

The Contribution of Institutional Factors to Course Satisfaction with Perceived Learning as a Mediator among Student in Malaysian Research Universities

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Abstract

Distance learning in Malaysia has seen phenomenal growth especially in higher education where there are numerous universities offering online courses that have specifically provided access to students who were challenged by space and time constraints. Regardless of the dramatic increase of online courses and student enrollment, there are many indications that online courses are unsuccessful at meeting students' needs and students are dissatisfied with their online course experiences, which brings about a serious concern regarding the dropout rates of online courses. For solving this issue, it is crucial that researchers identify and study the factors that lead to student satisfaction with online courses because course satisfaction is considered to be the largest determinant in reducing dropout in distance learning environment. Hence, the purpose of this study is to investigate the contribution of institutional factors in terms of support including technical support, administrative support, and university support toward course satisfaction among 367 undergraduate distance students in Malaysian research universities. The result of the study revealed that institutional factors were a significantly positive, and strong factor associated with course satisfaction. Further, both direct and indirect effects of institutional factors on course satisfaction were significant, which means the effect of this variable on course satisfaction is partially mediated by perceived learning.

Keywords: Distance Learning, Perceived Learning, Administrative Support, Technical Support University Support

Introduction

In line with the first Malaysian concept, distance-learning programs are offered to all interested Malaysians irrespective of race to enable them acquire quality education at the tertiary level. The availability of this alternative-learning program allows those committed to

their work or have family commitments to continue studying without having to leave their existing obligations. However, the increasing use of information technology in education has brought learners and instructors together by eliminating the boundaries of time and space for both site-based and distance learners (Taha & El-Hajjar, 2012). This suggests that knowledge was not passively acquired, but rather personally constructed by learners, or co-constructed through collaboration among peers. It involves exploring diverse learning activities through which the instructor and learner could interact. This type of learning instruction could enhance students' freedom from possible learning restrictions (Nakayama, Mutsuura, & Yamamoto, 2014). Consequently, there is numerous numbers of studies that highlighted an increasing participation in distance learning programs at higher education levels, which are enhanced through opportunities inherent in the distance learning education (Boston, Diaz, Gibson, Ice, Richardson, & Swan, 2010; Daniel, 2012; Ferguson & DeFelice, 2010).

Institutions in Malaysia are facing the challenges of promoting educational opportunities that could facilitate the country's advancement to a developed status (Parsons, 2008). For this reason, it is imperative that institutions equip their students with the requisite support services (San, 2010). Resource availability, which includes access to technology tools and its application as well as easy access to the Internet, was found to be the key factors influencing students' satisfaction (Accuosti, 2014). Alexander et al. (2009) mentioned that receiving administrative and technical supports tend to boost students' satisfaction towards on-line learning. In view of the requisite elements related to support services such as administrative, university and technical supports are essential for enhancing students' satisfaction (Ghavifekr, Afshari, Siraj, & Razak, 2013). Kee et al. (2012) suggested that university, administration, and instructor supports were able to influence the adoption of distance learning among students in higher education. According to Embi (2011) lack of support from institutions is one of the main challenges in the Malaysian distance-learning environment. While it is known that institutional factors in terms of support are a crucial construct impacting student satisfaction but practice and research in this area is relatively new and limited. Consequently, to fill this knowledge gap, the study investigated the support services impact on the satisfaction of undergraduate's distance learning students with on-line courses in Malaysia.

Literature Review

Institutional factors include support programs or requirements that an institution sets as standards, practices, or criteria for student participation to meet the established conditions required for graduation (Dixon, 2015). As individual institutions strive to make their distance-education programs successful, they need to pay attention to the support service issues that often-become barriers to obtaining set goals. Chaney, Chaney, & Eddy (2010) suggested that successful distance-education program requires a significant amount of institutional supports for promoting the quality of distance teaching and learning. Similarly, in the study of Hassan et al. (2009), the level of student satisfaction increased with a corresponding increase in the level of support services. Therefore, it is implied that institutional factors play crucial role in enhancing the level of satisfaction in a distance-education program. It has been addressed in depth that many institutional factors may have an influence on students' perception, satisfaction in literature; nevertheless, only those factors related to support services are considered to be relevant to this study. This is with regards to their importance in the

distance-learning environment: technical, administrative, and university support (Cheung and Huang, 2005; Ice, 2006; Smith, 2004; Song, 2004; Kee et al, 2012).

Technical support is considered as one of the crucial factors, which is mainly performed by providing support when required by specialized skill personnel on software and hardware related products (Alshammari, Ali, & Rosli, 2016). Technical support is considered as the assistance received by the learner on the usage of the technological environment (Barbera, Clara, & Linder-Vanberschot, 2013). Researchers have identified technical support as an important factor that relates to the satisfaction of students. Based on Baleghi-zadeh, Fauzi, Mahmud, & Daud (2017)' findings, technical support has an important effect on students' experience in accepting or refusing an information system. When users receive practically no assistance while being faced with a challenge or problem, they may imply that operating with the system could be a waste of time and hence possibly quit (Dżega & Pietruszkiewicz, 2012). However, technical support should be considered mostly as a means to promote student learning (Poon, 2013). This must be encouraged in order to enhance and ensure the success of a distance-education program. Although, technical support is one of the considerable elements, which encourage and persuade users toward having a certain perception and adoption of technological innovations (Alshammari et al., 2016). There is limited number of empirical research that investigated its influence on how it impacted on course satisfaction, especially in the context of Malaysia.

Another type of institutional factor is the administrative support. Administrative support is considered as those professional actions executed or endorsed by the building principal or the principal's agent to support counseling programs (O'Connor, 2000). Administrative support can develop the implementation of a creativity or technology based on the fact that administrators provide services such as learners' registration, security, record keeping, and training as well as technical support (Kee, et al., 2012). Moses et al; (2012) emphasizes that administrators' support plays an important role in influencing the use of technology. It is advised that the administrators who support the use of technology not merely in words, but also in action lead to the acceptance and adoption of the technology as a culture. However, administrative support is considered as those professional actions executed or endorsed by the building principal or the principal's agent to support counseling programs (Connor, 2002). Thus, the lack of administrator's support will hinder the implementation of a technology (Selim, 2007).

University support is considered as the tools, methods, facilities, personnel, and services offered by the educational establishment to assist and encourage students in their learning (Libron-Green, 2004). Romsa (2012) suggests that the university support can play an important role in retaining the students in a distance-learning environment. This is because the university supports influences a student's ways of thinking, methods of problem solving, and interest in life goals. Several studies in organizational science and communicating have strongly argued that university support is a key factor that highly influences various aspects of student's intellectual and emotional outcomes (Gillet et al., 2012; Ohana, 2012; Rutherford et al., 2012). Studies indicate that while members perceive more support from their universities, they are more likely to be satisfied and less stressed (Cho and Yu, 2015). Therefore, it is important to understand the role of university support in the successful teaching-learning experience of distance learning. However, there has been no research study

that had examined support of students.

Based on this literature discussed, it can be implied that there was a general consensus that institutional support has a vast influence on student satisfaction. Hence, universities should work very hard to evolve strategies that can facilitate learning within their distance learning environments (Christiana, 2014).

Conceptual Framework of the Study and Research Questions

The aim of this study was to investigate the impact of institutional factors (administrative support, university support, and technical support) on perceived learning as a mediator, while satisfaction is the dependent variable. Figure.1 indicates the relationship between the variables of current study.

The result of previous studies illustrated that institutional factor is a crucial construct which affects satisfaction, persistence and retention (Marsh, 2010; Sickler, 2013; Bean, 2008; Christiana, 2014; Curran, 2013; Dixon, 2015). For example, Rovai & Downey (2010) described the importance of the institution in students' success, especially in their satisfaction with on-line courses. They announced that: poor faculty development can adversely influence distance-program quality, lead to student dissatisfaction and attrition, and adversely affect the school's branding reputation. According to Bhuasiri et al; (2012), providing support, equipment accessibility, and training are important issues for distance-learning acceptance.

Based on information obtained from the review of literature, in order to improve completion rates, the institution would benefit from further exploration of the institutional factors related to student satisfaction. This is because the literature reviewed showed that most barriers to the implementation of distance education are related to institutional issues (Neben, 2014). Therefore, it can be hypothesized that institutional factors in terms of technical support, administrative support, and university support may have direct influence on course satisfaction. This suggests that if distance learners are provided with sufficient support, they will be satisfied with on-line courses.

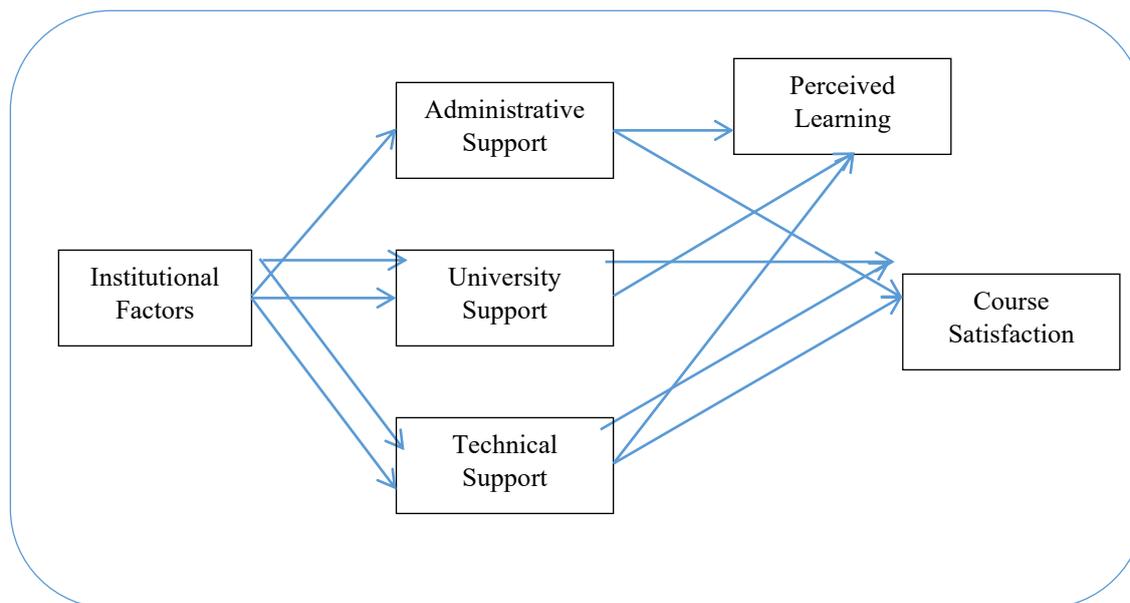


Figure1: The proposed model of the study

Fig.1 shows perceived learning mediating the influence of the institutional factors (technical, administrator, and university support) on course satisfaction. This suggests that the relationship between perceived learning and satisfaction is well established as a number of researchers have consistently found out that perceived learning is positively related to satisfaction. For example: a study conducted by Arbaugh & Rau (2007), relates to students' perceived learning and satisfaction with the delivery medium in a distance-learning environment. This study revealed a significant relationship between the two constructs. In other study, satisfaction and learning are used by Frick et al. (2009) as indices for evaluating the overall teaching and learning quality in university courses. They figure out that students' satisfaction and perceived learning were strongly correlated.

Perceived learning was identified as a mediating factor that influences the effect of the different factors on satisfaction and acceptance of on-line courses (Hu & Hui, 2012; Sharma and Chandel, 2014). Caetano (2007) analyzed the mediating role of perceived learning in the relationship between occupational satisfaction, affective reactions, and utility reactions and perceived training transfer. The population of the study was 185 teachers, which attended a professional training program. They got support from the direct effects of occupational satisfaction on perceived learning and training transfer respectively. They also predicted and got support from the direct effects of affective reactions on perceived learning and training transfer respectively.

Based on the literature reviewed, the theoretical and conceptual framework for the study, the following hypothesis were revealed:

H1: Institutional factors have a significant influence on course satisfaction.

H1 a: Technical support has a significant influence on course satisfaction.

H1 b: Administrative support has a significant influence on course satisfaction.

H1 c: University support has a significant influence on course satisfaction.

H2: Institutional factors have a significant influence on perceived learning.

H2 a: Technical support has a significant influence on perceived learning.

H2 b: Administrative support has a significant influence on perceived learning.

H3 c: University support has a significant influence on perceived learning.

H3: Perceived learning mediates the influence of institutional factors on course satisfaction.

Methodology

This study was carried out in Universiti Kebangsaan Malaysia (UKM) and Universiti Putra Malaysia (UPM) respectively; two research universities, which use LMS from local vendors with global standards under the names SalMas and PutraBlast respectively. More so, these two universities own their specific department for distance-learning education. Survey was found to be the most appropriate design in order to achieve the research objectives. Survey design enables researchers to describe, organize, and summarize the observed data and the researcher can also gather information from a given sample of respondents in a relatively convenient manner (Pallant, 2013). Data were obtained through the administration of well-structured questionnaires on 303 third and fourth-year distance-learning students respectively using purposive sampling technique. The questionnaire consisted of four sections, the first section solicited demographic information from the respondents. The second section solicited students' responses on the institutional factors, while questions from the third and fourth sections were related to the student's satisfaction and perceived learning respectively. The instrument was tested for reliability using cronbach's alpha value, which yielded a reliable coefficient score of 0.85 for institutional factors, 0.82 and 0.88 for student's satisfaction and perceived learning respectively. The retrieved data were analyzed using simple percentage and structural equation modeling (SEM).

Demographic Characteristics of the Sample

This section gives a brief description of the demographic characteristics of the target population. From Table 1, of the 303 respondents, majority 191 (63%) are females. Majority 164 (54.8%) are also within the age bracket 18-25, 105 (35.1%) within 26-35 years, 23 (7.7%) within 36-45 years while only 7 (2.3%) respondents are above 45 years of age. For employment, majority 157 (52.7%) of the respondents are unemployed, 103 (34.6%) are on part-time employment while only 38 (12.8%) have full-time employment. For marital status, majority 155 (52.2%) are singles, 93 (31.3%) are married while only 49 (1.5%) are divorced.

Table 1:

Frequency Distribution of Students' Demographic Characteristics

Variable	Level	Frequency	Valid Percent
Gender	Male	112	37
	Female	191	63
Age	18-25	164	54.8
	26-35	105	35.1
	36-45	23	7.7
	>45	7	2.3
Employment	Unemployment	157	52.7
	Part-time	103	34.6
	Full-time	38	12.8
Marital	Single	155	52.2
	Married	93	31.3
	Divorced	49	16.5

Source: Field survey (2016)

Exploratory Factor Analysis

In this study, according to the preliminary data analysis using SEM: it was found that many of the items for two scales including course satisfaction and perceived learning were dropped respectively. Therefore, the natural grouping of latent construct using exploratory factor analysis (EFA) prior to confirmatory factor analysis (CFA) was checked by using principal component analysis (PCA) and orthogonal method with varimax rotation. Factor analysis was conducted with all the 18 items that relate to course satisfaction. Three factors with eigenvalues greater than 1 were extracted (Osborne & Costello, 2009; Maroof, 2012). The results after varimax rotation showed that these three factors explained 64.07 % of the total variance, which were more than 50%. These three factors were labeled as: course planning, course content, and course support respectively. Furthermore, the items of perceived learning were also dropped after the preliminary data analysis using SEM. Thus, to determine whether the collection of goal subscales loaded on separate factors as anticipated, EFA with varimax rotation was performed. Here, three factors with eigenvalues greater than one emerged (Miller et al., 1996). The results after varimax rotation showed that the three factors explained about 63.88 % of the total variance, which were more than 50%. Three items related to perceived learning were labeled as: with course material, course experience, and course skills respectively.

Measurement Model

A measurement model represents how the measured indicators joined together to represent constructs (Byrne, 2010). This sub-model is used to measure construct(s) validity, which includes discriminate and convergent validities (Harrington, 2009). To assess construct validity, a measurement model uses CFA. In fact, CFA tests whether the items measure the construct (s) of the study (Wang and Wang, 2012). In this study, to examine the fitness of the measurement model, seven indices were assessed. The results showed the fit measurement model with $\chi^2 (196) = 523.39$, $p=0.002$, $\chi^2 / DF=2.67$, $GFI=0.878$, $AGFI=0.842$, $CFI=0.906$,

IFI=0.907, and RMSEA= 0.074 respectively. In addition, the RMSEA was met with a cut-off point of 0.074, which fell between the recommended limits of acceptability.

For Table 3, the results of CFA for testing the integrated measurement model, including all the research variables confirmed that the measurement model had a good fit. In other words, the goodness-of-fit statistics implied that the model adequately fits the data.

Table 2:

Fit Indices of Measurement Model

Model Indices	Fit Criteria	Values	References
χ^2	P>0.05	0.002	Hair et al. (2010)
χ^2/df	= < 2	1.458	Im and Grover (2004)
GFI	Near to 0.90	0.945	Schumacker and Lomax (2010)
AGFI	=<0.08	0.924	Im and Grover (2004)
IFI	Near to 0.90	0.981	Marsh,Hau, and Wen (2004)
CFI	>=0.90	0.981	Im and Grover (2004)
RMSEA	=<0.08	0.039	Hair et al. (2010)

Note: χ^2 : chi- square; **df**: degree of freedom; **GFI**: goodness of fit; **AGFI**: Adjusted GFI; **IFI**:Incremental fit index; **CFI**: Comparative fit index; **RMSEA**: Root mean squared error of approximation. Source: Awang (2014)

To investigate construct validity, convergent and discriminant validities were examined. Convergent validity determines the value of common variance in items of each construct. Hair et al; (2010) suggested three ways through which convergent validity is estimated: factor loading, average variance extracted (AVE), and construct reliability (CR) respectively. From the results of this study, it is suggested that all the constructs have convergent validity (Table 5).

Table 3:

Convergent Validity of Proposed Measurement Model

Construct	Item	Loading Factor	CR	AVE
Perceived Learning	SK	0.774	0.844	0.644
	Mat	0.891		
	Exp	0.735		
Course Satisfaction	Sup	0.586	0.777	0.543
	Cont	0.745		
	Plan	0.855		
Institutional Factors	AS	0.738	0.733	0.481
	TS	0.575		
	US	0.754		

Source: Field survey (2016)

Discriminant validity refers to the extent to which a latent construct is truly distinct from other latent constructs (Hair et al., 2006). Discriminant validity was assessed by a method, suggested by Hair et al; (2006), in which the AVE for each construct is compared with the corresponding squared inter-construct correlations (SIC). The AVE estimate is consistently larger than the SIC estimates, which indicates support for discriminant validity of the construct. A construct will have adequate discriminant validity if the square root of AVE exceeds the correlation among the constructs (Fornell & Larcker, 1981; Hair et al., 2006). Besides, to meet sufficient dissimilarity, Urbach et al; (2010) suggested that factor loadings should be equal to or more than 0.70. Based on results in Table 5, square root of AVE for each variable (bolded numbers on a diagonal) is more than each of the correlation between variables, including instructor immediacy behaviour, perceived learning, course satisfaction, institutional factors and learner character respectively. Therefore, discriminant validity is adequate for the entire model.

Table 4:

Discriminant Validity of the Measurement Model

	PL	CS	IF
PL	0.803		
CS	0.690	0.737	
IF	0.437	0.504	0.694

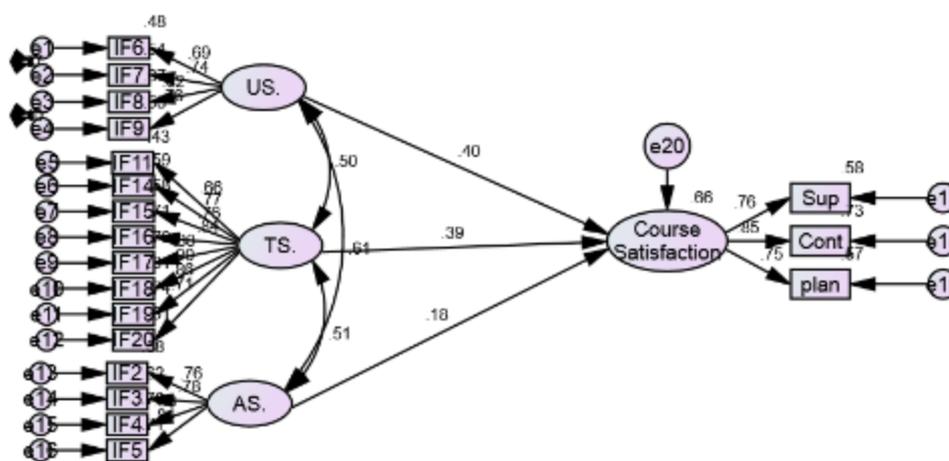
CS: Course satisfaction, IF: Institutional factors, PL: Perceived learning

(Bolded numbers are the square root of AVE). Source: Field survey (2016)

Structural Model

The structural modeling analysis was conducted, which was the second analysis in this study after the measurement model analysis conducted (Awang, 2014). According to Hair et al. (2014), structural model is most useful in representing the relationships between exogenous construct (IV) and endogenous construct (DV) and testing direct and indirect effects (Table 6). In this study, the researcher investigated the influence of institutional factors in term of university support, technical support and administrative support with course satisfaction and perceived learning (Figure 2 and 3).

Support on Course Satisfaction



Chi-square (df) = 279.670 (144); P value (≥ 0.05) = .000
 ;Relative Chi-Sq (≤ 5) = 1.942; AGFI (≥ 0.8) = .884
 ;GFI (≥ 0.8) = .912; CFI (≥ 0.9) = .965; IFI (≥ 0.9) = .965
 ;RMSEA (≤ 0.08) = .056

Figure 2: The Influence of University Support, Technical Support, and Administrative

The results indicated that there was a significant influence of technical support on course satisfaction among the undergraduate’s distance students in Malaysian research universities (0.000), thus H_{1a} was supported in this study. Also, there was a significant influence of administrative support on course satisfaction among the undergraduate’s distance students in Malaysian research universities (0.006), thus H_{2b} was supported in this study. Finally, the results revealed that university support has a significant influence on course satisfaction among the undergraduate’s distance students in Malaysian research universities (0.000), thus H_{1c} was supported in this study.

Table 5:

The Influence of University Support, Technical Support, and Administrative Support on Course Satisfaction

			B	β	S.E.	C.R.	P
Course_Satisfaction	<---	US.	0.235	0.399	0.046	5.134	***
Course_Satisfaction	<---	TS.	0.218	0.39	0.035	6.266	***
Course_Satisfaction	<---	AS.	0.087	0.183	0.032	2.734	0.006

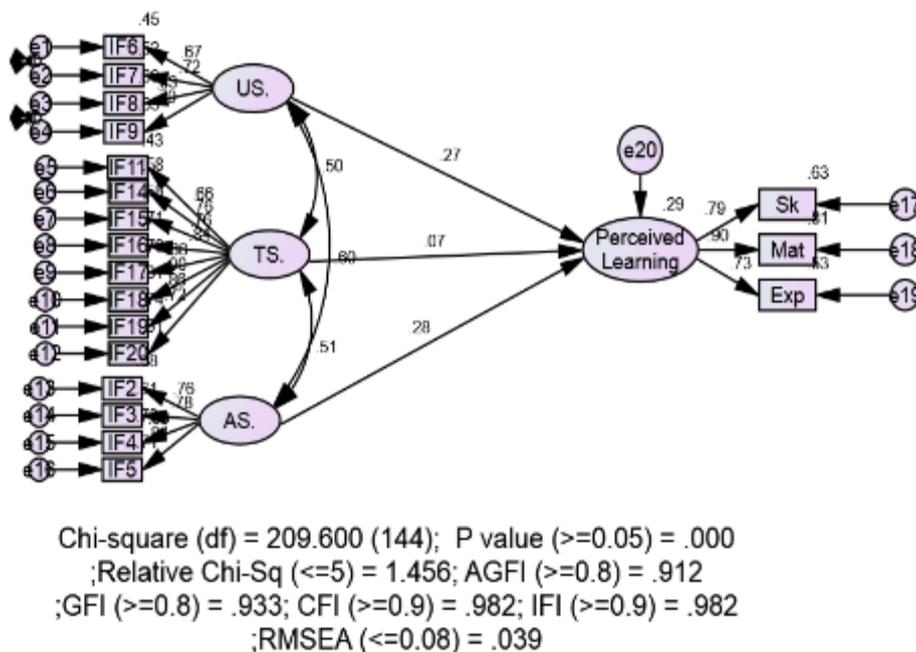


Figure 3: The Influence of University Support, Technical Support, and Administrative Support on Perceived Learning

The results indicated that there was not a significant influence of technical support on perceived learning among the undergraduate’s distance students in Malaysian research universities (0.284), thus H_{2a} was not supported in this study. Conversely, administrative support has significant influence on perceived learning among the undergraduate’s distance students in Malaysian research universities (0.000), thus H_{2b} was supported in this study. Finally, the results revealed that university support has a significant influence on perceived learning among the undergraduate’s distance students in Malaysian research universities (0.002), thus H_{2c} was supported in this study.

Table 6:

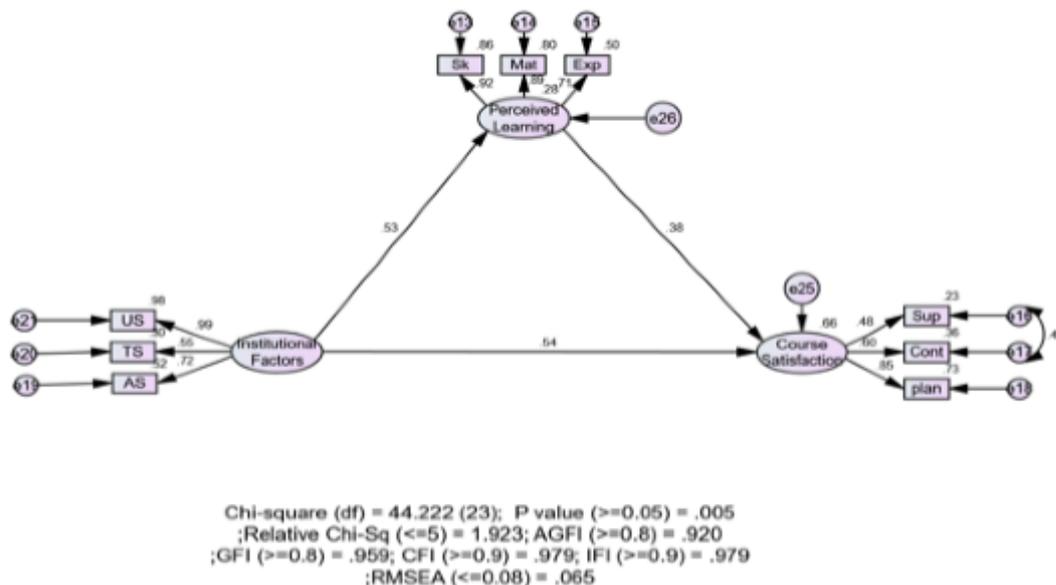
The Influence of University Support, Technical Support, and Administrative Support on Perceived Learning

			B	β	S.E.	C.R.	P
Perceived Learning	<---	US.	0.188	0.266	0.062	3.054	0.002
Perceived Learning	<---	TS.	0.052	0.075	0.049	1.071	0.284
Perceived Learning	<---	AS.	0.167	0.281	0.049	3.416	***

Mediation Effect of Perceived Learning

This study used perceived learning as a mediator between institutional factors and course satisfaction (Figure 4). The results revealed that the chi-square was significant ($\chi^2_{(23)} = 44.222, p < 0.005$). The GFI was 0.959, more than the cut off, 0.8. The CFI and IFI were 0.979 and 0.979

respectively, which are more than the cut off, 0.9. The RMSEA was 0.065, less than the threshold of 0.08 and χ^2/df was 2.768, which is below the threshold of 5.0.



Hence, the result of the model showed a good overall fit because the measures were all within the acceptable limits. According to the result of the path model after mediation (Table 6), institutional factors show a positive and significant effect on course satisfaction ($\beta=0.164$, $p=0.015$). The overall findings showed that the scores of R^2 value satisfy the requirement for the 0.10 cut-off value (Quaddus and Hofmeyer, 2007). This is because R^2 for course satisfaction was 0.505, which means that about 50.5% of course satisfaction can be explained by the suggested model.

Table 7:
 Test of the total effects of IVs on Self-value (with Mediators)

Path	B	β	S.E.	C.R.	P value
Path a					
IF-----> PL	0.190	0.201	0.06	3.158	0.002
Path b					
PL-----> CS	0.392	0.475	0.075	5.238	<0.001
Path c					
IF-----> CS	0.128	0.164	0.053	2.443	0.015

Source: Field survey (2016)

Bootstrapping method of path analysis was employed to assess the mediation effect of perceived learning. Both direct and indirect effects of institutional factors on course satisfaction were significant, which means the effect of this variable on course satisfaction is partially mediated by perceived learning (Table 8).

Table 8:

Distinguishing Total, Direct, and Indirect Effects of Model

Independent variables	Total effect	Direct effect	Indirect effects	Results
Institutional Factors	0.259 ($p < 0.001$)	0.164 ($P = 0.026$)	0.095 ($P = 0.016$)	Partial mediation

Source: Field survey (2016)

Discussion

Institutional factors in terms of support is the allocation of dedicated services to support and assist students and facilitators throughout the development and use of modules for successful distance learning (Poon, 2013). This includes preparing and spending resources on communication and interaction to help learners become actively involved in distance-learning program. Hence, in identifying the influence of institutional factors on satisfaction in a distance-learning environment, this study revealed that technical support, administrative support, and university support were a significantly strong positive factor associated with course satisfaction. The finding implies that the respondents paid attention to the institutional factors. This is supported by the works Lee et al. (2011), Tickle, Chang, & Kim (2011), and Kee et al. (2012) who similarly found that institutional support was important factor influencing student satisfaction. In their study, they found out that institutional variables are more important than instructional variables. This recommends that online students who have a high level of support and interaction with their institutions tend to have a higher degree of satisfaction with the on-line courses.

In this study, the findings revealed that administrative support, and university support had a significant influence towards perceived learning but the influence of technical support on perceived learning was not significant. Theoretically, technical support can lead students to learn more in distance learning environment. When the distance learning students perceived the availability of technical support, their intention to use distance learning will be increase significantly. One possible explanation for this is that, for undergraduate distance learning students, what matters to their learning is not so much the technical support from the institution as a measure of the quality of engagement in learning activities. However, the findings is not supported by other studies such as Ice (2006), and Sánchez & Hueros (2010). Further, the results of this study revealed that administrative support has significant influence on perceived learning. This findings coincide with previous studies identifying lack of administrative support as a frequently cited cause of level of perception (Kee et al., 2012; Milman et al., 2015). Finally, the results of the study indicated that university support had significant influence on course satisfaction. It means that students experienced a greater level of learning as a result of university support afforded to them. This finding is consistent with the findings of Lee and Kim (2007) who found a significant relationship between instructor and university support and the implementation success of Internet-based information systems. However, based on the importance of institutional factors in the distance-learning environment, this study suggested that without adequate institutional factors in terms of support, students are less likely to persist in the distance-learning program even when other options may be available. Therefore, the efficient and real-time support should be provided from the variety of the available fields and locations all across the institution (s).

Finally, the outcome of this study showed that perceived learning significantly influences course satisfaction. This is in harmony with the findings of Frick et al; (2009), who used perceived learning and satisfaction as the indices for evaluating the overall teaching and learning quality in the courses offered in colleges. In their findings, they asserted that these two factors were strongly correlated. The result showed that both direct and indirect effects of institutional factors on course satisfaction were significant. This suggests that the effect of institutional factors on course satisfaction is partially mediated by perceived learning. These findings indicated that perceived learning as a partial mediator in the model produces the best model for predicting course satisfaction. Hence, supports the assumption predicting student satisfaction while enrolled for online courses.

Conclusion

The issue of distance-learning activities in Malaysia is very interesting and worthy of being explored due to the fact that a lot of successes are recorded in Malaysia. This suggests that the country may be in a relatively more advantaged position when compared with other Asian countries. Impliedly, a higher level of success would logically be related with a greater probability of student satisfaction with on-line courses, which may translate to better, improved academic performance. In consequence, this study attempted to explain the effect of institutional factors on student satisfaction.

Institutional factors in term of support includes the combined set of student successes, which should precisely assist the students right from the commencement of their academic program up to the end of it. Institutions must have clear, well-planned strategies in order to facilitate optimizing student retention, satisfaction with distance-learning programs. This may likely help to ensure the avoidance of attrition among potential students. However, the result of the study revealed that among three variables of institutional factors, university support was found to affect student satisfaction more than others. Thus, universities should pay more attention to the institutional concerns: insufficient support and identifying overt and covert behaviors, and attitudes that are seen as being disaffection towards these concerns. This type of information is expected to facilitate and enhance the administrative and academic institutions improve on the structural system of distance learning and aspiration towards high-quality teaching and satisfactory learning experiences.

This study has some limitations. First, it investigated course satisfaction among distance learners. Hence, the findings of the study may not be generalizable to face-to-face students. Further, this study was limited to one external variable of institutional factors in terms of support. There are a variety of external variables, such as: instructor immediacy behavior, interaction and so on, which may affect the satisfaction of students with on-line courses. In fact, the proposed structural model could explain and predict about 50.5% of variance in course satisfaction. In other words, about 49.5% of variance in course satisfaction is still not explained. Therefore, the paper argued that a myriad of some other endogenous and exogenous factors plays significant roles in determining students' performance. These other endogenous and exogenous factors need to be investigated in future research. Finally, this study was limited to the investigation of respondents in the public research universities. It is recommended that future studies should focus on private universities with a similar research direction to this study.

References

- Accuosti, J. (2014). Factors affecting education technology success. Proceeding of the ASEE 2014 Zone I Conference, April 3–5, 2014, University of Bridgeport, Bridgeport, CT, USA.
- Alexander, M. W., Perreault, H., Zhao, J. J., & Waldman, L. (2009). Comparing AACSB faculty and student online learning experiences: Changes between 2000 and 2006. *Journal of Educators Online*, 6(1), 1-20.
- Alshammari, S. H., Ali, M. B., & Rosli, M. S. (2016). The Influences of Technical Support, Self Efficacy and Instructional Design on the Usage and Acceptance of LMS: A Comprehensive Review. *Turkish Online Journal of Educational Technology*, 15(2), 116.
- Arbaugh, J. B., & Rau, B. (2007). A study of disciplinary, structural, and behavioral effect on course outcomes in online MBA courses. *Decision Sciences Journal of Innovative Education*, 5(1), 65–93
- Baleghi-zadeh, S., Fauzi, A. M. A., Mahmud, R., & Daud, S. M. (2017). The influence of system interactivity and technical support on learning management system utilization, 9(1), 50–68.
- Barbera, E., Clara, M., & Linder-Vanberschot, J. A. (2013). Factors influencing student satisfaction and perceived learning in online courses. *E-learning and Digital Media*, 10(3), 226-235.
- Bean, B. W. (2008). Institutional, Financial, And Student Characteristics Affecting Persistence Of Scholarship Recipients: A Case Study Of First, Second, And Third Year Student Retention. *Journal of Chemical Information and Modeling*, 53(June), 1689–1699.
- Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries : A comparative analysis between ICT experts and faculty. *Computers & Education*, 58(2), 843–855.
- Boston, W., Diaz, S. R., Gibson, A. M., Ice, P., Richardson, J., & Swan, K. (2010). An exploration of the relationship between indicators of the community of inquiry framework and retention in online programs. *Journal of Asynchronous Learning Networks*, 14(1), 3-18.
- Byrne, B. (2010). *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming* (2 ed.). New York
- Caetano, R. V. A. (2007). Training transfer: the mediating role of perception of learning. *Journal of European Industrial Training*, 31(4), 283–296. <http://doi.org/10.1108/03090590710746441>
- Chaney, D., Chaney, E., & Eddy, J. (2010). The context of distance learning programs in higher education: Five enabling assumptions. *Online Journal of Distance Learning Administration*, 13(5).
- Cheung, W., & Huang, W. (2005). Proposing a framework to assess Internet usage in university education: an empirical investigation from a student's perspective, 36(2).
- Cho, J., & Yu, H. (2015). Roles of University Support for International Students in the United States : Analysis of a Systematic Model of University Identification , Psychological Well-Being. <http://doi.org/10.1177/1028315314533606>
- Christiana, O. O. (2014). Institutional Factors Affecting the Academic Performance of Public Administration Students in a Nigerian University. *Public Administration Research*, 3(2), 171–177. <http://doi.org/10.5539/par.v3n2p171>
- Curran, M. J. (2013). Institution-Related, Instructor-Related, and Student-Related Factors That Influence Satisfaction for Online Faculty at a For-Profit Institution. ProQuest LLC.
- Daniel, J. (2012). Dual-mode universities in higher education: Way station or final destination? *Open Learning*, 27(1), 89-95. [Doi:org/10.1080/02680513.2012.640791](http://doi.org/10.1080/02680513.2012.640791)

- Dixon, M. J. (2015). Institutional factors affecting doctoral degree completion at selected Texas public universities. Texas A&M University-Commerce.
- Dzega, D., & Pietruszkiewicz, W. (2012). The Technological Advancement of LMS Systems and E-Content Software. In Higher Education Institutions and Learning Management Systems: Adoption and Standardization (pp. 219-245). IGI Global.
- Embi, M. A. (2011, November). e-Learning in Malaysian institutions of higher learning: Status, trends and challenges. In *Keynote Address presented at the International Lifelong Learning Conference (ICLLL 2011), Seri Pacific Hotel, Kuala Lumpur* (pp. 14-15).
- Eneh, O. C. (2010). Technology transfer, adoption and integration: a review. *Journal of Applied Sciences (Faisalabad)*, 10(16), 1814-1819.
- Ferguson, J. M., & DeFelice, A. E. (2010). Length of online course and student satisfaction, perceived learning, and academic performance. *The International Review of Research in Open and Distributed Learning*, 11(2), 73-84.
- Frick, T. W., Chadha, R., Watson, C., Wang, Y., & Green, P. (2009). College student perceptions of teaching and learning quality. *Education Technology Research Development*, 57, 705-720
- Fornell, C.R., Larcker, D.F., (1981). Evaluating structural equation models with unobservable variables and measurement error. *JMR* 18 (1), 39–50
- Gillet, N., Fouquereau, E., Forest, J., Brunault, P., & Colombat, P. (2012). The impact of organizational factors on psychological needs and their relations with well-being. *Journal of Business Psychology*, 27, 437-450.
- Gómez-Rey, P., Barbera, E., & Fernández-Navarro, F. (2016). The Impact of Cultural Dimensions on Online Learning. *Educational Technology & Society*, 19(4), 225-238.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., & Tatham, R.L. (2006). *Multivariate Data Analysis*. New Jersey: Prentice-Hall.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th ed.). New Jersey: Prentice-Hall
- Harrington, D. (2009). *Confirmatory factor analysis: Pocket guides to social work research methods*. New York: Oxford University Press.
- Hasan, H. F. A., Ilias, A., Rahman, R. A., & Razak, M. Z. A. (2009). Service quality and student satisfaction: A case study at private higher education institutions. *International Business Research*, 1(3), 163.
- Hirt, J. B., Cain, D., Bryant, B., & Williams, E. (2003). Cyberservices: What's important and how are we doing. *NASPA Journal*, 40(2), 98-118.
- Hu, P., & Hui, W. (2012). Examining the role of learning engagement in technology-mediated learning and its effects on learning effectiveness and satisfaction. *Decision Support Systems*, 53(4), 782–792
- Ice, P. R. (2006). The relationship between technical support and pedagogical guidance provided to faculty and student satisfaction in online courses (pp. 1-113).
- Kee, N. S., Omar, B., & Mohamed, R. (2012). Towards Student-Centred Learning : Factors Contributing to the Adoption of E-Learn @ USM. *Malaysian Journal of Distance Education*, 14(2), 1–24.
- Lee, S. and K. Kim. 2007. Factors affecting the implementation success of Internet- based information systems. *Computers in Human Behavior* 23(4): 1853–1880
- Lee, S. J., Srinivasan, S., Trail, T., Lewis, D., & Lopez, S. (2011). Examining the relationship among student perception of support, course satisfaction, and learning outcomes in

- online learning. *The Internet and Higher Education*, 14(3), 158-163
- Maroof, D. A. (2012). Exploratory Factor Analysis. In *Statistical Methods in Neuropsychology* (pp. 23-34).
- Marsh, G. B. (2010). An Exploratory Investigation Of The Relationship Between Institutional Characteristics And Student Retention In Public Four-Year Colleges And Universities, 61(3), 839–846. [Http://Doi.Org/10.2466/Pr0.1987.61.3.839](http://doi.org/10.2466/Pr0.1987.61.3.839)
- Miller, R. B., Greene, B. A., Montalvo, G. P., Ravindran, B., & Nichols, J. D. (1996). Engagement in academic work: The role of learning goals, future consequences, pleasing others, and perceived ability. *Contemporary educational psychology*, 21(4), 388-422.
- Milman, N. B., Posey, L., Pintz, C., Wright, K., & Zhou, P. (2015). Online master's students' perceptions of institutional supports and resources: Initial survey results. *Journal of Asynchronous Learning Network*, 19(4), 2012–2013.
- Moses, P., Bakar, K. A., Mahmud, R., & Wong, S. L. (2012). ICT Infrastructure, Technical and Administrative Support as Correlates of Teachers' Laptop Use. *Procedia - Social and Behavioral Sciences*, 59, 709–714. <http://doi.org/10.1016/j.sbspro.2012.09.335>
- Nakayama, M., Mutsuura, K., & Yamamoto, H. (2014). Impact of Learner ' s Characteristics and Learning Behaviour on Learning Performance during a Fully Online Course, 12(4), 394–408.
- Neben, J. (2014). Attributes and Barriers Impacting Diffusion of Online Education at the Institutional Level, 11(1).
- O'Connor, P. J. (2000). Administrative Support Of Counseling Programs. *North*. <http://doi.org/10.16953/deusbed.74839>
- Ohana, M. (2012). Perceived organizational support as mediator of distributive justice and job satisfaction: The moderating role of group commitment. *Journal of Applied Business Research*, 28(5), 1063.
- Osborne, J. W., & Costello, A. B. (2009). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Pan-Pacific Management Review*, 12(2), 131-146.
- Pallant, J. (2013). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. New York, NY: Open University Press.
- Parsons, A. M. (2008). *A Delphi study of best practices of online instructional design practices in Malaysia* (Doctoral dissertation, Capella University).
- Poon, J. (2013). Blended Learning: An Institutional Approach for Enhancing Students' Learning Experiences. *Merlot Jolt*, 9(2), 271–290.
- Quaddus, M., & Hofmeyer, G. (2007). An investigation into the factors influencing the adoption of B2B trading exchanges in small businesses. *European Journal of Information Systems*, 16(3), 202-215.
- Romsa, K. (2012). Freshman student-faculty interactions and GPA: Predictors of retention and overall satisfaction, 73, 1254.
- Rovai, A. P., & Downey, J. R. (2010). Why some distance education programs fail while others succeed in a global environment. *The Internet and Higher Education*, 13(3), 141-147
- Rutherford, B. N., Wei, Y., Park, J., & Hur, W. (2012). Increasing job performance and reducing turnover: An examination of female Chinese salespeople. *Journal of Marketing Theory and Practice*, 20, 423-436.
- San, Ng Man (2010). Impact of service quality, satisfaction and personal factors on student retention in open distance learning institutions in Malaysia (Doctoral dissertation, Open

University Malaysia).

- Sánchez, R. A., & Hueros, A. D. (2010). Motivational factors that influence the acceptance of Moodle using TAM. *Computers in human behavior*, 26(6), 1632-1640.
- Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education*, 49(2), 396-413. <http://doi.org/10.1016/j.compedu.2005.09.004>
- Sharma, S. K., & Chandel, J. K. (2014). Students ' acceptance and satisfaction of learning through course websites, 7(2), 152-166.
- Sickler, S. L. (2013). Undergraduate Student Perceptions Of Service Quality As A Predictor Of Student Retention In The First Two Years (Doctoral dissertation, Bowling Green State University).
- Smith, A. (2004). "Off-campus support" in distance learning—how do our students define quality?. *Quality Assurance in Education*, 12(1), 28-38.
- Song, H. (2004). A study of selected factors related to satisfaction among students enrolled in online courses at Southwestern Baptist Theological Seminary (pp. 1-168).
- Taha, M., & El-Hajjar, S. (2012). Modeling Critical Factors Influencing the Implementation of E-Learning Related Studies of E-Learning, 283-293.
- Tickle, B. R., Chang, M., & Kim, S. (2011). Administrative support and its mediating effect on US public school teachers. *Teaching and Teacher Education*, 27(2), 342-349.
- Urbach, N., Smolnik, S., & Riempp, G. (2010). An empirical investigation of employee portal success. *Journal of Strategic Information Systems*, 19(3), 184-206.
- Wang, J., & Wang, X. (2012). Structural equation modelling: Applications using M plus. West Sussex: Wiley.