lecturers. Based on the research, seven categories of stressors were found concerning lecturers' work stress, which are inadequate role occupancy, increasing work demands, deficient role preparedness, insufficient role support, role ambiguity, role conflict, and work-family conflict. According to other studies, most academics in other countries have similar levels of high stress due to their professions. Research by Shen and Slater (2021) in the United Kingdom reported that a large proportion of academics were stressed and had poor emotional well-being. A study from China reported that almost all of the academic staff were stressed (Han et al., 2020). Similarly, the results of studies in Australia and Canada found increased stress to be a growing concern (Sabagh et al., 2018). Hence, this research is intended to study work stress levels among lecturers in an ODL institution in Malaysia during the Covid-19 pandemic.

## Objective

The main objective of this research is to analyse the level of work stress among lecturers at an ODL university in Malaysia.

## Method

### Participants

In this research, an exploratory study using a cross-sectional online survey was carried out to examine work stress involving 66 full-time academics at an ODL institution. The survey was conducted entirely online. The academics who took part in the research were from three faculties: Faculty of Education and Social Sciences (FESS), Faculty of Business and Management (FBM), and Faculty of Technology and Applied Sciences (FTAS).

### Research Instruments

The Health and Safety Executive Management Standards Indicator Tool was employed as a research instrument for this study. This instrument is often used at the

**Fatimah Yusooff**  
Open University Malaysia  
fatimah51@oum.edu.my

Prof. Dr Fatimah is a professionally-trained counsellor who has taught psychology and counselling for many years at both the undergraduate and postgraduate levels. She has over 30 years of experience as an academic, and is currently a professor at OUM. Prof. Dr Fatimah is also a family counsellor with a great deal of experience. She has been recognised for her work with three Excellent Service Awards, and also received an excellent lecturer certificate from Institut Sosial Malaysia. She is a member of a network of psychologists and counsellors, and has been involved in Malaysian psychological associations. She is also a member of the interviewing board for Malaysia's Counselling Association.



organisational level to identify work-related stress risks and consists of questions related to workload and responsibility, relationship with colleagues and relationship with the superior; and work condition and environment. The instrument consists of 39 items and 11 additional items that have been adopted and adapted to fit the Malaysian academic context.

## Research Procedures

The participants were given a Google Form questionnaire that included sociodemographic information, The Health and Safety Executive Management Standards Indicator Tool, and open-ended questions for feedback on how the organisation could improve in order to reduce stress. The participants were invited to participate in a survey by email from the Human Resource Department and were reminded periodically to complete the survey. The survey was fully voluntary, and the academics' consent was obtained before the survey began. It was made clear to the participants that the confidentiality of their responses would be maintained.

## Data Analyses

The data were analysed using the statistical programme IBM SPSS Statistics for Windows, Version 26.0. The instrument's cut-off scores were used to categorise workplace stress into various levels (low, moderate and high). Firstly, both the frequencies and the percentages of the socio-demographic variables were described. Following that, analyses for mean and standard deviation were carried out for three different workplace stress constructs.



### Oo Cheng Keat

Open University Malaysia  
oochengkeat@oum.edu.my

Oo Cheng Keat is the programme director for the Bachelor of Political Science and Liberal Studies programmes at OUM. He is also a senior lecturer in the Faculty of Social Sciences & Humanities.

His research interests are focused on Global Citizenship Education (GCED), Sustainable Development Goals (SDGs), Comparative Politics and Government, Democratisation in the Third World Countries and Malaysia, Middle East Politics, particularly in regard to Palestine.



# Results

## Demographic of the participants

The total number of participants in this study is 66, comprising 26 male participants (39.4%) and 40 female participants (60.6%). As reported in Table 1, participants aged 41 to 50 made up the highest number of the sample, followed by those aged 51 to 60, 31 to 40, and 61 to 70. In terms of seniority, there were 31 senior lecturers (47%), 28 lecturers (42.4%) and 7 associate professors (10.6%). In terms of faculty, FESS had the highest number of participants at 24 (36.4%), followed by FTAS at 22 (33.3%) and FBM at 20 (30.3%).

	Frequency	Percentage %
<b>Age:</b>		
31-40	15	22.7
41-50	28	42.4
51-60	18	27.3
61-70	5	7.6
<b>Gender:</b>		
Male	26	39.4
Female	40	60.6
<b>Faculty:</b>		
FESS	24	36.4
FTAS	22	33.3
FBM	20	30.3
<b>Seniority Level:</b>		
Lecturer	28	42.4
Senior Lecturer	31	47.0
Associate Professor	7	10.6

**Table 1.** Demographic Background of Respondents

### Mohd Tajudin Md Ninggal

Open University Malaysia  
tajudin@oum.edu.my

Prof Datuk Dr Mohd Tajudin is the author and founder of the first Malaysian Online Psychological System, which consists of TAJMA Personality Plus and TAJMA Career Interest Plus. He has 30 years of professional experience in the field of counselling psychology, with focus on a wide range of issues and services, notably psychological testing and assessment; stress management; individual and group psychotherapy; career counselling; multicultural counselling; relational, marital and family counselling; corporate coaching; and gender identity disorder.



Table 2 presents the means and standard deviations of three workplace stress constructs based on three different faculties. The workplace stress constructs are workload and responsibility (WLR), work relationship with colleagues and superior (WR), and work condition and environment (WCE). Based on the analysis, all three faculties demonstrated high WLR workplace stress construct where FESS (M=47.25, SD=4.829), FTAS (M=47.71, SD=5.72) and FBM (M=47.60, SD=5.040). For WR workplace stress construct, all three faculties scored an average level where FESS (M=39.20, SD=6.36), FTAS (M=38.38, SD=5.22) and FBM (M=38.60, SD=4.48). Lastly, for the WCE workplace stress construct, all three faculties scored a low level where FESS (M=21.79, SD=3.175), FTAS (M=20.95, SD= 3.81) and FBM (M=22.70, SD=2.47).

Faculty	Workplace Stress Constructs	Scores Mean	SD	Workplace Stress Level
FESS	WLR	47.25	4.829	High
	WR	39.20	6.36	Average
	WCE	21.79	3.175	Low
FTAS	WLR	47.71	5.72	High
	WR	38.38	5.22	Average
	WCE	20.95	3.81	Low
FBM	WLR	47.60	5.040	High
	WR	38.60	4.48	Average
	WCE	22.70	2.47	Low

**Table 2.** Mean and Standard Deviation Scores for Workplace Stress Constructs

## Discussion

Overall, the research indicated that academic staff, regardless of the faculty they work in, experience high levels of stress at work due to their workload and responsibilities. This finding is aligned with the study conducted by Gebisa et al (2020). In that study, the research outcome demonstrated that current evidence indicates that the world of education is a highly stressful occupation. Clear variations are noticed in terms of workplace stressors, and it should be highlighted that workload and responsibility are the main contributors to workplace stress among academic staff at this ODL university compared to other stressors.

Furthermore, these findings are consistent with other studies conducted since the onset of the pandemic, which suggest that academic staff suffered from stress during the lockdown (Besser et al., 2022). The current findings are also consistent with a study conducted by Nor Amalina et al. (2016) at a different university in Malaysia, which may help to explain why academic staff are under a lot of stress given the same nature of their jobs in universities even before the Covid-19 pandemic.



On the other hand, another possible explanation is that higher education academics frequently perform multiple responsibilities at once, which makes it difficult for them to manage their workload and leads to stress (Isa & Palpanadan, 2020). This may be why most academics talked about heavy workloads, which include teaching, research, publications and community service. This, in turn, could be related to the fact that intensive work prolongs the high workload, interferes with leisure activities, causes too much physical and mental fatigue to perform to the best of their ability, and, as a result, increases the production of stress hormones (Maslach & Leiter, 2016).

Workplace stress is a risk that could end up being a liability for the organisation because it can lead to illnesses, which result in high absence rates, high staff turnover, and low productivity (Watts & Robertson, 2011). High levels of workplace stress have been linked to an increased risk of cardiovascular disease (Sara et al., 2018). Compared to those who reported low levels of work-related stress, those who reported high levels of occupational stress reported more than twice the risk of developing cardiovascular disease (Wilson et al., 2014).

Therefore, ODL institutions should develop wellness and stress management methods to reduce the amount of occupational stress experienced by their academic staff. Redesigning the academics' job to promote role clarity and providing enough support resources are two potential strategies that could reduce the pressures that are inherently present in higher education institutions.

## Conclusion

Although this study successfully provided essential data on work-related stress among academic staff, a number of limitations were observed. The likelihood of under- or over-reporting could not be ruled out as this cross-sectional study relied on self-reported questionnaire data. The study's findings also are only applicable to the faculty members of an ODL university in Malaysia. Despite these limitations, this study was able to produce a reasonably accurate assessment of the levels of work stress experienced by academic staff at the university researched. The findings should alert the management of the ODL university on employee well-being as an important agenda to promote work-life balance.

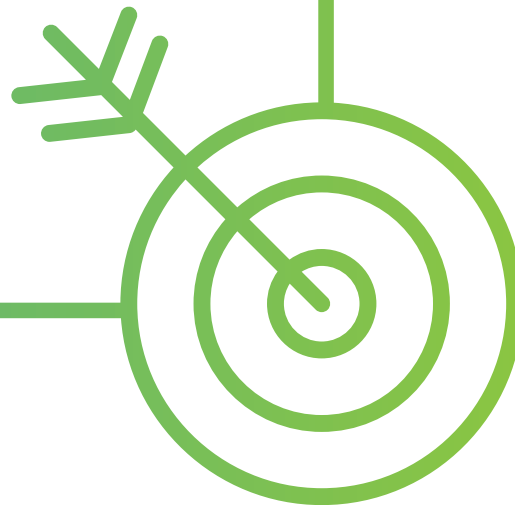


# References

- Aperribai, L., Cortabarría, L., Aguirre, T., Verche, E., & Borges, Á. (2020). Teacher's physical activity and mental health during lockdown due to the COVID-2019 pandemic. *Frontiers in Psychology, 11*(November), 1–14. <https://doi.org/10.3389/fpsyg.2020.577886>
- Besser, A., Flett, G. L., & Zeigler-Hill, V. (2022). Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the challenges for students. *Scholarship of Teaching and Learning in Psychology, 8*(2), 85–105. <https://doi.org/10.1037/stl0000198>
- Chung, E., Subramaniam, G., & Dass, L. C. (2020). ERIC - EJ1267359 - online learning readiness among university students in Malaysia amidst COVID-19, *Asian Journal of University Education, 2020-Jul. Asian Journal of University Education (AJUE), 19*, 46–58. <https://eric.ed.gov/?id=EJ1267359>
- Francisca Sri Susilaningsih, Maria Komariah, Ati Surya Mediawati, & Valentina B. M. Lumbantobin. (2021). Quality of work-life among lecturers during online learning in Covid-19 pandemic period: A scoping review. *Malaysian Journal of Medicine and Health Sciences, 163-166*
- Gebisa Guayas Kabat, Somayeh Daba Wami, Daniel Haile Chercos, & Tesfaye Sambisa Mekonnen. (2020). Work-related stress and associated factors among academic staffs at the university of Gondar, Northwest Ethiopia: An Institution-based cross-sectional study. *Ethiop J Health Sci., 30*(2), 223–232
- Gillespie, N. A., Walsh, M., Winefield, A. H., Dua, J., & Stough, C. (2001). Occupational stress in universities: staff perceptions of the causes, consequences and moderators of stress. *Work & Stress, 15*(1), 53–72. <https://doi.org/10.1080/02678370110062449>
- Han, J., Perron, B. E., Yin, H., & Liu, Y. (2020). Faculty stressors and their relations to teacher efficacy , engagement and teaching satisfaction. *Higher Education Research & Development, 1-16*. <https://doi.org/10.1080/07294360.2020.1756747>
- Ho, K., & Tang, D. (2020). Movement control as an effective measure against Covid-19 spread in Malaysia: an overview. *Journal of Public Health: From Theory to Practice, 583-586*. <https://doi.org/10.1007/s10389-020-01316-w>
- Isa, K., & Palpanadan, S. T. (2020). Prevalence causes of stress and coping strategies among Malaysian university lecturers. *International Journal of Higher Education, 9*(5), 312–321. <https://doi.org/10.5430/ijhe.v9n5p312>
- Kabito, G. G., Wami, S. D., Chercos, D. H., & Mekonnen, T. H. (2020). Work-related stress and associated factors among academic staffs at the university of Gondar, Northwest Ethiopia: An institution-based cross-sectional study. *Ethiopian Journal of Health Sciences, 30*(2), 223–232. <https://doi.org/10.4314/ejhs.v30i2.10>
- Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry, 15*(2), 103–111. <https://doi.org/10.1002/wps.20311>
- Mheidly, N., Fares, M. Y., & Fares, J. (2020). Coping with stress and burnout associated with telecommunication and online learning. *Frontiers in Public Health, 8*(November). <https://doi.org/10.3389/fpubh.2020.574969>
- Miguel, C., Castro, L., Marques Dos Santos, J. P., Serrão, C., & Duarte, I. (2021). Impact of covid-19 on medicine lecturers' mental health and emergency remote teaching challenges. *International Journal of Environmental Research and Public Health, 18*(13). <https://doi.org/10.3390/ijerph18136792>

- Nor Amalina, M. Z., Huda, B. Z., & Hejar, A. R. (2016). Job stress and its determinants among academic staff in a university in Klang Valley, Malaysia. *International Journal of Public Health and Clinical Sciences*, 3(6), 2289–7577.
- Opstrup, N., & Pihl-Thingvad, S. (2016). Stressing academia? Stress-as-offence-to-self at Danish universities. *Journal of Higher Education Policy and Management*, 38(1), 39–52. <https://doi.org/10.1080/1360080X.2015.1126895>
- Ozamiz-Etxebarria, N., Berasategi Santxo, N., Idoiaga Mondragon, N., & Dosil Santamaría, M. (2021). The psychological state of teachers during the COVID-19 Crisis: The challenge of returning to face-to-face teaching. *Frontiers in Psychology*, 11(January), 1–10. <https://doi.org/10.3389/fpsyg.2020.620718>
- Poalses, J., & Bezuidenhout, A. (2018). Number 2 April-2018 Mental health in higher education: A comparative stress risk assessment at an open distance learning. *International Review of Research in Open and Distributed Learning*, 19(2).
- Sabagh, Z., Hall, N. C., & Saroyan, A. (2018). Antecedents, correlates and consequences of faculty burnout. *Educational Research*, 60(2), 131–156. <https://doi.org/10.1080/00131881.2018.1461573>
- Safaria, T. (2013). Job stress among academic staff: A cross-cultural qualitative study. *International Journal of Public Health Science (IJPHS)*, 2(2). <https://doi.org/10.11591/ijphs.v2i2.2427>
- Salta, K., Paschalidou, K., Tsetseri, M., & Koulougliotis, D. (2022). Shift from a traditional to a distance learning environment during the COVID-19 pandemic: University students' engagement and interactions. *Science and Education*, 31(1), 93–122. <https://doi.org/10.1007/s11191-021-00234-x>
- Sara, J. D., Prasad, M., Eleid, M. F., Zhang, M., Jay Widmer, R., & Lerman, A. (2018). Association between work-related stress and coronary heart disease: A review of prospective studies through the job strain, effort-reward balance, and organizational justice models. *Journal of the American Heart Association*, 7(9), 1–15. <https://doi.org/10.1161/JAHA.117.008073>
- Shen, P., & Slater, P. (2021). The Effect of occupational stress and coping strategies on mental health and emotional well-being among university academic staff during the COVID-19 outbreak. *International Education Studies*, 14(3), 82. <https://doi.org/10.5539/ies.v14n3p82>
- Umair, S., Waqas, U., & Faheem, M. (2021). COVID-19 pandemic: Stringent measures of Malaysia and implications for other countries. *Postgraduate Medical Journal*, 97(1144), 130–132. <https://doi.org/10.1136/postgradmedj-2020-138079>
- Wang, X., & Li, B. (2019). Technostress among teachers in higher education: An investigation from multidimensional person-environment misfit. *Frontiers in Psychology*, 10(JULY). <https://doi.org/10.3389/fpsyg.2019.01791>
- Watts, J., & Robertson, N. (2011). Burnout in university teaching staff: A systematic literature review. *Educational Research*, 53(1), 33–50. <https://doi.org/10.1080/00131881.2011.552235>
- Way, S. F., Morgan, A. C., Larremore, D. B., & Clauset, A. (2019). Productivity, prominence, and the effects of academic environment. *Proceedings of the National Academy of Sciences of the United States of America*, 166(22), 10729–10733. <https://doi.org/10.1073/pnas.1817431116>
- Wilson, M. D., Conroy, L. M., & Dorevitch, S. (2014). Occupational stress and subclinical atherosclerosis: A systematic review. *International Journal of Occupational and Environmental Health*, 20(4), 271–280. <https://doi.org/10.1179/2049396714Y.0000000076>

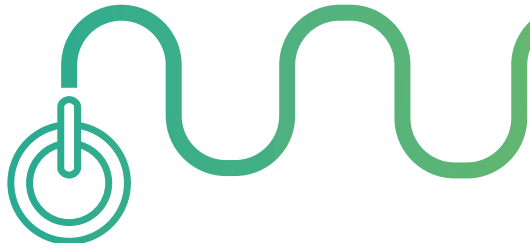
# Learners' Perception on Online Distance Learning Market Segmentation Strategy



Authors:

Mohd Nazri Mohd Noor  
Azlina Abdul Aziz  
Mohd Lokman Abdullah  
Azmi Che Leh Mohammad Naim Ismail





## Overview

The purpose of this paper is to examine prospective learners' perceptions on the usage of effective market segmentation strategies for advertisements related to open and distance learning (ODL). A descriptive study was conducted to assess the preferences based on generational cohorts. Self-administered questionnaires were used to obtain meaningful data from 282 potential learners in Malaysia. The potential learners were working adults based on generational cohorts, namely, Gen Z, Gen Y, Gen X, and Baby Boomers. The study was conducted from October to December 2020. Based on the analysis, considerations of the substantiality of the market and accessibility between ODL institutions and the market were viewed by the majority

of the respondents as more effective than considerations of responsiveness and identifiability. However, standardised path coefficients have shown that all the variables are significant predictors of effective market segmentation. Therefore, it is important to develop creative and emotionally appealing advertisements to attract a wider audience's attention and fit in the context of their lifestyle. This study is significant because it will be assisting ODL institutions to be more focused on designing their advertising messages and understanding the preferred types of ODL marketing communication. The study also adds to the literature of marketing. The findings have strong implications for both academia and ODL institutions, particularly on the aspect of prospective learners' opinions pertaining to effective market segmentation.

### **Mohd Nazri Mohd Noor**

Open University Malaysia  
mohdnazri@oum.edu.my

Dr Mohd Nazri is specialising in marketing. He is very active in providing consultation on marketing and strategic planning locally and abroad. He has published and reviewed numerous internationally refereed conference papers, journal articles, and books. He has also won several awards at international academic conferences for best paper and best presenter. His current research interests are focused on social media marketing, green marketing, and consumer behaviour.



# Introduction

In a competitive business environment, market segmentation is crucial (Martin, 2011). **Market segmentation divides a consumer market into well-defined parts.** A market segment consists of a group of consumers who share a similar set of needs and wants (Kotler & Armstrong, 2018). Identifying relevant consumer segments and deciding which to serve is a prominent business challenge. Regardless of the type of market segmentation used by the organisation, the end objective is to create a marketing advertising initiative that works within the context of a specific segment.

Numerous statistical methods have been employed to develop the market segments (Grover et al., 2011). Typically, after a company has defined its market segment opportunities, it must decide which one to pursue and how broad it should be. In order to recognise clearer, better-defined target audiences, companies often combine multiple variables. However, not all segmentation schemes are useful (Kotler & Armstrong, 2018). An ODL institution, for example, could divide prospective students into male and female students, but not based on the colour of their hair, as this has no effect on their



decision to pursue studies. As a result, the market is now only minimally segmentable from a marketing perspective.

Hence, to be successful, a company must pay close attention to at least four main market segmentation criteria. The criteria include considerations for substantiality, identifiability, accessibility, and responsiveness (Donovan & Henley, 2012; Lamb et al., 2011). A marketing programme must be developed based on the suggested key performance indicators. This is to ensure that the targeted segment will have a slew of advantages that will help the company stay afloat in the marketplace.

The online distance learning has become a new learning trend since the outbreak of the Covid-19 pandemic (Bao, 2020; Favale et al., 2020). The learning process is currently moving beyond the existing physical classroom setting. On the positive side, ODL offers at least four benefits:

## Azlina Abdul Aziz

Open University Malaysia  
azlina@oum.edu.my

Azlina is the programme coordinator for the Bachelor of Tourism Management with Honours programme at OUM's Faculty of Business Management and an accounting lecturer. Her area of specialisation is management accounting. She has published many papers and attended various international academic conferences to share her research findings on the sustainability of corporate organisations from the accounting perspective.



personalised lifelong learning programmes, valuable social networks, and time and cost savings for both institutions and learners. In fact, many conventional face-to-face universities have advised their students to enrol for online courses to kick start a smooth transition into the new learning culture (QS Rankings, 2020). The number of existing online programmes also show an increasing trend. However, it is also important to understand that to market ODL programmes, effective market segmentation is crucial.

Currently, only a few studies have looked into market segmentation criteria. Is effective segmentation solely based on factors such as substantiality, identifiability, accessibility, and responsiveness? Or, are there other elements that are also important when segmenting customers? The fact is, higher learning institutions are competing with each other to obtain more students. Creativity in advertisements and effective market segmentation are of utmost importance, especially for ODL institutions.

However, there are not many studies looking at the marketing aspect of ODL programmes (Faridi & Ouseph, 2014). Hence, this study is significant for its evaluation of prospective learners' views to determine a more efficient way to group and choose an appropriate target market. In the end, this will increase the

intake of ODL institutions in Malaysia, such as Open University Malaysia (OUM). Every year, OUM allocates a significant amount of budget for marketing activities. Since its first inception, OUM management perceived marketing as an effective technique to create awareness on its 55 academic programmes. The existing marketing strategy brought in 26,000 active learners in the system, but the numbers are fluctuating every year. To ensure a consistent figure, the management believes that there must be a strong mechanism related to market segmentation and promotional activities. The university is very serious in making strategic efforts. By harnessing the impactful usage of marketing resources known to be important in the ODL environment, it hopes to create and maintain sustainability through competitive advantage. Therefore, the findings of this study may help ODL institutions to gain a better and more useful understanding of their future marketing strategies.

**Mohd Lokman Abdullah**  
Open University Malaysia  
mohdlokman@oum.edu.my

Mohd Lokman is a senior lecturer in the Faculty of Education. He is also the programme coordinator for the Bachelor of Education (Educational Administration). He specialises in educational evaluation, information technology in education, e-learning technology, education for sustainable development (ESD) and teaching and learning for local-international learners. He has also published numerous international conference papers, journal articles and book chapters. He also collaborates with some international research partners such as European Union (EU) Erasmus+, Open Universities – ASEAN (OU5), Universitas Terbuka Indonesia (UT) and others. He is currently working on researching adult learners' technology readiness in ODL environment, self-instructional materials (SIM), cognitive load and shared values of open education.





# Literature Review

## Understanding Effective Market Segmentation for ODL Institutions

Knowing the clients, offering them what they want or will want, establishing close relationships with channel affiliates and co-marketing partners, and engaging via extremely focused advertising channels such as event sponsorship, digital web pages, direct newsletters, and trade magazines are all examples of market segmentation (Lamb et al., 2011). To put it another way, it is a scientific approach to actually comprehend consumers.

When it comes to segmenting their prospective students, ODL institutions must take a distinct path. The market has been split into three segments: mature students, high school graduates, and recent foreign students, each of whom consider various considerations when selecting a university (Constantinides & Stagno, 2011). Nevertheless, although these three main segments are typical to a university, the marketing segmentation

should further mean something, and must indicate the relevance of the programmes being marketed (Angulo et al., 2010).

A number of authors have suggested four requirements for effective segmentation, such as substantiality, identifiability and measurability, accessibility and responsiveness (Lamb et al., 2011). These four parameters will be explained further in the following sections.

## Substantiality and Effective Market Segmentation

Substantiality refers to the segment that must be sufficiently large and profitable to be economically viable for an organisation (Kotler & Armstrong, 2018). It typifies that a segment should be the largest possible homogenous group worth going after with a tailored programme. A segment should also be large enough to warrant developing and maintaining a special marketing mix (Lamb et al., 2011). Substantiality is a common way of directing the value of segmenting opportunity and, as a result, achieving the

### Azmi Che Leh

Open University Malaysia  
azmi\_cheleh@oum.edu.my

Ts. Azmi, the principal investigator for this study, is a senior lecturer and programme director for the Bachelor of Science in Project and Facility Management with Honours and course leader for the Master of Facility Management, these two programmes are under the Faculty of Technology and Applied Sciences, OUM. Specialising in construction management, facility management, and construction safety. Having approximately 16 years of experience in the construction industry and facility management projects makes him skilled and knowledgeable in the field of construction management and facility management. Engaging for 11 years in education made him interested in ODL education and this attracted him to conduct research in the field of ODL education.



organisation's goal. According to previous analysis, substantiality must explicitly address the organisation's goals, to reduce the possibility of designing unsuccessful and inefficient targeting via segmentation (Pires & Stanton, 2000). Additionally, the organisation's top management should be actively involved in the market segmentation process from the beginning. Previous studies have shown a positive and significant effect between substantiality and the effectiveness of market segmentation (Finne & Grönroos, 2017; Foedermayr & Diamantopoulos, 2008). Other studies have also found a significant effect, but they have also stated that the effect must be enhanced by another factor, such as integrated marketing communication and technology advancement (Finne & Grönroos, 2017; Tancharoen, 2016). Hence, this study suggests the following hypothesis:

**H1: There is a positive and significant relationship between substantiality and effective market segmentation for ODL institutions.**

## Identifiability and Effective Market Segmentation

Previous studies have detailed that a higher household discretionary income would determine the preference for progressive goods and services, and the spending of a lower proportion of the household budgets on basic commodities such as food. There are also substantial differences between the urban and rural segments, particularly in terms of household income. Women's participation and the reduction of child dependants would also influence a market. Interestingly, literacy rate would suggest a raising notice for education (Martins et al., 2017).

Previous studies have profiled the university segments into categories such as suburban retirement, suburban empty nesters, low status family, urban retirement, suburban welfare and mid-status suburban (Rindfleish & Sheridan, 2003). The application of segment profiling is deemed to be a simple and cost-effective technique. Existing studies have shown a positive relationship between identifiability and effective market segmentation. However, the relationship has been varied in magnitude, ranging from weak to moderate (Donovan & Henley, 2012; Grover et al., 2011). Thus, this study proposes the following hypothesis:

**H2: There is a positive and significant relationship between identifiability and effective market segmentation for ODL institutions.**

**Mohammad Naim Ismail**  
Open University Malaysia  
naim\_ismail@oum.edu.my

Mohamad Naim is an academic staff at the Faculty of Business and Management at OUM. He is also the programme director for Diploma in Management programme. His fields of research interest are entrepreneurship & marketing.



# Accessibility and Effective Market Segmentation

Accessibility is the degree to which a segment can be effectively reached and served (Kotler & Armstrong, 2018). This largely rests upon the ability of an organisation to direct its marketing efforts at a particular segment. Media coverage, distribution, and the influence of behavioural factors, all require evaluation. It is also important to choose a media mix that will reach the target segment both economically and efficiently. Similarly, the distribution network chosen must be effective in reaching sub-segments. Using customised marketing mixes, the firm must be able to reach members of targeted segments (Lamb et al., 2011). The main concerns in accessibility are related to the optimisation of the budget at hand and reaching out to differentiated and mass targeted audiences. However, previous studies have shown a positive and significant relationship between accessibility and effective market segmentation (Lissitsa & Kol, 2016; Martin, 2011). Therefore, this study proposes the following hypothesis:

**H3: There is a positive and significant relationship between accessibility and effective market segmentation for ODL institutions.**

# Responsiveness and Effective Market Segmentation

Market responsiveness could be raised when the management sets emphasis on gaining customer response. To develop market responsiveness, the ODL firm should address customers' needs, and take the actions needed to meet those needs. A formalised, disciplined process is required. It would enable a firm to identify what is most important for the customers, and create the opportunity to distinguish the firm against the competitors. Besides the management's internal efforts to increase market responsiveness, consumers in the market segment need to also be responsive to the products and services that are intended for them. Apparently, corporate credibility and endorser credibility have a significant influence on consumers' attitude (including consumers' purchase intention) towards the advertisements and brands. This information may thus be used to develop an effective marketing communication strategy (Goldsmith et al., 2000). Previous studies have shown a positive and significant relationship between responsiveness and effective market segmentation, but they have also stated that it must be enhanced by another factor, such as technology efficacy and media channels (Lissitsa & Kol, 2016; Parment, 2013). Thus, this study suggests the following hypothesis:

**H4: There is a positive and significant relationship between responsiveness and effective market segmentation for ODL institutions.**





# Generational Cohorts

Each generation is commonly influenced by the time and environment in which they grew up. Existing studies have found that different generational cohorts will have different attitudes. They also behave differently due to the age gap and different social interactions. However, they will share the same outlooks and values (Kotler & Armstrong, 2018). Marketers will develop an effective market segment to reach their targeted audience.

This study is based on age groups to examine prospective learners' perceptions of effective market segmentation and the preferred types of marketing communications for ODL institutions. The inclusion of generational cohorts in this study is important as a source of reference in the future. Any similarities in differences of opinion will be highlighted in this study. Table 1 indicates the common generational cohorts as proposed by Lissitsa and Kol (2016).

**Table 1.** Groups of consumers based on generation (Source: (Lissitsa & Kol, 2016))

Generation	Year of Birth
Gen Z	1995 – 2015
Gen Y (Millennial)	1980 – 1994
Gen X	1965 – 1979
Baby Boomers	1944 – 1964

## Objectives of the Research

The researchers have established two goals to be accomplished based on the study's context. The following are the objectives:

- RO1: To assess which market segmentation criteria is effective, as perceived by the prospective ODL learners.
- RO2: To examine the most effective market segmentation criteria that would be focused upon by the ODL institutions in their marketing communication activities.



# Research Method

This research focuses on the analyses that are relevant to achieve the aforementioned two objectives. As of August 2020, the total workforce in Malaysia, also the potential learners of ODL, was recorded at 15.9 million. Self-administered questionnaires were distributed to a sample of 350 participants from the population. Convenience sampling technique was adopted as the method of collecting data, because this approach is convenient, accessible to the researchers, and requires a low budget. Data were collected from October to December 2020. A total of 282 valid responses were obtained for this study and the response rate was 80.57 percent. The measured items were adapted and modified from past studies related to market segmentation. The respondents were required to provide background details related to age, gender, education level, and occupation. The other developed measured items were based on variables such as substantiality, identifiability, accessibility, responsiveness, and effective market segmentation for ODL institutions.

To examine the respondents' profiles and their perception on market segmentation, data obtained from the questionnaire were analysed using SPSS Version 22.0. SMARTPLS was further used to examine the variance of the target endogenous variable, inner model path coefficient sizes, outer model loadings, indicator reliability, internal consistency, convergent validity, discriminant validity, and structural path significance in bootstrapping.

## Findings

A thorough analysis was conducted to understand the prospective ODL learners' views on effective market segmentation.

As can be seen in Table 2, the number of respondents who work in the public sector is as high as the number of those who work in the private sector. With the increasing number of civil servants in Malaysia, this statistic is common. However, it can also be seen that the percentage of respondents who are unemployed is considerably high. Perhaps, this could be because many of them are still searching for a suitable job or

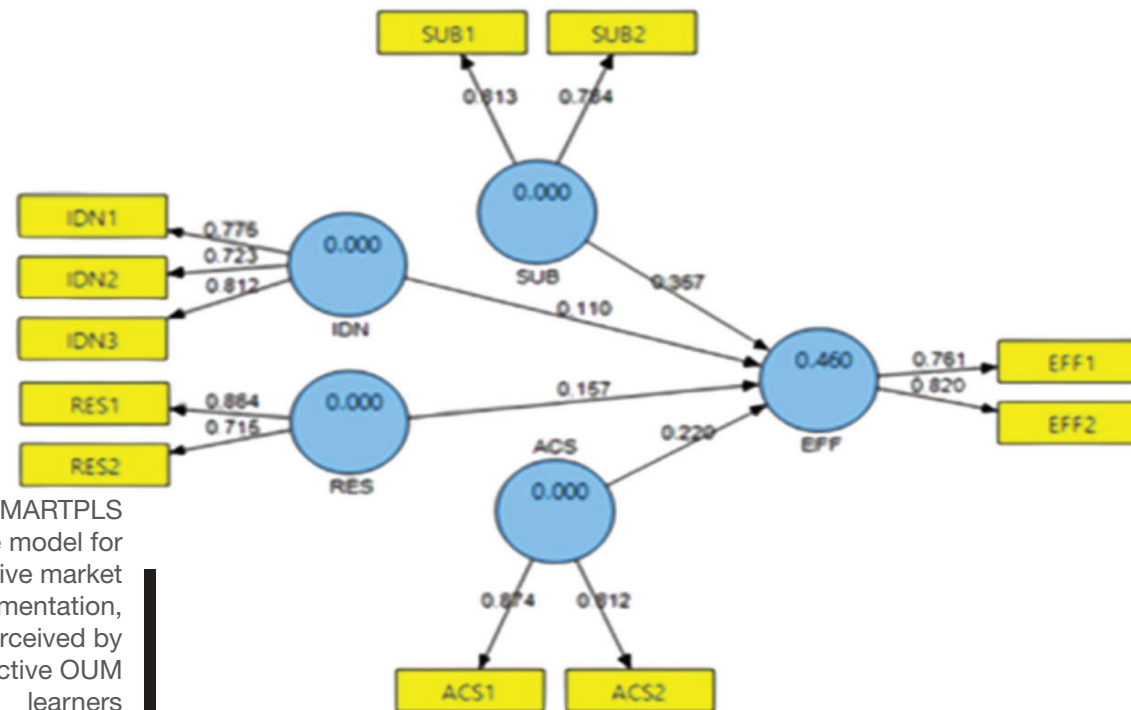
**Table 2.**  
Demographical  
Characteristics of the  
Respondents

Demographic Characteristics	Fequency	Percentage
<i>Generational Cohort (n=282)</i>		
Below 25 years old (Gen Z)	64	22.70
26 – 40 years old (Gen Y)	92	32.63
41 – 55 years old (Gen X)	85	30.14
56 – 76 years old (Baby Boomers)	41	14.54
<i>Educational Level (n=282)</i>		
LCE/SRP/PMR	15	5.32
MCE/SPM	35	12.41
HSC/STPM	20	7.09
Certificate	18	6.38
Diploma	35	12.41
Bachelor Degree	101	35.82
Masters	58	20.57
<i>Occupation (n=282)</i>		
Private Sector	103	36.52
Public Sector	101	35.82
Self-Employed	41	14.54
Unemployed	37	13.12

considering to pursue their studies. Meanwhile, easy access to education has brought about equal opportunities for many people to obtain a higher degree. This research discovered a good trend in education, with a total of 68.8 percent of the respondents having tertiary education. The remaining 31.2 percent still have an opportunity to pursue their tertiary education through ODL with admission through the Accreditation of Prior Experiential Learning (APEL).

Academic qualification is important in this research as it may indicate how the potential learners look at effective market segmentation. The majority of the respondents are from Gen Y, between 41-55 years old (32.63 percent). For OUM, it is notable that the high percentage of Gen X (41 – 55 years old) and Gen Z (below 25 years old) offer a good opportunity for institutional sustainability.

Figure 1 indicates that the coefficient of determination ( $R^2$ ) for the EFF endogenous latent variable is 0.460. This means that the four latent variables (SUB, IDN, RES, and ACS) moderately explain the variance in EFF (46.0%). The inner model path coefficient suggests that SUB has the strongest effect on EFF (0.357), followed by ACS (0.220), RES (0.157), and IDN (0.110). The hypothesised path between SUB, IDN, RES, and ACS are statistically significant. All standardised path coefficients are above 0.1. Hence, it can be concluded that SUB, IDN, RES, and ACS directly predict EFF.



**Figure 1.** SMARTPLS reflective model for effective market segmentation, as perceived by prospective OUM learners

Note: SUB – Substantiality, IDN – Identifiability, RES – Responsiveness, ACS – Accessibility, EFF – Effectiveness

**Table 3.** A summary of results for the reflective outer model

Latent Variable	Indicators	Outer Loadings	Indicator Loadings	Composite Reliability	AVE
ACS	ACS1	0.8744	0.7646	0.8317	0.7121
	ACS2	0.8122	0.6597		
EFF	EFF1	0.7608	0.5788	0.7695	0.6257
	EFF2	0.8202	0.6727		
IDN	IDN1	0.7753	0.6011	0.8141	0.5940
	IDN2	0.7229	0.5226		
	IDN3	0.8115	0.6585		
RES	RES1	0.8635	0.7456	0.7703	0.6284
	RES2	0.7150	0.5112		
SUB	SUB1	0.8131	0.6611	0.7787	0.5377
	SUB2	0.7838	0.6143		

Table 3 indicates that all composite reliabilities are greater than 0.70. This means that the measured items have internal reliability consistency. As for the convergent reliability, all average variance extracted (AVE) are higher than 0.50 (Hair et al., 2014).

**Table 4.** Discriminant validity

Indicators	AVE	Square Root
ACS	0.7121	0.8439
EFF	0.6257	0.7910
IDN	0.5940	0.7707
RES	0.6284	0.7927
SUB	0.5377	0.7333

**Table 5.** Fornell-Larcker criterion analysis for discriminant validity

	ACS	EFF	IDN	RES	SUB
<b>ACS</b>	0.8439				
<b>EFF</b>	0.5126	0.7910			
<b>IDN</b>	0.3877	0.4923	0.7707		
<b>RES</b>	0.3622	0.4885	0.7372	0.7927	
<b>SUB</b>	0.5414	0.6070	0.5081	0.4779	0.7333

Tables 4 and 5 show that the “square root” of AVE of each latent variable are greater than the correlations among the latent variables. This also indicates that the measure of constructs are not highly related to each other (Hair et al., 2014).

**Table 6.** Checking the significance level of the inner model using bootstrapping

Path	T-Statistics
ACS -> EFF	3.7118
IDN -> EFF	1.9708
RES -> EFF	2.7675
SUB -> EFF	6.8387

Table 6 indicates that the ACS -> ENT, IDN -> EFF, RES -> EFF, and SUB -> EFF t-statistics are greater than 1.96. Therefore, all variables have shown the evidence of a significant relationship. This is consistent with the earlier assessment using the reflective PLS-SEM model.

Table 7 portrays a summary of results from the hypothesis testing. It was found that all hypotheses are supported. This is perhaps due to the reason that the prospective learners perceived that in order to be effective, the marketing communication must substantially reach the segment. Therefore, an integrated marketing communication must be properly planned to standardise the message across the media channels. The ODL institutions must ensure that the segment must be effectively reached and served. In the meantime, effective programmes must be formulated to attract and serve the market segment. Hence, the first research objective is achieved.

**Table 7.** Summary results of the hypothesis testing

Hypothesis	Statement	Results
H1	There is a positive and significant relationship between substantiality and effective market segmentation for ODL institutions.	Supported
H2	There is a positive and significant relationship between identifiability and effective market segmentation for ODL institutions.	Supported
H3	There is a positive and significant relationship between accessibility and effective market segmentation for ODL institutions.	Supported
H4	There is a positive and significant relationship between responsiveness and effective market segmentation for ODL institutions.	Supported

Table 8 portrays that all generations highly perceived substantiality of the market as an effective strategy in market segmentation. Meanwhile, accessibility between the ODL institutions and prospective learners is also found to be important enough to capture a significant amount of attention. Another interesting finding is that Gen Z and Y viewed that the ability of the ODL institutions to reach them and respond to their questions is very important. This means that ODL institutions must be creative in their marketing communication strategy, especially by approaching the prospective learners via social media such as YouTube, Facebook, Instagram, and Twitter. This is also applicable to traditional media channels such as TV, radio, newspaper, and outdoor advertising. Thus, the second research objective is achieved.

**Table 8.** Generational cohort and perception on effective market segmentation

	SUB	IDN	RES	ACS
<b>Gen Z</b>	9.54%	3.05%	4.20%	5.34%
<b>Gen Y</b>	16.79%	3.44%	4.96%	7.63%
<b>Gen X</b>	18.70%	4.20%	3.44%	5.34%
<b>BB</b>	5.73%	3.05%	2.29%	2.29%
<b>Total</b>	50.76%	13.74%	14.89%	20.61%

## Impact of the Research

With the growing concern about marketing communication strategies, ODL institutions have also stepped in to consider an effective market segmentation that would promote the university and its programmes to the right market. The results of this study portray a unique perspective, that of Malaysian prospective learners, towards market segmentation strategies in the media channels. An empirical investigation has confirmed that the majority of the generational cohorts perceived that substantiality, accessibility, responsiveness, and identifiability are important elements in market segmentation. This is consistent with the research findings by Finne and Gronroos (2017) and Foedermayr and Diamantopoulos (2008). Hence, to attract more audience in the future, ODL advertisements must incorporate all the variables tested in this study. However, priority should be given to the substantiality and accessibility of the market segment. This is in tandem with research findings, which have also discovered that the majority of Malaysian consumers would love to attach themselves with marketing activities, opinions and beliefs that are consistent with their own circles.

## Acknowledgements

The authors would like to express gratitude to the management of OUM for granting the research funding. The findings are expected to benefit the university, which is a leading ODL institution in Malaysia.

# References

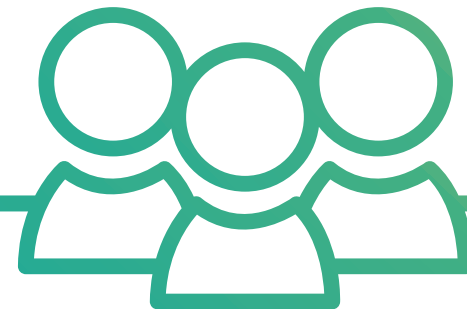
- Angulo, F., Pergelova, A., & Rialp, J. (2010). A market segmentation approach for higher education based on rational and emotional factors. *Journal of Marketing for Higher Education, 20*(1), 1–17. <https://doi.org/10.1080/08841241003788029>
- Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies, 2*(2), 113–115. <https://doi.org/10.1002/hbe2.191>
- Constantinides, E., & Stagno, M. C. Z. (2011). Potential of the social media as instruments of higher education marketing: A segmentation study. *Journal of Marketing for Higher Education, 21*(1), 7–24. <https://doi.org/10.1080/08841241.2011.573593>
- Donovan, R., & Henley, N. (2012). Segmentation and targeting. *Principles and practice of social marketing* (pp. 252–281). <https://doi.org/10.1017/cbo9780511761751.011>
- Faridi, M. R., & Ouseph, S. N. (2014). New Directions and Challenges for ODL: Building Collaborative Business Approach. *European Scientific Journal, 10*(10), 217–223.
- Favale, T., Soro, F., Trevisan, M., Drago, I., & Mellia, M. (2020). Campus traffic and e-Learning during COVID-19 pandemic. *Computer Networks, 176*, 1–26. <https://doi.org/10.1016/j.comnet.2020.107290>
- Finne, Å., & Grönroos, C. (2017). Communication-in-use: customer-integrated marketing communication. *European Journal of Marketing, 51*(3), 445–463. <https://doi.org/10.1108/EJM-08-2015-0553>
- Foedermayr, E. K., & Diamantopoulos, A. (2008). Market segmentation in practice: Review of empirical studies, methodological assessment, and agenda for future research. *Journal of Strategic Marketing, 16*(3), 223–265. <https://doi.org/10.1080/09652540802117140>
- Goldsmith, R. E., Lafferty, B. A., & Newell, S. J. (2000). The Influence of corporate credibility on consumer attitudes and purchase intent. *Corporate Reputation Review, 3*, 304–318. <https://doi.org/10.1057/palgrave.crr.1540122>
- Grover, R., Vriens, M., Dillon, W. R., & Mukherjee, S. (2011). A guide to the design and execution of segmentation studies. *The handbook of marketing research* (pp. 523–546). <https://doi.org/10.4135/9781412973380.n25>
- Hair, J. F. J., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). A primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). *Long Range Planning, 46*(1–2). <https://doi.org/10.1016/j.lrp.2013.01.002>
- Kotler, P., & Armstrong, G. (2018). *Principles of marketing* (pp. 213–221). Pearson.
- Lamb, C. W., Hair, J. H., & McDaniel, C. (2011). Chapter 8: Segmenting and targeting markets. *Marketing, 11e*.
- Lissitsa, S., & Kol, O. (2016). Generation X vs. generation Y - A decade of online shopping. *Journal of Retailing and Consumer Services, 31*, 304–312. <https://doi.org/10.1016/j.jretconser.2016.04.015>
- Martin, G. (2011). The importance of marketing segmentation. *American Journal of Business Education (AJBE), 4*(6), 15–18. <https://doi.org/10.19030/ajbe.v4i6.4359>

# References

- Martins, J. M., Yusuf, F., Brooks, G., & Swanson, D. A. (2017). Demographics and Market Segmentation: China and India (pp. 3–19). [https://doi.org/10.1007/978-3-319-43329-5\\_1](https://doi.org/10.1007/978-3-319-43329-5_1)
- Parment, A. (2013). Generation Y vs. Baby Boomers: Shopping behavior, buyer involvement and implications for retailing. *Journal of Retailing and Consumer Services*, 20(2), 189–199. <https://doi.org/10.1016/j.jretconser.2012.12.001>
- Pires, G., & Stanton, J. (2000). Marketing services to ethnic consumers in culturally diverse markets: issues and implications. In *Journal of Services Marketing*. <https://doi.org/10.1108/08876040010352772>
- QS Rankings. (2020). How is COVID-19 Shaping the Higher Education Sector ? The Impact of the Coronavirus on Global Higher Education.
- Rindfleish, J., & Sheridan, A. (2003). No change from within: Senior women managers' response to gendered organizational structures. *Women in Management Review*, 18(6), 299–310. <https://doi.org/10.1108/09649420310491477>
- Tancharoen, S. (2016). The Relationship Between Integrated Marketing Communication and Marketing Communications' Objectives of Marketing Directors in Thailand. *UTCC International Journal of Business & Economics*, 8(1), 171–187.



# Development of Virtual Orientation for Online Learners: A Retention Strategy



Authors:

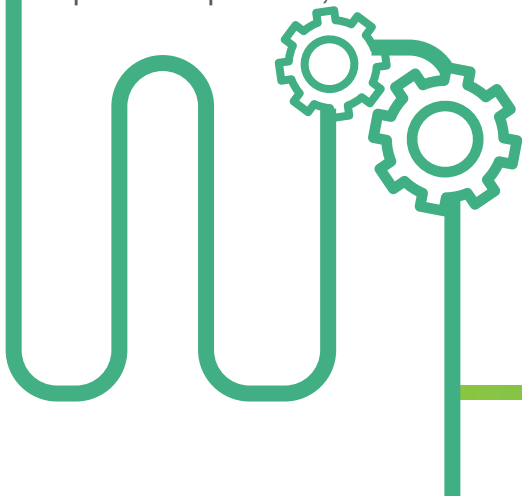
Rohaizak Omar  
Thirumeni T Subramaniam  
Mohd Hafiz Kasah

# Overview

In recent years, the use of virtual orientation has become increasingly popular in the higher education sector. The number of learners enrolled in online courses has grown rapidly over the last decade, and this number is expected to grow significantly in the coming years. Due to the Covid-19 pandemic, many educational institutions were seen to change their mode of learning from physical and traditional classes to online learning. Even in Malaysia, some universities still prefer to conduct their teaching and learning online for certain programmes.

Despite the increased number of learners enrolling in online courses, there is a concern that learners new to online learning can quickly feel lost and socially isolated. According to McInerney and Robert's (2004) study, failure to address the feelings of loss and social separation experienced by students in online learning environments may result in them dropping out in subsequent years.

Orientation is the foundation for new learners in any higher educational institution as it helps them develop a positive learning experience, especially in online courses. The orientation programme is crucial for Open and Distance Learning (ODL) institutions like Open University Malaysia since our learners are non-traditional adult learners. Virtual orientation allows learners to access orientation programmes from anywhere and anytime. It allows learners to experience programmes at their own pace, which can be highly beneficial. However, developing content for virtual orientation can be challenging and requires careful planning and execution. This article will explore the process, benefits and challenges of virtual orientation development for new learners.



## Rohaizak Omar

Open University Malaysia  
rohaizak@oum.edu.my

Rohaizak is a senior lecturer at Open University Malaysia's Faculty of Technology and Applied Sciences. He is currently building his expertise in data analytics and user experience design. He is enthusiastic about exploring these fields and actively researching to further his knowledge.



# Key Concepts

Virtual orientation programmes have become increasingly common in online learning environments to facilitate learners' adjustment to the virtual learning environment. These programmes provide learners with information on the institution's policies, procedures, support services and an introduction to the virtual learning environment. Several key concepts are associated with the development of virtual orientation programmes.

One critical concept is **learner engagement**. A study conducted by Cavanagh et al. (2016) found that virtual orientation programmes that emphasised learner engagement positively impacted learners' satisfaction, motivation, and sense of community. The incorporation of interactive activities and social networking tools into the virtual orientation programme can enhance learners' engagement.

Another critical concept is **learner support**. Zhang et al. (2020) found that virtual orientation programmes that emphasised learner support positively impacted learners' satisfaction, retention, and academic performance. Education institutions should provide learners with information on available support services and establish mechanisms for ongoing support throughout the course.

**Needs assessment** is a critical component of virtual orientation programme development. Wang et al. (2019) found that needs assessment can help institutions identify the specific needs of learners and tailor the virtual orientation programmes accordingly. It is suggested that institutions should conduct a needs assessment before developing the virtual orientation programme to ensure that it meets the specific needs of the learners.

**Technology and platform** are also critical considerations in developing virtual orientation programmes. A study by Zinskie and Meixner (2019) found that technical issues and compatibility with different devices and platforms can impact the effectiveness of virtual orientation programmes. Institutions should ensure the virtual orientation programme is accessible and user-friendly on various devices and platforms. Alavi, Yoo, and Vogel (1997) examined the role of technology in the success of virtual orientation programmes and found that multimedia and interactive technology effectively engaged learners and facilitated their understanding of the virtual learning environment.

## Thirumeni T Subramaniam

Open University Malaysia  
thirumeni@oum.edu.my

Assoc Prof Dr Thirumeni is an academic with wide research experience in the areas of institutional research (analytics), green and sustainable solutions, and science, technology, engineering and mathematics (or STEM) education and photonics technologies. She is currently engaged in a project focusing on capacity building for educators, called BUKA, which is funded by Erasmus+. She is also working on several projects centring on predictive modelling using data analytics, open education solutions (system and creative content development), as well as green and sustainable solutions (postgraduate research projects).



Finally, **assessment and evaluation** are also critical components of virtual orientation programmes. DellaVecchia and Bohnert (2016) found that ongoing assessment and evaluation can help institutions identify areas for improvement and ensure that the virtual orientation programme meets learners' needs – the importance of continuous assessment and evaluation to ensure that the virtual orientation programme remains effective.

Many researchers emphasised the importance of orientation programmes for new learners, as these programmes can significantly impact learner retention and persistence rates. For example, Engle & Schutt (2013) stated that orientation helps learners persist and increase retention rates. However, with the Covid-19 pandemic forcing universities to conduct orientation programmes online, it has become even more crucial to have an effectively designed virtual orientation programme.

In a study conducted by Conklin and Taylor (2014), the effectiveness of a virtual orientation programme for new online learners can be explored in this study. It was found that the virtual orientation programme successfully increased learners' confidence in using the virtual learning environment. It is suggested that virtual orientation programmes should include information on time management, communication skills, and strategies for online learning success. A recent study by Lowenthal, Dunlap, and Snelson (2017) explored the effectiveness of a virtual orientation programme that included socialisation and community-building activities. They found that the virtual orientation programme positively impacted learners' sense of community, engagement, and satisfaction with the online learning environment. Hwang and Kim (2015) examined the impact of a virtual orientation programme on learners' satisfaction and retention in online courses. They found that the virtual orientation programme positively impacted learners' satisfaction and retention, particularly for learners new to online learning.

## **Mohd Hafiz Kasah**

Open University Malaysia

[mohd\\_hafiz@oum.edu.my](mailto:mohd_hafiz@oum.edu.my)

Mohd Hafiz Kasah is a senior video specialist at the Centre for Instructional Design and Technology, Open University Malaysia. With expertise in professional audio-visual development, he is passionate about exploring new media design and technology to create engaging and relevant content for learners of all levels.





# Objectives of the Research

There are many benefits to having an online orientation programme. Firstly, virtual orientation programmes offer increased convenience and accessibility for learners, as they can participate from anywhere and at any time that suits their schedule. Secondly, a self-paced online orientation programme gives learners more control over their learning experience, enabling them to choose when and how they want to engage with the content. This flexibility can benefit learners who prefer to work independently and those who may have work or family commitments that limit their availability.

The primary objective of this research is to **develop a virtual orientation programme using the ADDIE model** (Analysis, Design, Development, Implementation, and Evaluation) and to explore its effects on new learners' understanding of the content and their overall experience completing the programme. The ADDIE model is a widely used instructional design framework that allows for a structured and systematic approach to developing instructional materials. By using this model, we aim to develop a virtual orientation programme that is effective, engaging, and promotes self-paced learning.

# Development Method

This project aims to develop an effective virtual orientation programme for new learners using the ADDIE model, a systematic and iterative process consisting of five phases: analysis, design, development, implementation, and evaluation. The ADDIE model, as shown in Figure 1, is widely accepted and researched worldwide and is adaptable to different instructional environments, making it ideal for integrating technology into instruction.

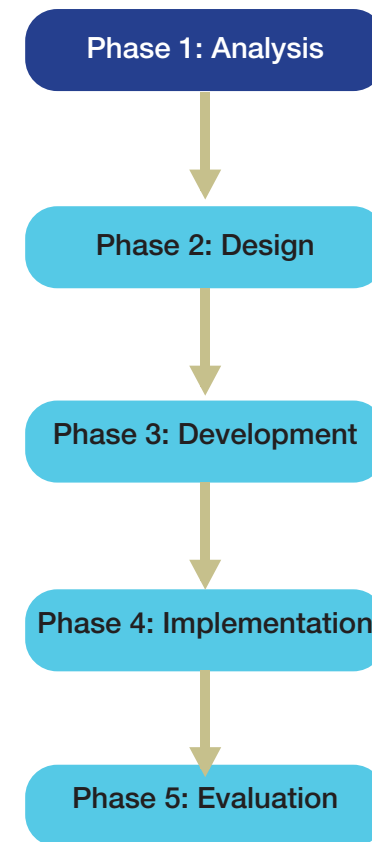
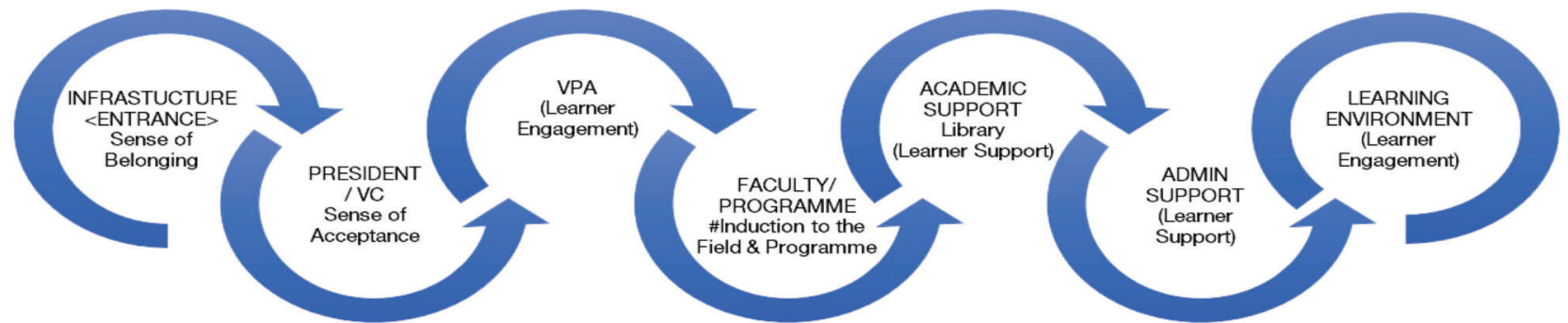


Figure 1. ADDIE Model

To begin the project, a need assessment and context analysis was conducted to identify the requirements of the virtual orientation. Four project goals were identified: to welcome new learners, provide an induction to the programme, provide an overview of the learning environment, and introduce available academic and administrative support systems. The challenges learners face in online learning, such as adaptability, feelings of isolation, and self-directedness were also identified.

The structure and content of the virtual orientation were designed based on the flow, as in Figure 2, that integrates several key areas to support the transition of learners from their current environment to online learning environments. Visual and instructional design principles such as balance, unity, proximity, contrast, emphasis, and alignment were used to create an intuitive navigation path for learners.



**Figure 2.** Structure of Virtual Orientation

A development team consisting of web designers, video creators and editors, a 360-video developer, and a graphic designer was set up to create the content. After approximately half of the project time was devoted to content development, a prototype was presented to the stakeholders for feedback and approval.

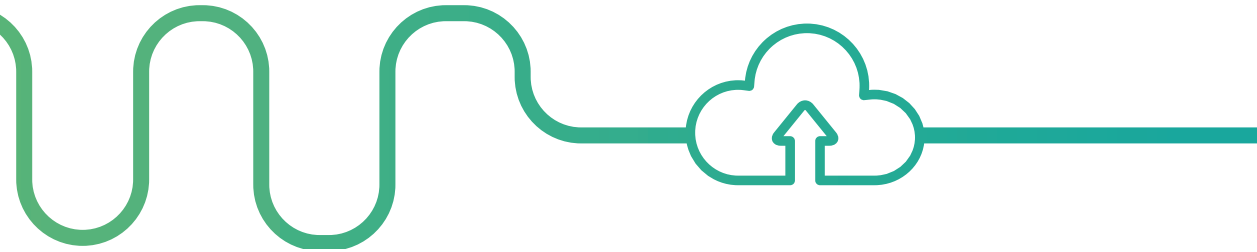
The development phase has been completed and awaiting testing due to administrative constraints. The virtual orientation programme will be tested with new learners to evaluate its effectiveness. A survey was developed and built into the virtual orientation programme to capture their understanding of the virtual orientation contents, and learners will be required to give feedback to share their thoughts on the programme. This input will then be analysed to understand how the virtual orientation programme affects learners' understanding of the learning environment, the types of support provided by the university, and how to get in touch should they need further support.

In addition, student attrition data before and after the introduction of the virtual orientation programme will be compared to determine the programme's effectiveness.

Ultimately, the findings of this research will provide educators with practical strategies for creating effective virtual orientation programmes that engage learners and promote self-paced learning. By understanding the key factors contributing to the success of virtual orientation programmes, institutions can ensure that new learners have a positive experience and are equipped with the knowledge and skills they need to succeed in their academic journey.



# Output, Further Findings and Discussion



The project was successfully completed by developing a virtual orientation programme embedded with assessment, certification and feedback. Feedback and further findings from the delivery of the programme are expected to contribute to better understanding of the effectiveness of virtual orientation programmes in increasing learner engagement and retention rates. The research will provide insights into the factors contributing to the success of virtual orientation programmes and the challenges the development team faces in developing and delivering these programmes.

Preliminary findings suggest virtual orientation programmes effectively increase learner engagement and retention rates. Learners appreciate the convenience and flexibility of virtual orientation programmes, which allow them to complete the programme at their own pace. Additionally, the ability to repeat content and skip sections they feel could be more helpful enhances their learning experience.

The research also identifies several factors that are expected to contribute to the success of virtual orientation programmes, including the quality of the content, design, and delivery. Effective virtual orientation programmes have engaging, informative, and well-designed content that is easy to comprehend. They also use interactive and multimedia elements to enhance the learning experience.

Several challenges in developing and delivering virtual orientation programmes have also been identified. These include the need for more resources, technical issues, and the need to update and revise the content constantly. Various strategies were used to overcome these challenges, including collaborating with faculty members and leveraging technology to enhance the learning experience. Ideally, the programme should append a series of videos connecting learners to their programme directors for effective engagement. This can be initiated once the programme is tested and improved.

# Impact of the Research

The impact of this research is far-reaching, as it provides essential insights into the development and implementation of virtual orientation programmes. With the Covid-19 pandemic forcing educational institutions to shift to online learning, virtual orientation programmes have become increasingly important in ensuring learners have a smooth transition to their new learning environment. Educational institutions can use the findings of this study to inform the development and implementation of their virtual orientation programmes. By conducting a thorough needs assessment, developing engaging and relevant content, selecting appropriate technology and platform, and implementing assessment and evaluation strategies, institutions can create effective virtual orientation programmes that enhance learners' learning experience.

The impact of this research extends beyond education, as it also has practical applications in other areas where virtual orientation programmes are used, such as in corporate training and onboarding. By applying the principles outlined in this study, organisations can create effective virtual orientation programmes that improve the onboarding experience for new employees, resulting in increased productivity and job satisfaction.

Furthermore, the impact of this research goes beyond just the development of virtual orientation programmes. The study highlights the importance of needs assessment and evaluation in any educational initiative. By conducting needs assessment, educational institutions can identify the specific needs of their learners and tailor their programmes to meet those needs. Similarly, evaluation strategies can be used to assess the effectiveness of educational programmes and make necessary improvements.

## Acknowledgements

We express our sincere gratitude to Open University Malaysia for its financial support via the internal research fund OUM-IRF-2020-006 that made this research possible. We are also grateful to our creative team (Fathinirna Mohd Arshad, Megat Malfiz Ismail, Shaiful Noor Mohd Noor, Ahmad Al-Hafiz Ahmad Ridzuan and Wan Afaidhi Raimie Wan Ab Rahman) from the Centre for Instructional Design and Technology and technical team (Mohd Aiman Junoh and Mohd Fakhrul Fiqri Zakaria) from Digital Services for their valuable efforts and support in realising this project.

# References

- Alavi, M., Yoo, Y., & Vogel, D. (1997). Using information technology to add value to management education. *Academy of Management Journal*, 40(6), 1310–1333.
- Cavanagh, T. M., Chadwick, K., & Dudley-Marling, C. (2016). Virtual orientation programs: Improving satisfaction, retention, and academic performance in online higher education. *Journal of Online Learning and Teaching*, 12(1), 70–85.
- Conklin, S. W., & Taylor, L. A. (2014). Online student orientation: Strategies for success. *Journal of Asynchronous Learning Networks*, 18(2), 23–31.
- DellaVecchia, M. J., & Bohnert, D. (2016). Orientation to online learning: A developmental approach. *Journal of Asynchronous Learning Networks*, 20(2), 99–111.
- Engle, L., & Schutt, M. (2013). Building a successful orientation program: Tips from the field. *College and University*, 89(1), 24–31.
- Hwang, G. J., & Kim, C. (2015). Effects of an online orientation program on student satisfaction and retention in online courses. *Educational Technology & Society*, 18(1), 308–320.
- Lowenthal, P. R., Dunlap, J. C., & Snelson, C. (2017). Live synchronous web meetings in asynchronous online courses: Reconceptualising virtual office hours. *Online Learning*, 21(4), 177–194.
- McInerney, J. M., & Roberts, T. S. (2004). Online learning: Social interaction and the creation of a sense of community. *Educational Technology & Society*, 7(3), 73–81.
- Wang, X., Chen, L., & Li, Y. (2019). A needs assessment approach to designing an online orientation program for first-year college students. *Journal of Educational Computing Research*, 57(5), 1112–1134.
- Zhang, L., Li, Y., Zhao, X., Zhang, Z., & Xu, S. (2020). An empirical study on the influence of online student orientation on student satisfaction, retention, and academic performance in distance education. *Interactive Learning Environments*, 28(3), 363–377.
- Zinskie, C. D., & Meixner, C. (2019). A comparison of online student orientation delivery methods: Impact on satisfaction, knowledge, and performance. *Journal of Educational Technology Development and Exchange*, 12(1), 1–18.



***Model Kepuasan  
Pelajar Terhadap  
Interaksi Bagi  
Pembelajaran  
Matematik Dalam  
Talian di Universiti  
Terbuka Malaysia***

Authors:

Norazzila Shafie  
Fazilah Razali  
Hamidah Mat

# Pengenalan

*Tidak dapat dinafikan pembelajaran dalam talian kini amat popular terutama di kalangan mereka yang bekerjaya kerana kemudahan seperti boleh diakses di mana-mana dan masa pembelajaran yang fleksibel (Tootoonchi, 2014; Kauffman, 2015). Menurut Allan & Sieman (2010), satu daripada empat pelajar di insituti pengajian tinggi terlibat dalam pembelajaran dalam talian. Kajian yang telah dilakukan daripada tahun 2002 ke 2011 juga menunjukkan peningkatan yang baik bagi pembelajaran dalam talian ini (Allan & Sieman, 2013). Malah sejak pandemik COVID-19 pembelajaran dalam talian sudah menjadi satu kemestian untuk semua peringkat pelajar.*

*Selain pencapaian pelajar, kepuasan pelajar menjadi elemen penting bagi sesebuah institusi pengajian tinggi untuk diberi perhatian dalam memastikan mereka kekal di dalam pengajian (Zai et al., 2017; Thomas, 2011). Kepuasan pelajar dianggap sebagai satu komponen utama dalam menentukan kualiti sesuatu program dalam pasaran kini kerana pelajar-pelajar ini adalah aset kepada institusi dan boleh menjadi penyumbang sebagai alumni (Parahoo et al., 2016; Parahoo et al., 2013). Pelajar yang berpuas hati, pasti secara tidak lansung akan menyampaikan dari mulut ke mulut tentang pengalaman mereka di institusi tersebut (Alves & Raposo, 2009). Matematik merupakan kursus yang penting yang biasanya menjadi sebahagian daripada kursus teras bagi kebanyakan program di institusi pengajian tinggi yang menjadi fokus penyelidikan dalam kajian ini.*

## Norazzila Shafie

Open University Malaysia  
norazzila@oum.edu.my

*Norazzila Shafie merupakan seorang pensyarah kanan Fakulti Pendidikan, Universiti Terbuka Malaysia. Beliau mempunyai 20 tahun pengalaman mengajar matematik di universiti awan dan swasta, dan kini sedang melanjutkan pengajian di peringkat PhD di Universiti Putra Malaysia. Beliau juga terlibat secara aktif dalam beberapa projek penyelidikan lain, di dalam dan di luar negara.*





# Tinjauan Literatur

Sebelum pembelajaran dalam talian, pembelajaran jarak jauh diperkenalkan bagi mereka yang tidak boleh berada secara fizikal dalam kelas tradisional (Tschetter, 2014). Menurut Allen & Sieman (2006), pembelajaran jarak jauh ditakrifkan sebagai pelajar dan pengajar tidak berada pada tempat yang sama tetapi proses pembelajaran dapat dijalankan kepada pelbagai golongan generasi. Seajar dengan perkembangan teknologi, pembelajaran jarak jauh ini dapat dilaksanakan dengan lebih baik melalui penggunaan internet, malah ada yang menakrifkan pembelajaran jarak jauh dan pembelajaran dalam talian adalah dua perkara yang sama (Moore et al., 2011).

Merujuk kepada Allen and Seaman (2011); jika 1%–29% daripada kurikulum kursus disampaikan melalui internet, ia dikira sebagai kursus dengan bantuan web; jika 30%–79% disampaikan melalui internet, ia dikira

sebagai kursus teradun; dan sekiranya 80% atau lebih kandungan kursus disampaikan melalui internet ia boleh dianggap kursus di atas talian seperti ringkasan Jadual 1 berikut:

	Peratusan Kursus Disampaikan melalui Internet	Mod Kursus
<b>Jadual 1.</b> Mod Pembelajaran	1% -29%	Bantuan Web
	30%-79%	Teradun
	80% dan lebih	Atas Talian

Pembelajaran dalam talian memberikan banyak fleksibiliti dari segi jadual dan lokasi kepada pelajar dan pengajar. Pelajar boleh mengambil bahagian dalam kelas di mana-mana lokasi yang terdapat akses kepada internet dan pada bila-bila masa yang sesuai untuk mereka, ini bersesuaian dengan keperluan kerja mereka atau jadual perjalanan mereka yang sedia ada.

Di Malaysia, terdapat beberapa univervisti yang menjalankan pendidikan jarak jauh sepenuhnya atau kini lebih dikenali sebagai pembelajaran teradun atau pembelajaran dalam talian seperti Universiti Terbuka Malaysia (UNITEM), Wawasan University dan Asian e-University. Universiti Terbuka Malaysia yang dipilih untuk kajian ini

**Fazilah Razali**  
Universiti Putra Malaysia  
fazilahrazali@upm.edu.my

Dr Fazilah Razali sebelum ini merupakan guru matematik di peringkat menengah sejak tahun 2008. Beliau memperolehi Doktor Falsafah dari Universiti Putra Malaysia, dalam bidang Kurikulum dan Pengajaran pada tahun 2018. Beliau terlibat secara aktif dalam pelbagai projek, terutama yang berkaitan dengan pendidikan STEM, Pendidikan Sains, Pengajaran dan Pembelajaran, Pembangunan Modul STEM, dan Pelatih untuk Projek Yayasan Microsoft Asean. Kini beliau merupakan pensyarah kanan di Fakulti Pengajian Pendidikan, Universiti Putra Malaysia.





melibatkan sesi pembelajaran lebih banyak disampaikan dalam talian dengan pertemuan bersemuka yang minimum.

Menurut Wu et al (2010), kepuasan adalah ukuran kualiti yang paling boleh diterima dalam mengukur kualiti dan keberkesanan pengajaran dan pempengajaran dan pembelajaran atau yang seumpamanya. Malah kesediaan pelajar untuk mencadangkan sesuatu institusi kepada yang lain akan meningkat apabila kitar hayat pelajar di universiti diurus dengan baik (Oluseye, Tairat, & Emmanuel, 2014).

Kajian tentang kepuasan pelajar terhadap pembelajaran atas talian telah banyak dijalankan tetapi kepuasan pelajar secara khusus terhadap pembelajaran matematik atas talian ini masih lagi kurang diberi penekanan. Matematik mempunyai peranan yang tersendiri yang amat penting dalam pembangunan individu, masyarakat dan negara. Namun begitu, pencapaian dan pengalaman pembelajaran matematik pelajar adalah kritikal (Ogden, 2015; Petrillo, 2016; Van Sickle, 2016). Pembelajaran dalam talian yang dibincangkan dalam kajian ini melibatkan mereka yang bekerja dan berkeluarga tentunya mempunyai masa yang begitu terhad, maka mereka pastinya mempunyai cabaran yang sukar bagi menghadapi kursus kritikal ini. Walaupun pembelajaran dalam talian telah berkembang dengan baik namun kadar keciciran pelajar adalah agak tinggi dan merupakan cabaran yang utama bagi insitusi

yang melaksanakannya (Lee & Choi, 2010). Jika dibandingkan dengan kursus-kursus dalam talian yang lain, kadar keciciran pelajar dalam kursus matematik adalah tinggi (Warren, 2017). Pembelajaran dalam talian bagi kursus ini mempunyai cabaran yang unik untuk kedua-dua pengajar dan pelajar kerana sifat subjek ini adalah sangat teknikal dan agak sukar difahami jika ia tidak diurus dengan baik. Malah, kurangnya interaksi baik dari segi kuantiti atau kualiti mempengaruhi motivasi, emosi dan proses kognitif pelajar (ChanMin, Seung Won & Cozart, 2014).

Banyak kajian telah melaporkan, kemahiran matematik pelajar pada peringkat pengajian tinggi telah hilang atau kurang (Galligan et al., 2010, Matzakos & Kalogiannakis, 2018) oleh kerana telah lama meninggalkan alam persekolahan atau kerjaya yang tidak menggunakan kemahiran ini. Asas yang tidak cukup atau kuat mendorong pelajar tidak bermotivasi dan tidak berkeyakinan dalam memanipulasikan objek-objek matematik (Escudero-Viladoms & Masià, 2013). Kursus matematik di peringkat universiti atau kolej sudah pastinya memerlukan pengetahuan asas yang dipelajari dari sekolah. Maka perlunya satu sistem sokongan yang dapat membantu pelajar-pelajar ini supaya dapat memahami kursus ini dengan baik.

*Dr Hamidah binti Mat ialah pensyarah kanan Fakulti Sains Sosial dan Kemanusiaan di Universiti Terbuka Malaysia. Beliau telah lulus dari Universiti Malaya dalam bidang Syariah dan mempunyai latar belakang pendidikan. Selain mempunyai pengalaman mengajar selama 22 tahun, beliau terlibat secara aktif dalam penyelidikan dan penerbitan dalam bidang seperti Pengajian Islam, Pendidikan dan Pembelajaran Terbuka dan Jarak Jauh.*



# Objektif Kajian

*Kajian ini berfokus kepada faktor Interaksi. Motivasi dan Pembelajaran Regulasi Kendiri terhadap Kepuasan Pelajar dalam pembelajaran Matematik atas talian:*

- i. Menentukan kesan langsung antara Interaksi (Pelajar-Tutor, Pelajar-Pelajar, Pelajar-Modul, Pelajar – Teknologi) dengan Kepuasan Pelajar terhadap pembelajaran Matematik atas talian;*
- ii. Menentukan kesan langsung antara Interaksi dengan Motivasi pelajar terhadap pembelajaran Matematik atas talian;*
- iii. Menentukan kesan langsung antara Interaksi dengan Pembelajaran Regulasi Kendiri pelajar terhadap pembelajaran Matematik atas talian;*
- iv. Menentukan kesan langsung antara Motivasi dan Kepuasan pelajar terhadap pembelajaran Matematik atas talian;*
- v. Menentukan kesan langsung antara Pembelajaran Regulasi Kendiri dan Kepuasan pelajar terhadap pembelajaran Matematik atas talian;*
- vi. Menentukan model fit yang signifikan bagi kepuasan pelajar terhadap pembelajaran Matematik atas talian.*

# Metodologi Kajian

*Kajian ini melibatkan pengumpulan data bagi tujuan melihat faktor-faktor kepuasan pelajar terhadap pembelajaran matematik atas talian dan hubungannya dengan pembolehubah yang lain menggunakan kaedah kajian korelasi. Analisis korelasi digunakan bagi mengukur dan menerangkan hubungan antara semua pemboleh ubah yang dikaji (Gravetter & Wallmau, 2011). Ia juga boleh digunakan untuk menentukan sama ada terdapat hubungan termasuk mengenal pasti kekuatan hubungan yang wujud antara dua atau lebih pemboleh ubah. Seperti di dalam kajian ini terdapat dua atau lebih maklumat data yang berbeza dikumpul daripada kumpulan sampel yang sama bagi mengenal pasti hubungan antara pembolehubah tidak bersandar dengan pembolehubah bersandar (Creswell, 2012).*

*Kajian ini bakal dijalankan di Universiti Terbuka Malaysia (UNITEM) yang mempunyai 35 pusat pembelajaran di seluruh Malaysia. Pusat pembelajaran UNITEM boleh diketogarikan kepada 5 zon iaitu Zon Utara, Zon Selatan, Zon Tengah, Zon pantai Timur dan Zon Sabah & Sarawak seperti Jadual 2 Pemilihan pelajar akan dibuat berdasarkan sampling nisbah megikut zon.*

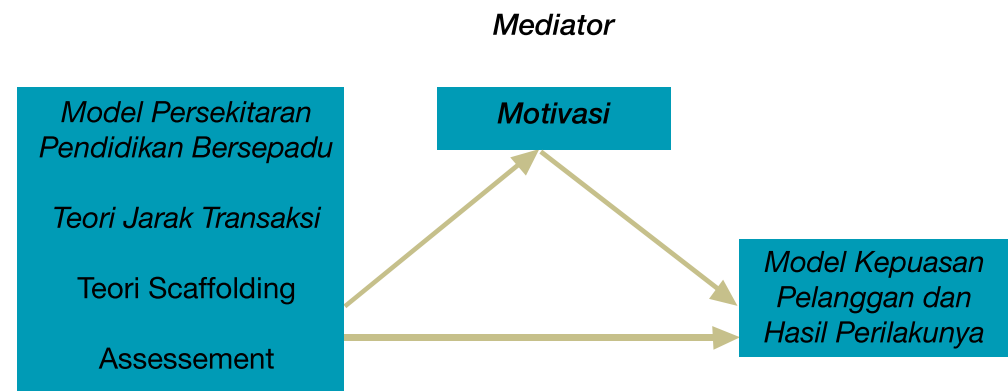
**Jadual 2.** Pusat Pembelajaran UNITEM Mengikut Zon

Zon	Pusat Pembelajaran	Bilangan Pusat Pembelajaran
Utara	Alor Star, Sungai Petani, Seberang Jaya, Green Hill, Ipoh, Taiping dan Tanjung Malim	7
Selatan	Johor Bahru, Pontian, Batu Pahat, Simpang Renggam, Melaka dan Seremban	6
Tengah	Kuala Selangor, Banting, Shah Alam, Petaling Jaya, Kuala Lumpur, Sri Rampai dan Bangi	7
Pantai Timur	Kota Bharu, Kuala Terengganu, Kuantan dan Temerloh	4
Sabah & Sarawak	Keningau, Tawau, Lahad Datu, Sandakan, Kota Marudu, Kota Kinabalu, Miri, Bintulu, Sibu dan Kuching	10
<b>Jumlah Pusat Pembelajaran</b>		<b>35</b>

## Jangkaan Dapatan dan Perbincangan

Melalui beberapa model daripada kajian lepas dan teori-teori yang berkaitan, kerangka konseptual kajian diterbitkan seperti rajah 1. Melalui kerangka konseptual ini, dapat dilihat terdapat tiga faktor utama yang dijangkakan akan mempunyai hubungan dengan kepuasan pelajar terhadap pembelajaran matematik atas talian iaitu Interaksi, Kerja Kursus dan Sistem Sokongan. Terdapat empat subkonstruk di bawah Interaksi iaitu Interaksi Pelajar-Pengajar, Pelajar-Pelajar, Pelajar-Modul dan Pelajar-Antaramuka. Di bawah Kerja Kursus, terdapat dua subkonstruk iaitu Aktiviti dan Maklum Balas dan bagi Sistem Sokongan, terdapat tiga subkonstruk iaitu Kelas Bersemuka, Syarahan Video dan e-Lesson.

**Rajah 1.** Pusat Pembelajaran UNITEM Mengikut Zon



*Pembelajaran Regulasi Kendiri merupakan faktor penengah (mediator) antara faktor persekitaran dan kepuasan pelajar terhadap pembelajaran matematik atas talian. Kesan daripada kepuasan pelajar terhadap pembelajaran matematik atas talian adalah wujudnya kesetiaan pelajar yang menghasilkan tingkahlaku menyampaikan dari mulut ke mulut, kekal dalam pengajian atau sambung pengajian dan terlibat dengan alumni apabila telah tamat pengajian.*

*Diketahui umum bahawa matematik merupakan kursus yang agak sukar dan memerlukan pengetahuan asas yang baik bagi melalui pembelajaran matematik di peringkat yang lebih tinggi dengan selesa. Matematik merupakan kursus teknikal yang melibatkan banyak formula serta memerlukan kefahaman yang jelas sesuatu teorem atau konsep untuk menyelesaikan masalah matematik. Satu sistem yang baik amatlah perlu bagi membantu pelajar dalam pembelajaran mereka khususnya dalam pembelajaran atas talian ini.*

*Malalui kajian Matzakos & Kalogiannakis (2018), satu sistem sokongan atau program sokongan dalam pembelajaran matematik bagi membantu pelajar kejuruteraan pelajar tahun pertama menyediakan aktiviti membaca, sampel soalan dengan penyelesaian, latihan (soalan benar / salah dan pelbagai pilihan) penilaian sendiri, bahan penyampaian dinamik, fail GeoGebra, sumber bahan audiovisual dan video yang dipilih dengan teliti. Hasil kajian ini menunjukkan pelajar berasa selesa dan berpuas hati dengan sistem seumpama ini.*

*Sistem sokongan yang dibangunkan oleh Johnston, et al. (2016) dalam kemahiran matematik untuk pelajar Kimia tahun pertama di Queensland University. Program ini mempunyai kesan positif terhadap kemahiran matematik yang diperlukan oleh pelajar dalam bidang kimia. Manakala, Mistel et al.(2011) melalui kajian jangka panjang mereka terhadap komunikasi sinkronus melalui perisian Elluminate Live, satu sistem sokongan dalam pembelajaran matematik atas talian menerima maklum balas positif dari para pengajar dan para pelajar. Pelajaran matematik yang syarahannya direkodkan dalam bentuk video memberi kesan positif pada peperiksaan akhir tahun pertama pelajar di Universiti Ludwigsburg (Zimmermann et al., 2013).*

*UNITEM terdapat sistem sokongan untuk membantu pelajar dalam pembelajaran matematik atas talian ini seperti syarahan video dan e-lesson. Syarahan video merupakan syarahan yang telah dirakam terlebih awal bagi kandungan sesuatu kuliah. Pelajar boleh merujuk atau menonton pada bila-bila masa yang mereka kehendaki mengikut kesesuaian masa mereka. Walaupun kelas secara bersemuka diadakan tetapi sangat terhad iaitu sebanyak lapan kali satu semester selama satu jam bagi satu sesi. Sesi bersemuka yang lebih dikenali sebagai tutorial adalah tidak wajib kehadirannya, maka video syarahan ini sedikit sebanyak dapat membantu pelajar memahami isi kuliah sekiranya tidak dapat hadir bagi sesi tutorial atau bagi tujuan mengulang-kaji.*



# Impak Kajian

*Hasil kajian dijangka akan dapat membentuk satu model kepuasan pelajar dalam interaksi bagi pembelajaran matematik atas talian. Walaupun model yang dibina berfokus kepada kursus matematik di peringkat lepasan universiti, namun pasti akan memberi ruang untuk dikaji pada kursus-kursus lain atau di peringkat yang berbeza.*



## Penghargaan

*Ucapan terima kasih khas kepada Open University Malaysia (OUM) kerana menganugerahkan Dana Penyelidikan Dalaman (IRF) untuk menjalankan projek penyelidikan bertajuk, 'Pembangunan Model Kepuasan Pelajar dalam Interaksi terhadap Pembelajaran Matematik dalam Talian di Universiti Terbuka Malaysia' (OUM-IRF-2021-004).*



# Rujukan

- Allen, I. E., & Seaman, J. (2010). *Learning on demand: Online education in the United States, 2009*. The Sloan Consortium. [http://www.aln.org/publications/survey/learning\\_on\\_demand\\_sr2010](http://www.aln.org/publications/survey/learning_on_demand_sr2010).
- Allen, I. E. & Seaman, J. (2011). *Going the distance: Online education in the United States*. Babson Survey Research Group and Quahog Research Group.
- Allen, I. E., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States*. Babson Survey Research Group and Quahog Research Group.
- ChanMin, K., Seung Won, P., & Cozart, J. (2014). Affective and motivational factors of learning in online mathematics courses. *British Journal Of Educational Technology*, 45(1), 171-185
- Creswell, J., W. (2012). *Research design: Qualitative, Quantitative, and mixed methods approaches*. Sage.
- Galligan, L., Wandel, A., & Todd, H. (2010). Scaffolding distance learning in Mathematics for Engineering: Identifying key troublesome knowledge. In *Engineering and Mathematics in Education Conference (STEM 2010)*. Brisbane: Australia.
- Gravetter, F. J. & Wallnau, L. B. (2011). *Essentials of statistics for the behavioral sciences* (7th ed.). Wadsworth.
- Kauffman, H. (2015). A review of predictive factors of student success in and satisfaction with online learning. *Research in Learning Technology*, 23.
- Lee, Y., & Choi, J. (2011). A review of online course dropout research: implications for practice and future research. *Educational Technology Research & Development*, 59(5), 593–618.
- Matzakos, N. M. & Kalogiannakis, M. (2018) An analysis of first year engineering students'satisfactionwith a support distance learning program in mathematics. *Educ Inf Technol* (2018)23,869–891.
- Moore, J. C. (2011). A synthesis of Sloan-c effective practices. *Journal of Asynchronous Learning Networks*, 16(1), 92-115.
- Parahoo, S. K., Harvey, H. L., & Tamim, R. M. (2013). Factors influencing student satisfaction in universities in the Gulf region: Does gender of students matter?*Journal of Marketing for Higher Education*, 23(2), 135–154.



- Parahoo, S. K., Santally, M. I., Rajabalee, Y., & Harvey, H. L. (2016). Designing a predictive model of student satisfaction in online learning. *Journal Of Marketing For Higher Education, 26*(1), 1-19.
- Thomas, S. (2011). What Drives Student Loyalty in Universities: An Emperical Model from India. *International Business Research 4*(2), 183-192.
- Tootoonchi, N. S. (2014). *College students' perceptions of the learning environment in online mathematics classes: A qualitative study* (Order No. 3626318). ProQuest Dissertations & Theses Global.
- Warren, T. L. J. (2018). *The role of interaction in an online college algebra class* (Order No. 10748013). ProQuest Dissertations & Theses Global.
- Zhai, X., Gu, J., Liu, H., Liang, J. & Tsai, C. (2017). An Experiential Learning Perspective on Students' Satisfaction Model in a Flipped Classroom Context. *Journal of Educational Technology & Society, 20*(1), 198–210.

**OUM**  
**RESEARCH**  
**DIGEST**  
2022 ANNUAL ISSUE

Centre For Research And Innovation  
Open University Malaysia  
Menara Oum, Block C,  
Kompleks Kelana Centre Point,  
Jalan Ss7/19, Kelana Jaya,  
47301, Petaling Jaya,  
Selangor, Malaysia.

603 7801 1296 | [cri@oum.edu.my](mailto:cri@oum.edu.my) | [www.oum.edu.my](http://www.oum.edu.my)

eISSN 2948-5304



9 7 7 2 9 4 8 5 3 0 0 0 0