

A Study on University Students' Perception on Overall Satisfaction among Malaysian Open and Distance Learning (ODL) Students

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Abstract

This study is to examine how Wawasan Open University (WOU) ODL students in Malaysia are satisfied. The study examined how learning experience, environment, resources, and evaluation affect student satisfaction in open and distance learning. This survey included 129 WOU undergraduates from five business programmes. Based on earlier research, a series of questions were created to gauge student satisfaction in open and distance learning. The learning experience, environment, resources, and evaluation were used to describe the data. Table 5 shows all four factors affect student satisfaction. The study found that the mean values for learning experience, environment, resource, and evaluation are all higher than moderate (between 4.1 – 4.3). WOU ODL students clearly like the learning components. The paper solely discusses representative states of Malaysia and is generic. The poor response rate limited the sample size to 129. This study will help understand ODL in Malaysia. The COVID-19 pandemic increased ODL use. The study will also assist policymakers map out how instructors and students might benefit from online/blended teaching models in the future. The survey gives WOU and other ODL universities additional insight into student learning satisfaction. This study highlighted important issues and added to the literature.

Keywords: Open and Distance Learning (ODL), Overall Satisfaction, Learning Experience, Learning Environment, Learning Resources, and Learning Evaluation

Introduction

When the COVID-19 epidemic began in March 2020, educational institutions around the world were forced to close their doors almost completely, according to the World Health Organization. College and university closures have far-reaching economic and social consequences, affecting not only students and faculty members and their families, but also the entire society. Open and distant learning (ODL) programs have become increasingly popular as a result of this trend among higher education institutions. In the realm of open and remote learning, it cannot be denied that some institutions have a wealth of knowledge and extensive experience. Matthew & Chung (2020); Mariapan (2018); Muzammil et al (2020),

among others, have investigated what makes open and remote education effective, and they have discovered similar characteristics that explain the effectiveness of open and distance learning programs. Some of the findings of these research is similar, for example:

- Students and instructors must have equal access to learning resources.
- Interactions between students, between students and professors, and between students and content have a positive impact on student engagement.
- The adaptability of the e-learning course and technology, such as whether technical knowledge or expertise is necessary to access and use these.

Based on the aforementioned characteristics, one can conclude that the level of success of any distance learning programme is mainly dependent on the institutions' dedication to providing a conducive environment for their students to access and participate in teaching and learning resources. Moreover, one of the key features of effective teaching today lies in the ability of teachers to make use of electronic instructional materials that meet the needs of students and prepare them for this ICT driven 21st century (Mathew & Chung, 2020).

As ODL is an important mode of education in Malaysia, especially in light of the country's push towards a knowledge-based economy. ODL provides access to education for individuals who are unable to attend traditional on-campus programs due to various constraints, such as geographical location, financial limitations, or work/family commitments. Besides, ODL is typically less expensive than traditional on-campus education, making it an attractive option for students who want to pursue higher education without incurring high costs. In addition, it provides opportunities for individuals to pursue lifelong learning, acquire new skills, and stay competitive in the job market and moreover it is technology-driven, which means students are exposed to a variety of digital tools and resources that can help them develop important digital literacy skills. In a nut shell, the mian motivation of initiating this study as ODL is an important mode of education in Malaysia that can provide access to education and training for individuals who might not otherwise have the opportunity. It can also support Malaysia's national development goals by providing a highly-skilled workforce and addressing skills gaps in the economy.

The obejctives of this study are

- i. To identify the factors that influence the student satisfaction in an open and distance learning mode, and
- ii. To investigated the extent to which each factor, including learning experience, learning environment, learning resources, and learning evaluation, is seen as an activation driver of student satisfaction in an open and distance learning mode.

Literature Reviews

Learning Experience

According to a recent literature, students must have prior learning experience in regards to utilizing an online learning platform in their educational contexts in order to benefit from it (Abuhassna et al., 2020). The experience of students with online learning provides numerous advantages among themselves and their instructors in terms of increasing students' learning experiences, particularly for isolated learners (Salmon, 2014). Regardless of whether students recognize the benefits of using technology to enhance their learning, challenges may develop due to their low technical capabilities and prior experience using the software itself in terms of its functionality. In addition, a number of researchers have discovered that the Internet and technology provide the most significant obstacles for the majority of students (Maqableh and

Alia, 2021; Ghani et al., 2022). As evidenced by student feedback and experience from several online sessions over the years, this can often be a source of frustration for both students and instructors, as it can lead to normally simple tasks, such as watching videos or uploading documents, becoming increasingly difficult for them because they have no prior experience with this type of activity (Salmon, 2014).

Furthermore, when conducting assessments, such as for online group presentations, the comparatively limited ability to speak face-to-face, as well as reliance on nonverbal clues and audience body language, may be discouraging considerations. While the ability to participate in online, sometimes non-visual sessions, such as teleconferencing formats, is becoming increasingly crucial in the modern workplace, the need of simple, clear, and intensive interaction skills is also getting more obvious (Salmon, 2014).

In another study, students in Jordan, United Kingdom were found to be dissatisfied with their online learning experience due to distractions and reduced focus, psychological concerns, and management issues (Maqableh and Alia, 2021). The results were presented in the form of topics, with statements from research participants to support each subject. The following themes emerged from the thematic analysis: (1) The nature of online education, (2) The problem with connectivity, (3) The Internet package, (4) The difficulties with the equipment, (5) Home production, and (6) The general perspective of online learning as a result of the research, it was discovered that the Colleges of Education in Ghana utilized social media as well as online learning platforms for teaching and learning. The self-efficacy of digital training, the interaction of learner and content, the interaction of the learner and instructor, and the interaction between learner and learner are some of the elements that have been the subject of investigation by a number of scholars (Fearnley et al., 2022). Scholars discovered that during the Covid-19, the teacher used Zoom to conduct meetings with students, remotely distance assist them with their homework, did discussions about the interest, and evaluated the goals of the career, all of which made students to get newly friendship as well as improving the communication skill, and ultimately formed the positive opinion (Berenblum et al., 2022). However, despite the fact that the use of e-learning at universities has been the subject of several research, there is still a lack of clear understanding regarding how students' diverse e-learning experiences may influence their overall satisfaction with their education.

Learning Environment

University physical facilities, as well as their management, play an important role in the achievement of the university's goals by providing students and employees with a functional infrastructure that serves as the foundation for university functions to provide learning environment for ODL (Kärnä et al., 2013). The study reaffirm that university facilities and their management help students and employees achieve university goals by providing a functional infrastructure that supports university functions. Moreover, Kok et al (2011) argue that the greater the degree to which facility services directly influence the educational process, the greater the potential contribution of facility services to educational achievement. It has been found that the integration of technology in teaching and learning activities enriches the learning environment (Ellis & Goodyear, 2010). Meanwhile, Zainuddin et al (2016), the utilization of Moodle as a suitable platform to enable postgraduate open and distance learning (ODL) courses is described, along with the discovery that despite its enormous potential, Moodle is primarily used as a storehouse for resources.

Teaching and learning assisted by technology have significantly reduced the physical distance between teachers and pupils, allowing for the flexible delivery of education at a

distance, anywhere, at any time (Fozdar, 2015). The researchers argue that if the intention to use technology in learning exists, the behaviour to use the technology will follow suit (Hai et al., 2022). For adopting e-learning system in universities, instructors need to have formal training to use technological resources effectively (Budur, 2020).

Online learning can be a lonely experience. Social presence and interaction are a few proposed ways to combat students' feelings of loneliness from peers and their instructor. Given that online course popularity and opportunities continue to grow, it is necessary to examine possible ways to alleviate perceptions of loneliness, especially given its negative outcomes on students' learning experiences. Thus, the purpose of this study was to explore how connections with those in the course (i.e. rapport and climate) may alleviate perceptions of loneliness in an online classroom, if at all, using rhetorical and relational goals as a theoretical perspective. The results from this study exemplify the importance of the instructor's role in building and maintaining rapport and climate. Practical implications for online instructors are presented in the discussion.

Learning Resources

Worldwide teaching methods have been impacted by the COVID-19 pandemic, which has led to the relatively close shutdown of academic institutions. These restrictions promoted online learning from home and produced a major benefit for students and teachers. The majority of academic system have mandated the switch from traditional to online learning. E-learning materials are also regarded to be hard-copy learning resources translated into electronic formats that may be accessible by both lecture halls and distance students regardless of place or time (Reitz 2004). Participation, course content, organization, teaching methods, assessment, material resources, quality of delivery, learning environment, tutorials, and learning resources are all aspects Maqbool, Ismail, and Maqbool (2020) found to influence online students' levels of satisfaction. Course requirements such as tasks, deadlines, and grading rubrics are outlined by teachers. and resources in order to facilitate students' academic success and sustained learning (Gary, 2015). The words like cloud library, virtual library and electronic library are also used as umbrella terms to describe digitized libraries that houses collection of eresources (Olaniran et al., 2017). Moreover, technical support from their university administration will thus motivate students to manage technological stresses and develop full readiness for online learning (Zeeshan et al., 2020). Besides that, Olaniran et al. (2017) revealed a high utilization of e-resources to learn but a low utilization of e-resources to teach among the respondents.

Learning Assessment

One of the main challenges of teaching and learning in ODL is the assessment. In terms of ODL setting, assignment is well positioned to support ODL learners as it allows them to apply their experience and knowledge in the written form. It is of utmost pertinence that assignment by itself must be reliable and consistent in relaying the targeted outcome of learning, so that the ODL learners can gain the most benefit of this assessment. Thus, ODL learners need formative assessment instruments which are more objective in nature and outcome-orientated or outcome-based. Rubrics descend nicely into place in answering or representing such assessment instrument. Rubrics by themselves need to be "rich" in order to guide the learners objectively and independently, while at the same time reflecting representative grade. The innovative rubrics presented here can support both, in addition to improving common understanding, promoting consistent expectation of the learning outcome

and minimizing various interpretations across the assignment stakeholders (Mariapan, 2018). Instructors provide specific of course requirements, such as homework, deadlines, regulations, evaluation grading rubric, and available resources, help students achieve their learning goals and stay engaged throughout the semester (Ofoegbu, 2009).

Methodology

The possibility of Wawasan Open University (WOU) was investigated through a qualitative descriptive method in this research. Towards perception of overall satisfaction on open and distance learning (ODL) among students. Students from five business programs in the survey. A total of 200 questionnaires were distributed in person and through emails, and 76 questionnaires were returned by respondents, which accounted 38 percent of response rate. This survey of questionnaire was adapted from Jansen et al. (2015) according to the condition prevailing to local environment. five-point Likert scale questionnaires were designed which comprises four categories as following:

- i. Learning Experiences (LX)
- ii. Learning Environment (LE)
- iii. Learning Resources (LR)
- iv. Learning Assessment (LA)

Students' Perception on Learning Experience

Table 1 provides a summary of student perceptions of learning events. General, students consented that WOU can provide for learning knowledge to ODL students. The highest rate of students strongly agreed that they had experienced the online learning at WOU is from Program BBM204-03 which accounted to 71.43%, while 57.14%. students from program BBM205-03 and BBM208-03 strongly agreed that ODL at WOU provides them a good learning experience. In another hand, 4.76% students from program BBM102-03 strongly disagree that ODL at WOU provides them a good learning experience.

Table 1

Summary of Students' Perception on Learning Experience

Course	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Total
BBF201-03	0 0.00%	1 5.00%	3 15.00%	3 15.00%	13 65.00%	20 100%
BBM102-03	1 4.76%	0 0.00%	2 9.52%	4 19.05%	14 66.67%	21 100%
BBM204-03	0 0.00%	1 7.14%	0 0.00%	3 21.43%	10 71.43%	14 100%
BBM205-03	0 0.00%	0 0.00%	0 0.00%	3 42.86%	4 57.14%	7 100%
BBM208-03	0 0.00%	0 0.00%	0 0.00%	6 42.86%	8 57.14%	14 100%

Figure 1 illustrates a clear trend of agreement on the satisfaction on the online learning experience at WOU. Majority of the students from all the programs reported that they felt the learning experience from the ODL program, where the percentage are more than 50% (a minimum of 57.14%). This clearly shows that lecturers, students and the infrastructure at

WOU meet the students expectations. Only 4.76% students from BBM102-03 are not having good learning experience from the ODL program.

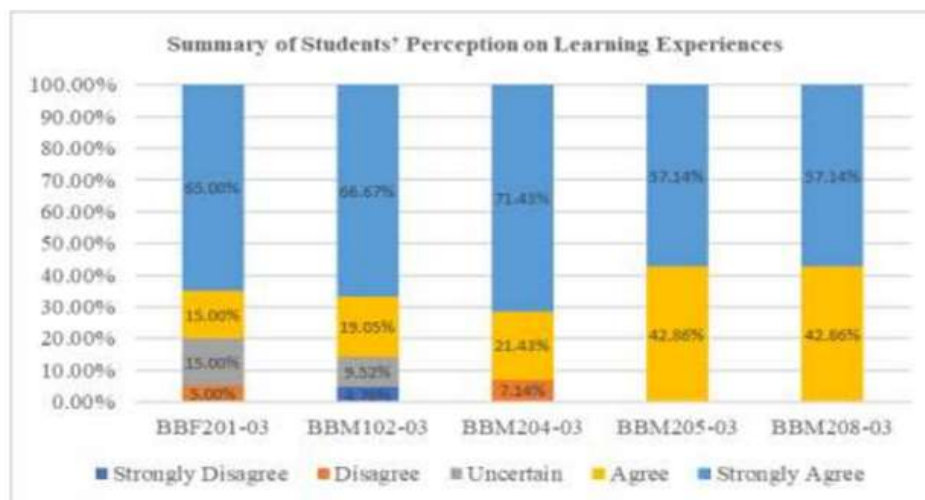


Fig.1: Students' Perception on Learning Experience

Students' Perception on Learning Environment

The second key aspect is the learning environment, and Table 2 provides a summary of how students perceive the learning environment. Generally, students thought that WOU could provide ODL students with a learning environment. However, the percentage of strong agreed is still in the moderate level from 40% to 57.14%, which indicate that WOU must pay attention on providing a better learning environment to the students. The programmes BBM204-03 and BBM205-03 had the highest percentage of students, and respondents agreed that they feel content with the learning environment at WOU, at 57.14%, respectively. However, 4.76% students from program BBM102- 03 strongly disagree and another 4.76% disagree that ODL at WOU provides them a good learning environment.

Table 2

Summary of Students' Perception on Learning Environment

Course	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Total
BBF201-03	0 0.00%	1 0.00%	3 20.00%	3 40.00%	13 40.00%	20 100%
BBM102-03	1 4.76%	0 4.76%	2 14.29%	4 28.57%	14 47.62%	21 100%
BBM204-03	0 0.00%	1 0.00%	0 7.14%	3 35.71%	10 57.14%	14 100%
BBM205-03	0 0.00%	0 0.00%	0 14.29%	3 28.57%	4 57.14%	7 100%
BBM208-03	0 0.00%	0 0.00%	0 14.29%	6 42.86%	8 42.86%	14 100%

Figure 2 illustrates a clear trend of agreement on the satisfaction on the online learning environment at WOU. Majority of the students from all the programs reported that learning environment from the ODL program are in the strongly agree and agree level. However, there are 4.76% students from BBM102-03 strongly disagree with the learning environment at WOU. This clearly demonstrates that the environment at WOU meets the expectations of the

students. As a result, WOU can improve the integration of technology into teaching and learning activities, which enriches the learning environment for all students.

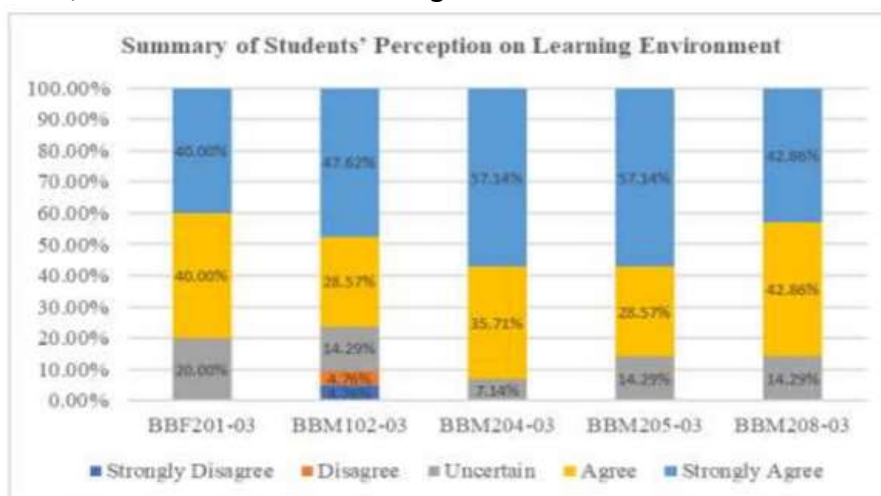


Fig.2: Students' Perception on Learning Environment

Students' Perception on Learning Resources

The third predictor is learning resources and the summary of students' perception on learning resources shown in Table 3. On the whole, students agreed that the learning resources provided by WOU met or exceeded their expectations as ODL students. According to the results, the percentage of students who strongly agreed is in the moderate range (40 percent to 64.29 percent), indicating that WOU needs to focus its efforts on providing better learning resources to its students. The programme with the highest percentage of students who strongly agreed that they were satisfied with the learning environment at WOU is BBM204-03, which had a 64.29% satisfaction rate. However, 9.52 percent of students from the BBM102-03 programme strongly disagree that the ODL at WOU provides them with satisfying learning resources that meet their needs and exceed their expectations.

Table 3

Summary of Students' Perception on Learning Resources

Course	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Total
BBF201-03	0 0.00%	1 0.00%	3 20.00%	3 40.00%	13 40.00%	20 100%
BBM102-03	1 0.05%	0 9.52%	2 4.76%	4 38.10%	14 47.62%	21 100.00%
BBM204-03	0 0.00%	1 0.00%	0 7.14%	3 28.57%	10 84.29%	14 100%
BBM205-03	0 0.00%	0 0.00%	0 14.29%	3 42.86%	4 42.86%	7 100%
BBM208-03	0 0.00%	0 0.00%	0 7.14%	6 42.86%	8 50.00%	14 100%

Figure 3 exemplify a distinct tendency of agreement on the satisfaction on the online learning resources at WOU. The vast majority of students from all programmes reported that the learning resources provided by the ODL programme are at or near the strongly agree and agree levels of satisfaction. WOU's learning resources are viewed negatively by 0.05 percent and 9.52 percent of BBM102-03 students, respectively, according to the results of the survey. WOU should develop more useful and related materials, implement a comprehensive teaching assessment rubric, and develop additional resources to assist students in moving up the educational ladder through high-quality and comprehensive education, as demonstrated by this study.

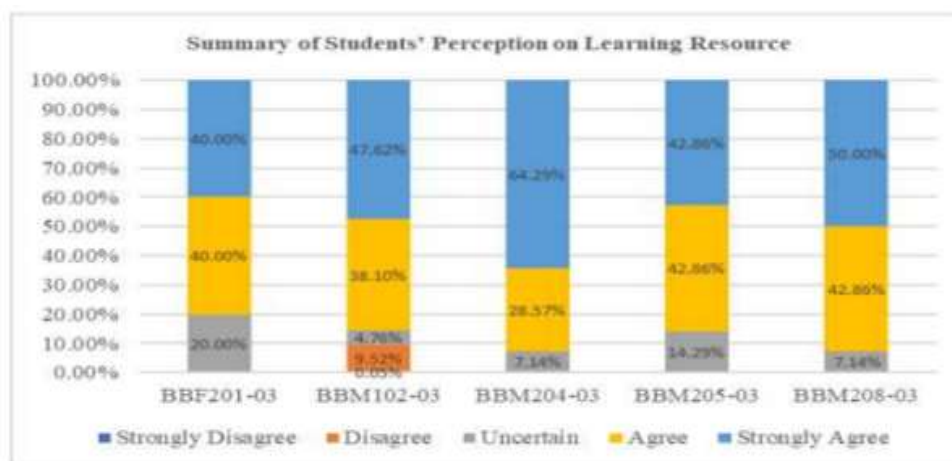


Fig.3: Students' Perception on Learning Resources

Students' Perception on Learning Assessment

The final factor influence ODL students' satisfaction is learning assessment and the summary of students' perception on learning assessment shown in Table 4. Majority of the students strongly agreed that the learning assessment conducted in WOU for ODL program meet their expectations. The highest rate of students strongly agreed that they had experienced the online learning at WOU is from Program BBM204-03 which accounted to 78.57%, while the lowest rate is 42.86% students strongly agreed with learning resources at

WOU among ODL students. In another hand, 4.76% and 9.52% students from program BBM102-03 strongly disagree and disagree respectively that ODL at WOU provides them good learning assessment.

Table 4

Summary of Students' Perception on Learning Assessment

Course	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Total
BBF201-03	0 0.00%	1 10.00%	3 15.00%	3 25.00%	13 50.00%	20 100%
BBM102-03	1 4.76%	0 9.52%	2 4.76%	4 23.81%	14 57.14%	21 100.00%
BBM204-03	0 0.00%	1 0.00%	0 7.14%	3 14.29%	10 78.57%	14 100%
BBM205-03	0 0.00%	0 0.00%	0 14.29%	3 42.86%	4 42.86%	7 100%
BBM208-03	0 0.00%	0 0.00%	0 7.14%	6 42.86%	8 50.00%	14 100%

Figure 4 illustrates a clear trend of agreement on the satisfaction on the online learning assessment at WOU. In the vast majority of cases, students from all programmes reported that the learning assessment provided by the ODL programme met their needs and met their expectations. For ODL to be a catalyst for educational advancement at WOU, the university must improve its teaching infrastructure, online communication, learning materials, assessment mechanism, and feedback mechanisms, among other things.

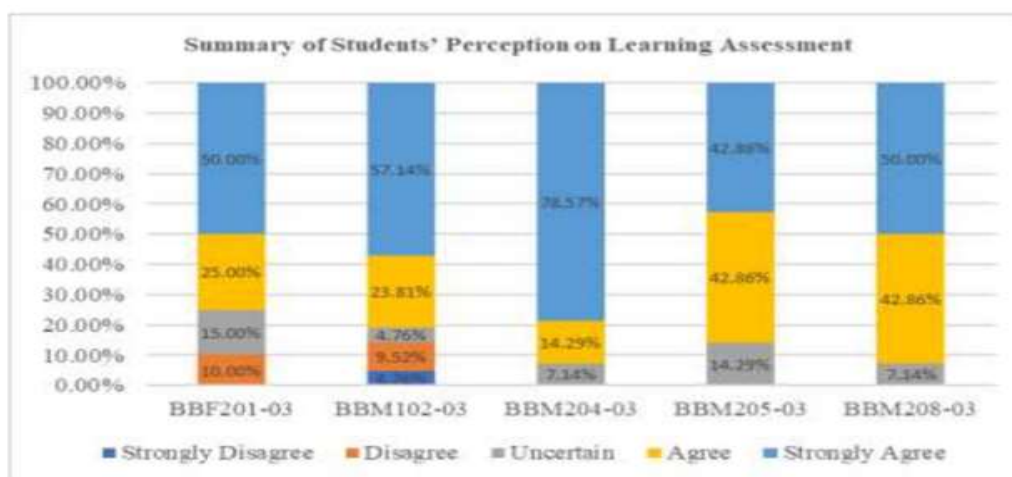


Fig.3: Students' Perception on Learning Assessment

Overall mean

In summary, this study has identity all the four factors influence the student's satisfaction are presented in Table 5. On average, the study reported that all the mean including for learning experience, learning environment, learning resource, and learning assessment are in the higher level where the value is between 4.1 – 4.3. This value clearly shows that ODL students at WOU are satisfied with the learning components.

Table 5

Summary of Factors Influence the Students Satisfaction

	BBF201-03	BBF102-03	BBM 204-03	BBM205-03	BBM208-03	Mean
LEXP	4.19	4.21	4.47	4.34	4.34	4.3
LENV	4.04	3.96	4.39	4.21	4.11	4.1
LR	4.04	4.02	4.35	4.02	4.1	4.1
LA	3.98	3.98	4.49	4.14	4.33	4.2
OS	4.03	4.1	4.48	4.07	4.2	4.2

Conclusion

This study aims to identify the enabling factors based on the quantitative survey, which influence the satisfaction of students' learning at WOU, Malaysia. Thus, it presents two implications. First, it contributes an insight to the policy maker and management of the WOU by providing the importance of learning experience, learning environment, learning resource, and learning assessment. The obtained result should be a potential value for the policy maker and other researchers to enhance the strategy in near future. Secondly, this study draws strong recommendation particularly to policy maker of WOU in order to enhance the implementation of ODL, as well as fostering the development of distance learning in Malaysian generally. Moreover, this study is helpful to establish WOU strategic and action plan accordingly to overcome all the critical challenges faced by the students and lecturers particularly.

Online distance learning has become an increasingly popular mode of education among undergraduate students, especially since the onset of the COVID-19 pandemic. Some advantages of online distance learning for undergraduate students including the flexibility where the students can access course materials and lectures from anywhere with an internet connection and can complete coursework on their own schedule, which allows them to balance their education with other responsibilities such as work and family obligations. Besides, the students can access to a wide range of courses that may not be available at traditional brick-and-mortar institutions. In addition, online distance learning can be less expensive than traditional on-campus education. Students can save money on transportation, housing, and other expenses associated with living on campus. ODL also requires the use of technology, which can help students develop important technology skills that are increasingly important in today's job market. Overall, online distance learning offers many advantages for undergraduate students, making it a viable and attractive option for students seeking a flexible, cost-effective, and accessible education. Therefore, the challenges highlight in this study should be resolve as soon as possible to provide huge contribution the students.

References

- Abuhassna, H., Al-Rahmi, W. M., Yahya, N., Zakaria, M. A. Z. M., Kosnin, A. B., & Darwish, M. (2020). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *International Journal of Educational Technology in Higher Education*, 17(1), 1-23.
- Budur, T. (2020). The role of online teaching tools on the perception of the students during the lockdown of Covid-19. *International Journal of Social Sciences & Educational Studies*,

- 7(3), 178-190. Ellis, R. A., & Goodyear, P. (2010). Students' experiences of e-learning in higher education: The ecology of sustainable innovation. New York, NY: Routledge Falmer.
- Fozdar, B. I. (2015). Open and Distance Learning (ODL): A Strategy of Development through its Potential Role in Improving Science & Technology Knowledge. *International Journal of Emerging Technologies in Learning*, 10(2).
- Gray, J., & DiLoreto, M. (2015, August). Student satisfaction and perceived learning in online learning environments: The mediating effect of student engagement. Paper presented at the Annual Meeting of the National Council of Professors of Educational Leadership, Washington, D.C
- Zouiri, L., & Kinani, F. E. (2022). An analysis of students' satisfaction with distance learning in Moroccan universities during the COVID-19 pandemic. *Public Administration and Policy*(ahead-of-print).
- Ahmad, R., Ghazali, Z. M., & Abd Halim, M. S. Students' satisfaction on learning calculus using open and distance learning method during COVID-19 pandemic. *Int J Eval & Res Educ ISSN, 2252(8822)*, 1347.
- Nasir, M. K. M., & Ngah, A. H. (2022). The Sustainability of a Community of Inquiry in Online Course Satisfaction in Virtual Learning Environments in Higher Education. *Sustainability*, 14(15), 9633.
- Mariapan, R. (2018). Innovative assignment rubrics for ODL courses: design, implementation and impact. *Asian Association of Open Universities Journal*.
- Mathew, V. N., & Chung, E. (2020). University Students' Perspectives on Open and Distance Learning (ODL) Implementation Amidst COVID-19. *Asian Journal of University Education*, 16(4), 152-160.
- Maqableh, M., & Alia, M. (2021). Evaluation online learning of undergraduate students under lockdown amidst COVID-19 Pandemic: The online learning experience and students' satisfaction. *Children and Youth Services Review*, 128, 106160.
- Maqbool, S., Ismail, S. A. M. M., & Maqbool, S. A. (2020). Correlational study between learning motivation and satisfaction in online courses. *Humanities & Social Sciences Reviews*, 8(1).
- Muzammil, M., Sutawijaya, A., & Harsasi, M. (2020). Investigating student satisfaction in online learning: the role of student interaction and engagement in distance learning university. *Turkish Online Journal of Distance Education*, 21(Special Issue-IODL), 88-96.
- Ofoegbu, I. (2009). Female access to basic education: a case for open distance learning (ODL). *Edo Journal of Counselling*, 2(1), 46-57.
- Leung, E. F. (2017). *Online Learning*. Singapore: Pearson.
- Olaniran, S. O., Duma, M. A. N., & Nzima, D. R. (2017). Assessing the Utilization Level of E-Learning Resources among ODL Based Pre-Service Teacher Trainees. *Electronic Journal of e-Learning*, 15(5), 384-394.
- Salmon, G. (2014). Learning innovation: A framework for transformation. *European Journal of Open, Distance and e-Learning*, 17(1), 219-235.
- Zainuddin, N., Idrus, R., & Jamal, A. F. M. (2016). Moodle as an ODL teaching tool: A Perspective of Students and Academics. *Electronic Journal of e-Learning*, 14(4), pp282-290.
- Zeeshan, M., Chaudhry, A. G., & Khan, S. E. (2020). Pandemic preparedness and techno stress among faculty of DAIs in Covid-19. *sjesr*, 3(2), 383-39

- Berenblum, J. R., Schlesinger, K. T., Aigbokhan, I. O., Wolff, M. S., & Gluch, J. I. (2022). Penntorship: The value of mentoring during a pandemic. *Journal of dental education*.
- Fearnley, M., Malay, C., & Fabia, J. N. (2022). Factors Affecting Student Satisfaction, Perceived Learning and Academic Performance in an Emergency Online Science Course. *International Journal of Information and Education Technology*, 12(12).
- Hai, L., Sang, G., Wang, H., Li, W., & Bao, X. (2022). An Empirical Investigation of University Students' Behavioural Intention to Adopt Online Learning: Evidence from China. *Behavioral Sciences*, 12(10), 403.
- Ghani, M. N. H., Abdullah, S., Ismail, M. K., Ahmad, N., Affandi, S., Azmin, M. N. A., & Abdul Manaf, S. M. (2022). An Exploratory Factor Analysis on the Open and Distance Learning among University Students during the COVID-19 Pandemic in Malaysia. *Asian Journal of University Education*, 18(3), 724-734.