

Learners' Satisfaction and Academic Performance in Open and Distance Learning (ODL) Universities in Malaysia

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Abstract

Purpose: The focus of this paper is to identify learners' satisfaction and performance levels in an online learning environment at the Open and Distance Learning (ODL) universities in Malaysia.

Design/methodology/approach: 2283 valid questionnaires were completed by three batches of undergraduates. The responses revealed a significant correlation between the learners' performance and satisfaction with the learning materials, assessment management, academic facilitation, the services provided by the universities and the promptness of their responses. The stepwise regression analysis indicated that services and assessment management significantly influenced learner performance.

Findings: All the independent variables had means between 3.210 and 3.647. This indicates that the learners were satisfied with their usage of learning materials, assessment management, academic facilitation and the services provided by the universities. However, only two variables were related to learners' performance, namely assessment management and services rendered by the universities.

Research limitations/implications: Future studies should consider the inclusion of other variables such as the availability of alternative modes of enquiry and refining the items used to measure the variable in this study. The study could also engage a longitudinal method of data collection and be administered on a broader population involving all faculties and program levels.

Practical implications: This study suggests to policy makers and academic leaders that they should continue to provide the current excellent level of support in the form of resources and services but they need to find creative ways to engender better performances by their learners.

Originality/value: Earlier models of distance education used to be centered on correspondence courses, audio-based courses and video-taped lectures. These models are being updated with

internet or computer based models. Consequently, there are different challenges in the delivery of ODL programs today. Hence, a learner's demonstrated success in a conventional delivery may not adequately predict his or her success in an ODL program. Understanding the performance of present day ODL programs' success factors will allow new ODL universities, or brick and mortar universities in the process of transforming to blended learning, undertake the necessary steps to ensure the success of their ODL programs.

Keywords: Open and Distance Learning (ODL) universities, Malaysia, Learners' Performance, Learners' Satisfaction

Introduction

The advent of Information Communication Technology (ICT) has transformed the way tertiary education programs are delivered today and created a different learning experience for tertiary students. The delivery of tertiary education has broken away from the mass production, conventional academic centred chalk and talk model, to a leaner-centred approach supported by an advanced technological-centric delivery model. In this era, innovations in technology have resulted in new trends in learning environments and introduced more modern concepts of learning. From traditional face-to-face learning, technology has transformed our education in a positive way and introduced us to the concept of e-learning (i.e. digitally delivered learning) (Maarop and Embi, 2016).

In preparing Malaysia to become a developed nation by 2020, the transformation of the higher education delivery process plays a pivotal role in ensuring Malaysians have access to knowledge anywhere and at any time and that they have opportunities to embark upon life-long learning journeys. With a burgeoning population of 34.3 million and the expected working population aged 15 to 64 years to reach 26.2 million by the year 2020, it is crucial that the issues of education and employment are effectively addressed in the interests of the country. The use of printed materials such as books and handouts are rapidly being replaced by the Virtual Learning Environment (VLE), digital libraries, online journal articles and a variety of multi-media gadgets. These developments are in line with the National Education Blueprint 2015-2025 for Higher Education. They act as enablers of the blueprint by complementing life-long learning initiatives, globalizing online learning and transforming higher education delivery (Ministry of Education, 2012).

Although formal, conventional education in universities and colleges in Malaysia continues to be an important component of the national education system, they appear more suitable for learners studying full time. However, human capital development can also be increased through educational opportunities for ordinary working citizens to further their education. The current online learning programs, already in place, provide new avenues for the workforce to gain knowledge, skills and competencies when studying part time. In addition to conventional learning, online learning has a role to play in developing skilled and knowledgeable workers who are much needed in the employment market. This is especially true when the existing workforce is required to enhance its knowledge in order to remain sustainable and employable in the workplace. The universities designed to assist and address the needs of the working citizens of Malaysia are classified as ODL universities.

Online learning has become a significant part of higher learning in the United States of America (USA), as well as other parts of the world including Malaysia (Allen and Seaman, 2013; Tahar et al., 2013). In other words, the use of online learning as a delivery method is in line with two of the seven principles proposed by Chickering and Gamson (1987), which are "encourage learners to engage in active learning" and "encourage contact between learners and faculty". A small number of studies conducted by investigators seeking to identify the dimensionality of learner satisfaction with online learning have emerged in the past few years (Dziuban et al., 2015). While prior studies have focused primarily on face-to-face teaching environments, online learning has provided a new dynamic and has re-energized interest in the topic.

In conventional learning environments, learners have the advantage of two-way communication and immediate responses from tutors or lecturers (Xu and Jaggars, 2014). Although online learning may increase learner's flexibility, eliminate geographical barriers, improve convenience and effectiveness for individualized and collaborative learning, it has some disadvantages, such as a lack of peer contact and social interactions, the time consuming nature of developing video/content materials, as well as the need for flexible tutorial support (Alraimi, Zo, and Ciganek, 2015). Furthermore, learners in online learning may experience feelings of isolation, frustration and confusion or reduced interest in the subject matter (Adams, Liyanagunawardena, Rassool, and Williams, 2013). Due to its relative lack of structure, like any other courses offered online, it was reported that learner performance was usually lower when compared to the conventional learning mode (Atchley, Wingenbach, and Akers, 2013). Learners withdrawing from their studies as a result of their poor performance may impact on the sustainability of ODL universities. Thus, there is a need to study the learner's satisfaction (e.g. usage of learning material, academic facilitation services, learning centers responsiveness and assessment management) and its effect on the learners' academic performance. Therefore, the objective of this study is to identify learners' satisfaction and performance in an online learning environment in the ODL universities in Malaysia.

Literature Review

With great advances in the field, learners are considered, not as recipients of knowledge, but as constructors of knowledge. The role of technology, from providing drill and practice (controlled learning), has shifted to providing tools and a creative environment for learners to solve problems (supported learning) (Molenda and Januszewski, 2007). Online courses are often associated with the extensive use of technology. Some scholars believe that the format of a course challenges or influences learner success (Dodds et al., 2014; Dunbar, 2004). Bates (2005) points out that the terms 'online learning' and 'e-learning' are used interchangeably, but makes the distinction that e-learning can encompass any form of technology, while online learning refers specifically to the use of the internet and the web. Online learning programs offer accessible education for a global community of learners with shared interests (McDonald and Pereira, 2006).

A study by Wolff, Wood-Kustanowitz, and Ashkenazi (2014), also found that learner performance has a positive relationship with variables such as assistance with assessments by facilitators, hours spent studying and not being involved in paid work and on-the-job training. When comparing online with conventional modes of delivery, learners found that there were no

differences in their performance (Adam, Nel, Adam, and Nel, 2009; Alwagait, Shahzad, and Alim, 2015; Morris, Wu, and Finnegan, 2005; Wolff et al., 2014). Nevertheless, there are a myriad of studies of learner satisfaction in relation to factors connected to performance such as technology, course quality, internet efficacy and timely instructor response online tools and the use of blackboard LMS in online learning (Finger, Sun, and Jamieson-Proctor, 2010; Small, Dowell, and Simmons, 2012).

Research on academic facilitation, which is similar to teaching online, has been ongoing and the results have been fairly consistent. Anderson, Liam, Garrison, and Archer (2001), have suggested that when there is strong support by facilitators, the collaboration results in more positive outcomes for learners. In other words, facilitators are the initiators who encourage online learner activities that eventually lead to better performance. The characteristics of the online learning environment inspire learners to obtain knowledge and advice from various sources, to apply the subject matter and acquire confidence in implementing the knowledge they learn in a real world context (Bliuc, Ellis, Goodyear, and Piggott, 2011; Hsu, 2011; Smyth, Houghton, Cooney, and Casey, 2012).

The importance of services in the form of basic amenities such as availability of the internet and Wi-Fi facilities has a significant impact on the accessibility of learning materials at a university (Altameem, 2013). This supports the study carried out by Wu, Tennyson, and Hsia (2010), who postulated that support services in the form of easy accessibility and retrieval of course materials and assignments were crucial for learners. However, if learners shun computer usage, it will affect their performance since most of the learning and teaching is done online (Sun, Tsai, Finger, Chen, and Yeh, 2008).

A study in the Malaysian context carried out by Wahab et al. (2014), fully supported the notion that if learners perceive that if there is ease of usage of the iLearn (a combination of several learning and teaching technologies such as Moodle and Blackboard that form a facility allowing academics and learners to interact as part of a collaborative, flexible learning and teaching experience), the learners' academic performance can be marginally enhanced. There have been other tools used by past scholars to measure learners' performance, for example Cleveland and Kvan (2015) used the Medical School Learning Environment Survey (MSLES) to measure learner performance in medical schools in the USA. Among the dimensions used were medical and practical interests, flexibility, learning experience, organization and learner interaction. Though the correlation between the MSLES and learner performances was positive, it was small and implied that no matter what the academic environment, the performance of learners, especially in medical schools, remained the same due to other variables such as their attitude and level of motivation to excel in their academic performance.

Sun et al. (2008) supported Chen, Lambert, and Guidry's (2010) study which revealed that a variety of assessment methods and delivery processes can assist in not only satisfying the learners, but also improving their performance. By having diversified assessments, learners are challenged mentally and this may motivate and stimulate them. The studies also implied that a combination of high quality teaching materials, course design and interactive discussion arrangements lead to higher satisfaction. Consequently, greater satisfaction can lead to greater

achievement. Satisfaction as a measure of success has been used by previous studies (Kauser and Shaw, 2004). Besides, studies of three universities in Saudi Arabia by Darojat, Nilson, and Kauffman (2015) reported that all the universities that they studied fully supported their tutors in enhancing their skills, not only in terms of subject matter, but also in developing and designing course material and assessments. This is similar to conventional universities where the emphasis on teaching and learning is crucial, yet the non-academic staff in an online learning environment has more complex responsibilities than traditional universities. The staff at the learning centers provide the delivery of materials, linkages with multimedia communication corporations as well as regional and local deliveries (Darojat et al., 2015). In addition, they have to assist in the course material and organize learner bodies. Their responsibilities also encompass organizational training workshops for assessment and tutoring for academic staff, learner registration and providing financial assistance to learners. In most online learning environments, the non-academic staff form a major part of the human resource component as most of the tutors are part-timers.

Methodology

A quantitative cross-sectional survey was employed in this study. The survey was conducted at all ODL universities in Malaysia that had consented to the study. Using a census method, the questionnaires were uploaded into the universities' learning system for in-service teachers who were undertaking various undergraduate programs at the university to earn a bachelor degree. This method of data collection was employed because it was reasonable to include the entire population who were active e-learners during the three month period of data collection in 2017 (Fatemi et al., 2018). The survey was conducted online with the questionnaires being sent to learners via the university portal, which is an e-learning platform. A total of 2283 responded which represented 70 percent of the total population of in-service teachers enrolled in the bachelor program. Twenty-four items were adapted from the work on e-learning (Britto and Rush, 2013; Watkins, Leigh, and Triner, 2004) and grouped into five dimensions. The items were designed to demonstrate the effect of the independent variables on the dependent variable. The dependent variable in this research was the cumulative grade point of average scores (CGPA) of learners earned at the end of the semester. This approach was used because other researchers have used the measure and found it an acceptable one for measuring academic achievement (Palaniappan, 2007). Besides, in Malaysia, researchers evaluate the learner academic performance based on CGPA (Agus and Makhbul, 2002; Alfan and Othman, 2005; Manan, Khaidah, and Mohamad, 2003). As for the independent variables, the items were adapted from the sources in Table 1. A focus group discussion comprising 10 teachers enrolled in the online program was conducted to establish the relevance of the items representing the variables of the study in the context of the program delivered by ODL universities in Malaysia. All items used in the questionnaire were found to be relevant in the context of Malaysia. A validity and reliability test was undertaken and it indicated that the instrument was fit for use. In developing the questionnaire, consideration was given to the ease of use and simplicity of the questions (Zikmund, Babin, Carr, and Griffin, 2013). The instrument measured variables on a Likert Scale of 4 points, from strongly disagree to strongly agree. The operationalization of the independent variables in this study lie within the scope description of these variables as shown in the Table 1.

Table 1: The Scope of Independent Variables' Operationalization in This Study.

No	Variables	Description	Sources
1)	Usage learning materials	Frequency of using resources pertaining to online learning audio narrated power points presentation, video clips, reading assignment and practice example and mock examination.	Roksa, Trolian, Blaich, and Wise (2017); Raspopovic, Jankulovic,
2)	Academic Facilitation	The coordination and face to face services organized through the e-learning system of the universities.	Runic, and Lucic (2014); Kim and Lee (2011);
3)	Services	The scope services for e-learning cover fostering the interactions between other learners, use of the website, provision of technical support, online advising, online early alerts and case management advice.	Lee (2010); Ipek, Mutlu, Martínez, and Caruana (2008);
4)	Learning Centers Responsiveness	E-learning support systems that identify and interact with learners within an acceptable time frame.	Eom, Wen, and Ashill (2006); Thorpe (2002);
5)	Assessment Management	Covers areas such as mock assessments relating to knowledge, skills and abilities, flexibility of taking the assessment and assessments that incorporated Work-Integrated Learning and Scenario Analysis based on work experience.	

Findings

Table 2 below summarizes the demographic profiles of the respondents. The sample also indicates that female respondents represented a higher percentage of the total respondents (69%) when compared to the male respondents (31%). With reference to their experience in teaching, the samples indicated that those who had teaching experience of more than 22 years (31%) formed the majority, the next group was between 15 to 18 years (22%) and less than 14 years formed the rest of the group (47%). Most of the respondents were learners registered in the September Semester 2013 (42.59%) followed by those registered in the September Semester 2012 (36.77%) and the rest were learners who registered in the March Semester 2012 (20.64%).

Table 2: Demographic Statistics (n=2287)

		Frequency	Percent
Registration	March 2012	472	20.64
	September 2012	974	42.59
	September 2013	841	36.77
Gender	Female	1581	69.13
	Male	706	30.87

Teaching Experience	3-6 yr	40	1.75
	7-10 yr	235	10.28
	11-14yr	375	16.41
	15-18yr	501	21.93
	19-22yr	434	18.99
	>22 yr	700	30.63

The reliability of the measurement items for all the variables, as indicated in Table 3 below, was assessed by an internal consistency check. The Cronbach alpha from the test shows figures between 0.78 to 0.84 which indicated that the instrument was stable and consistent and above the cut-off line of reliability (Nunnally and Bernstein, 1994). Since content validity of the instrument was taken care of earlier, no changes were required for any of the items.

Table 3: Reliability Test for the Various Dimensions

	Cronbach's Alpha
Performance (Cumulative Grade Point Scores)	0.84
Usage of Learning Materials	0.80
Academic Facilitation	0.80
Services	0.79
Learning Centers Responsiveness	0.86
Assessment Management	0.78

The Pearson Product-Moment correlation extracted, as shown in Table 4, for all of the five dimensions (academic facilitation, usage of learning materials, assessment management, services and learning centers' responsiveness) disclosed both a negative and positive correlation at a significant 0.001 level. According to Dillon, Madden, and Firtle (1993) the Pearson correlation coefficient (r) ranges between -1 and +1. Positive 1 indicates a perfect positive correlation and the negative correlation indicates otherwise. As a rule of thumb, the correlation coefficients that exceed 0.8 (very strong correlation) are likely to result in multicollinearity (Berry, Berry, Feldman, and Stanley Feldman, 1985). For this study, the range of effect size is small (Cohen, 1988; Cohen et al., 1993).

Table 4: Mean, Standard Deviation and Correlations of the Variables

	Mean	Std. Deviation	1	2	3	4	5	6
1 CGPA scores	3.314	0.353	1.000					
2 Usage of Learning Materials	3.213	2.033	0.000	1.000				
3 Academic Facilitation	3.384	2.507	-0.009	0.530	1.000			
4 Services	3.210	2.066	-0.055	0.598	0.598	1.000		
5 Learning Centers Responsiveness	3.647	2.971	-0.017	0.393	0.372	0.525	1.000	
6 Assessment Management	3.259	2.344	0.007	0.646	0.655	0.609	0.425	1.000

Note: The number represents the correlation. Correlation is significant at the 0.05 level (2-tailed)

Results of the correlation analysis indicate no violation of the assumption as the absolute value is less than 0.8 which is an acceptable value (Berry et al., 1985). The highest mean was recorded for learning centers' responsiveness ($M=3.647$, $SD=2.971$), followed by academic facilitation ($M=3.384$, $SD=2.507$). The other two variables; usage of learning materials ($M=3.213$, $SD=2.033$) and services ($M=3.210$, $SD=2.066$) indicated slightly above average. The overall mean for the Cumulative Grade Point average is optimistic with an average of 3.314.

Academic facilitation, services and learning centers' responsiveness were found to have a negative correlation with learners' CGPA. The services ($r= -0.055$, $p<0.001$) has the highest value but negative correlation with the dependent variables. In other words, if the learners' CGPA is to be improved, the ODL universities should reduce their commitment to services, learning center responsiveness and academic facilitation respectively. At the same time, the assessment management should be increased to ensure greater potential for achieving higher CGPA scores. The study also indicated that there is a lack of correlation between the usage of learning materials and the learners' CGPA scores.

The correlation analysis in Table 4 reveals a possible connection between assessment management, services, learning centers' responsiveness and academic facilitation respectively, and the CGPA scores. Therefore, if there is a systematic change in assessment management, there will be a systematic change in the CGPA scores. The same will occur for services, learning center responsiveness and academic facilitation. This form of analysis does not determine cause and effect because it does not consider the possibility of other variables that are not presented in the research which could have impacted the CGPA scores. However, the researchers used this form of analysis to establish if there was a link between the independent variable and the dependent variable before investigating them together, since the independent variables use in this study were drawn from a variety of sources and not just one.

Table 5: Coefficient of Variable

Model		Std. Error	Beta	t	Sig.
1	(Constant)	0.047		73.811	0.001
	Services	0.004	-0.055	-2.641	0.008
2	(Constant)	0.055		61.186	0.001***
	Services	0.004	-0.095	-3.600	0.001***
	Assessment	0.004	0.065	2.469	0.014*
	Management				

*** $p<0.001$, ** $p<0.01$, * $p<0.05$

DV: Performance

Table 6: Assessment and Services Variables and Performance

R	R2	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. Change	F
1	0.5	0.25	0.24	0.352	0.003	6.973	0.008

2	0.64	0.41	0.39	0.352	0.003	6.097	0.014
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*** $p<0.001$, ** $p<0.01$, * $p<0.05$

DV: Performance

Regression analysis was further carried out to establish the impact of all independent variables when considered together on the dependent variable which is the CGPA scores. To determine which of the variables had a critical effect on the performance of the learners that were measured by their CGPA scores, a stepwise multiple regression analysis was then employed in this study. A stepwise multiple regression was used because the authors were unable to establish a strong underlying theory on which to base the model selection and they did not want to risk making incorrect assumptions that can affect the results. The independent variables were selected from different sources with different background settings. This method was utilized in view of the fact that there were some explanatory items that might not have been relevant in making the predictions for the learners' performance in this case (Sekaran and Bougie, 2016). The assumptions for stepwise multiple regression were conducted and reported to have no serious violations. The tolerance statistics revealed that the entire variables under study were in an acceptable range (cut off of 0.10 as suggested by Tabachnick and Fidell (2001)). Amongst the five variables measuring the learners' satisfaction with the university, two variables were significant at p -value less than 0.05 that predict learners' performance. The two variables that were seen as vital impacts on learners' performance were services rendered by the university staff and assessment management. The result indicates that the higher the learners rated their satisfaction with the assessment management, the better would be their performance ($\beta=0.065$, $t=2.469$, $p<0.05$). The other variable, services rendered by the university staff, had a negative relationship with the performance of the learners at ($\beta=-0.095$, $t=-3.600$, $p<0.001$). However, the strength of the relationship between the two variables was 0.64 as measured by R -value at p -value of 0.05 as seen in Table 5. The coefficient of determination measured by R^2 is 0.41 ($F=6.097$, $p<0.05$). It demonstrated that services rendered by the university staff and assessment of the subjects taken in the degree program help to explain 41% of the variance in the learners' performance. Given that the adjusted R^2 is close to the R^2 value, it indicated that no overfitting of the model to the sample occurred (Hair, Black, Babin, Anderson, and Tatham, 2006, p. 216). Clearly, the regression model fits the data very well. The R squared value drops by only 0.02 in the adjusted R^2 that signifies the acceptable cross validity of this model.

Discussion and Conclusion

An online learning environment is a move away from an instructor-centered education to a learner-centered education (Abdulrasool, Mishra, and Khalaf, 2010). This study supports past studies by Sun et al. (2008) and Thurmond, Wambach, Connors, and Frey (2002) indicating that assessment management is positively related to the high performance of learners. In this study, the learners agreed that the universities' efforts to create mock assessments as an approach to ensure their readiness to take assessments in terms of their knowledge, skills and abilities had contributed to their high CGPA scores. In addition, the learners also agreed that the flexibility in taking the assessments in terms of time management, self-discipline and on-screen reading and recalling availability contributed to their high CGPA scores. The assignments were situational and, therefore, enabled the learners to relate the tasks in the assignment to their working lives.

The assessment methods were also aligned to their working lives which resulted in them being graded favorably.

Services offered by support staff were found to be negatively significant in relation to learner performance. The respondents believed that universities should reduce the following: their fostering of interactions between other learners, use of the website, provision of technical support, online advising, online early alerts and case management advice. These negatively significant findings are not supported by Wahab, Othman, and Warris (2014) and Ciobanu (2013) who suggested services provided to learners by the support staff and the learning portal were related. The most likely reason for this difference is that the sample comprised in-service teachers who are intelligent, motivated and being independent learners rely less on the services provided by the university staff. Future studies could consider the availability of alternative modes of enquiry such as experiments, archival data, observations and interviews. The study could be administered on a broader learner population involving all faculties at the universities and across all program levels i.e. undergraduate and postgraduate programs. This study could also be replicated within other service industries such as health care, banking services and insurance services that utilize online business transactions, by refining the items used to measure the independent variables.

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