

Do User Satisfaction and Actual Usage of Online Learning Impact Students Performance?

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Abstract

This study employs structural equations modeling via SmartPLS 3.0 to analyze the 388 valid questionnaires in order to assess the proposed model that is based on Delone & Mclean information system success model to identify factors affecting performance impact of online learning among public universities student in Bangladesh. The main independent constructs in the model cover user satisfaction and actual usage. The dependent construct is a performance impact. The study will describe the relations among the various constructs. Our work has improved our insight into the importance of satisfaction in using online learning. Results indicated that all independent variables significantly influenced performance impact. The proposed model explained 41.8% of the variance in the dependent variable.

Keywords: User satisfaction; actual usage; performance impact; Bangladesh.

1. Introduction

Online learning is the application of information and communication technology in the context of education, where it has experienced a rapid concentration of research. According to the Global Competitiveness Report (2017), Bangladesh ranked below South Asia average in most of 12 pillars (see figure 1). Specifically, in higher education and training, institutions, and infrastructure which hinders the improvement of higher education quality (Agwa et al., 2018a, 2018b; Alharthi et al., 2019; Husin et al., 2013; Morsy et al., 2016). Additionally, technology readiness in Bangladesh is slightly below South Asia average and still growing which reflect the efforts of the government of Bangladesh to improve the performance of the public sector and private sector organizations as well (Khalifa and Abou-Shouk, 2014; Khalifa and Mewad, 2017; Sudigdo et al., 2019; Trung and Khalifa, 2019). Various global indicators have created a clear image that help in understanding the position of country level according to a set of measures that are recognized internationally (Al-Ali et al., 2019, 2018; Al-Obthani et al., 2018; Al-Shamsi et al., 2018; Alkhatari et al., 2018; Haddad et al., 2018; Khalifa, 2018; Khalifa and Abou-Shouk, 2014; Khalifa and Fawzy, 2017; Qoura and Khalifa, 2016; Shamsi et al., 2018).

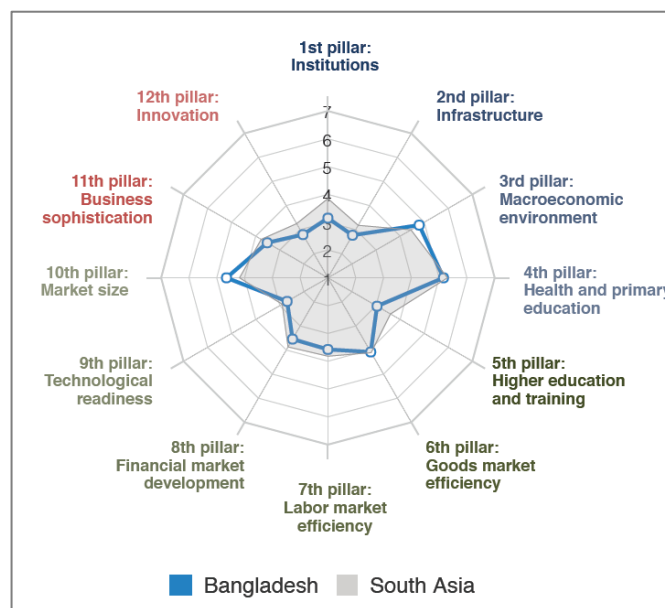


Figure 1: Stage of Development in Bangladesh compared to other South Asian Countries

Source: (Global Competitiveness Report, 2017)

Moreover, Figure 2 shows that Bangladesh ranks 118th among 138 countries in higher education effectiveness (Global Completeness Report, 2017), which indicate the need for a solution that will enhance the state of higher education in the country. In most contemporary organizations, adopting technology is not only uses ICT to fill up some forms and records but rather it is also a tool that performs the process of identification, accumulation, analysis, measurement, preparation, interpretation and communication of the information used by management to plan (Alkutbi et al., 2019; Ameen and Ahmad, 2014, 2013a, 2011). It is used in evaluating and controlling within an organization and to assure appropriate use and accountability for their resources (Abd-Elaziz et al., 2015; Abou-Shouk and Khalifa, 2017; Ameen and Ahmad, 2013b, 2012, 2011; Khalifa and Hewedi, 2016; Khalifa and Mewad, 2017).

The main objective of the current study is to examine the impact of online learning usage on the performance of students in public higher education institution in Bangladesh by examining the effect of user satisfaction and actual usage on the performance impact of online learning.

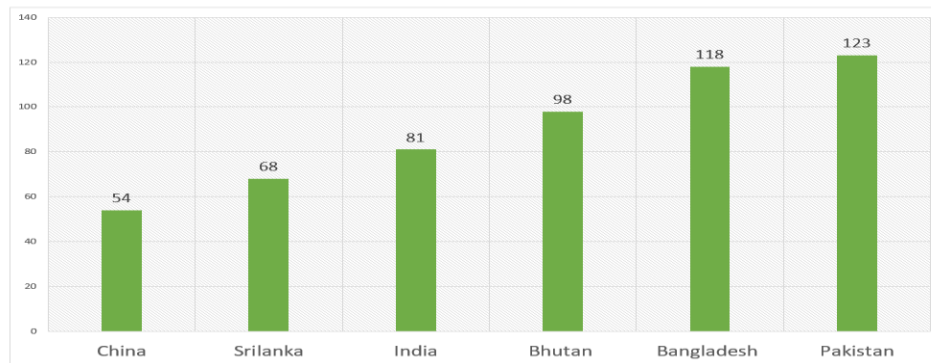


Figure 2: Higher education effectiveness ranking in Bangladesh compared to neighboring countries (among 138 countries)

Source: (Global Completeness Report, 2017)

2. Literature Review

2.1 User Satisfaction (SAT)

User Satisfaction is defined as the degree to which the internet users satisfied with the decision to use the internet and the internet meet the expectations (Wang, 2008; Wang & Liao, 2008; Roca et al., 2006). It is considered as one of the crucial aspects in the field of information systems and technology usage (DeLone & Mclean, 2003). Therefore, it has extensively been used to study the use of technology systems and applications (Montesdioca et al., 2015; Al-Ali et al., 2018; Al-Maamari et al., 2018; Al-Obthani et al., 2018; Alrajawy et al., 2018; Baharuden, Isaac, & Ameen, 2019; Marylin, Ghosh, Isaac, Aravinth, & Ameen, 2019; Mona Saeed Mohamed et al., 2018)(Alkhateri et al., 2018; Badran and Khalifa, 2016; Khalifa, 2015; Mohamed et al., 2019; Mohamud et al., 2017; Nusari et al., 2018). User satisfaction is a manifestation of the attitude of someone towards certain computer application who is directly interacting with (Daud, 2008), whereas Almarashdeh (2016) described it as the degree to which users think a specific system or application fulfills their informational requirements. Moreover, user satisfaction refers to the perception that is based on whether the user feels the system is useful and wants to use it again (Xinli, 2015).

As user satisfaction is one of the core constructs in the IS field, literature is full of studies where user satisfaction is used in numerous contexts and applications. In a study about information systems in Mexico by Abrego-Almazán et al. (2017) and after analyzing data collected from 133 users using SEM-PLS, it was found that user satisfaction has a positive significant relationship with organizational results. Similarly, Cham et al. (2016) concluded that user satisfaction has a significant effect on KMS success in their study about knowledge management systems in Malaysia. Moreover, in a study in Yemen about internet usage, it was revealed that user satisfaction significantly influences performance impact, the data was collected from 530 users and analyzed by SEM-AMOS (Osama Isaac et al., 2017a). Subsequently, the succeeding hypothesis is suggested:

H1: User satisfaction has a positive effect on performance impact.

2.2 Actual Usage (USE)

Actual usage is defined as the extent and means in which users utilize the competences of an information system. For instance, recurrence, nature, and span of utilization, purpose and of use (DeLone & McLean, 2016). Moreover, Kim et al. (2007) suggested that it replicates the technology frequency of use and usage duration. Furthermore, actual use is defined as the consumption of an IS or its output described in terms of actual or self-reported usage (Petter and McLean, 2009). Kim et al. (2015) concluded that usage has a significant effect on personal performance in their study of mobile customer relationship management (M-CRM) in South Korea. Subsequently, the succeeding hypothesis is suggested:

H2: Actual usage has a positive effect on performance impact.

2.3 Performance Impact (PI)

The performance impact is the ultimate measurement of the use of an information system, as being a core construct in the DeLone & Mclean information system success model (DeLone & McLean, 2016), it has widely been the focus of many studies in this field. In a recent study, Aparicio et al. (2017) investigated factors that influence the individual impact of using e-learning systems, whereas Isaac et al. (2017) tried to explore the antecedents to performance impact when using the internet in the public sector in Yemen. Furthermore, a study by Almarashdeh (2016) in Saudi Arabia examined the net benefit of using learning management systems, besides (Kim et al., 2015) choose to see whether the personal performance of 217 officers in South Korea will be affected when they use mobile customer relationship system or not.

3. Research Method

3.1 Overview of the Proposed Conceptual Framework

The proposed research model shows the direction of the hypothesized relationships among the proposed extension of the updated Delone & Mclean Information System Success Model (DMISM) (Figure 3).

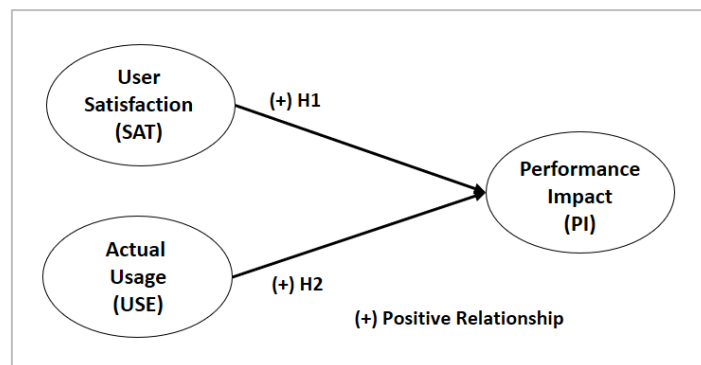


Figure 3: The proposed conceptual framework

3.2. Development of Instrument and Data collection

This study employs quantitative data, which are collected following the rules of statistical surveys. The respondents are the students at Dhaka University in Bangladesh. From 417 returned responses, only 388 responses were usable for analysis. Variables were measured using a Likert Scale which recommended in the previous studies (Isaac, Aldholay, Abdullah, & Ramayah, 2019; Isaac, Abdullah, Ramayah, & Mutahar, 2017; Isaac, Abdullah, Ramayah, Mutahar, & Alrajawy, 2017).

4. Data Analysis and Results

PLS (Partial Least Squares) SEM-VB (Structural Equation Modelling-Variance Based) was employed to assess the research model by utilizing the software SmartPLS 3.0 (Ringle et al., 2015).

4.1 Measurement Model Assessment

Alpha coefficients of Cronbach and composite reality (CR) were used to test the Construct reliability. All the unique alpha coefficients of Cronbach ranged from 0.895 to 0.949, which went beyond the proposed value of 0.7 (Kannana & Tan, 2005; Nunnally & Bernstein, 1994). All the CR values ranged from 0.935 to 0.959, which went beyond 0.7 (Werts, Linn, & Jöreskog, 1974; Kline, 2010; Gefen, Straub, & Boudreau, 2000). Thus, as

Table 1 shows, construct reliability has been fulfilled as Cronbach's CR and alpha was rather error-free for all the parameters. Item loadings were used to test the *indicator reliability*. All items exceeding values beyond 0.70 (Hair et al., 2017). The average variance extracted (AVE) was used to analyze *convergent validity*. All the AVE values ranged from 0.797 and 0.835, which went beyond the proposed value of 0.50 (Joseph F. Hair Jr , William C. Black, Barry J. Babin, 2010).

Table 1: *Measurement model assessment*

Constructs	Item	Loading (> 0.7)	M	SD	α (> 0.7)	CR (> 0.7)	AVE (> 0.5)
User Satisfaction (SAT)	SAT1	0.909	3.14	1.12	0.895	0.935	0.827
	SAT2	0.911					
	SAT3	0.907					
Actual Usage (USE)	USE1	0.888	3.04	1.06	0.901	0.938	0.835
	USE2	0.941					
	USE3	0.912					
Performance Impact (PI)	PI1	0.868	3.31	1.229	0.949	0.959	0.797
	PI2	0.871					
	PI3	0.899					
	PI4	0.910					
	PI5	0.904					
	PI6	0.904					

Note: M=Mean; AVE = Average Variance Extracted, SD=Standard Deviation, CR = Composite Reliability, α = Cronbach's alpha.,
Key: SAT: user satisfaction, PI: performance impact, USE: actual usage.

4.2 Structural Model Assessment

The structural model can be tested by computing beta (β), R^2 , and the corresponding t -values via a bootstrapping procedure with a resample of 5,000 (Hair, Hult, Ringle, & Sarstedt, 2017).

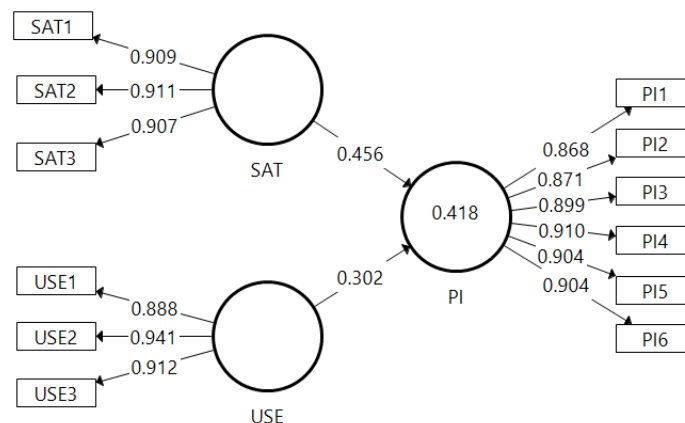


Figure 4: PLS algorithm results

Figure 4 and Table 2 depict the structural model assessment, showing the results of the hypothesis tests. User satisfaction and actual usage positively influence performance impact. Hence, H1 and H2 are accepted with ($\beta = 0.456$, $t = 10.648$, $p < 0.001$) and ($\beta = 0.302$, $t = 6.824$, $p < 0.001$) respectively. Forty-two percent of the variance in performance impact is explained by User satisfaction and actual usage which is acceptable (Cohen, 1988; Chin, 1998).

Table 2: *Structural path analysis result*

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-value	Decision	R ²
H1	SAT → PI	0.456	0.043	10.648	0.000	Supported	0.42
H2	USE → PI	0.302	0.044	6.824	0.000	Supported	

Key: SAT: user satisfaction, PI: performance impact, USE: actual usage.

5. Discussion

Based on the proposed model, this study improves the understanding of the outcomes of technology used or what we can be called as performance impact among students at Dhaka University in Bangladesh and highlights relevant implications. The discussions are further detailed in the following.

The study found that user satisfaction positively affects performance impact of online learning among students in Dhaka University in Bangladesh, this is supported by previous studies (Aparicio et al., 2017; Dokhan and Akkoyunlu, 2016). It is explained by the fact that the more the employees consider their decision to use online learning a wise one, meet their expectations, and are generally satisfied, The more they think online learning helps in accomplishing tasks easily and quickly, acquire new knowledge and skills, coming up with innovative ideas, improving communication, getting involved in decision making, and sharing general knowledge.

Eventually, the study found that there is a significant impact by the actual use of online learning on performance impact. This is in line with previous studies (Aldholay, Abdullah, Ramayah, Isaac, & Mutahar, 2018; A. Aldholay, Isaac, Abdullah, Abdulsalam, & Al-Shibami, 2018). It is explained by the fact that the more regular students use online learning, make it their preferred way of communication, and try to persuade others to use it. The more they think online learning helps in accomplishing tasks easily and quickly, acquire new knowledge and skills, coming up with innovative ideas, improving communication, getting involved in decision making, and sharing general knowledge.

6. Conclusion

Organizations should increase spending on research and development in order to increase the organizational effectiveness (Osama Isaac, Abdullah, Ramayah, Mutahar, & Alrajawy, 2018; Osama Isaac, Abdullah, Ramayah, & Mutahar, 2018). The purpose of this article was to examine the impact of user satisfaction and actual usage on the performance impact of online learning among students at Dhaka University in Bangladesh. It has provided a case to validate parts of Delone & Mclean information system success model and regardless of various constraints to the study, the results have been encouraging, as it has managed to throw some lights on a new perspective. The results revealed that both hypotheses are significant. The independent variables significantly explain 41.8% of performance impact. The findings of this study can provide policymakers with important insights on how can online learning influence students' performance within public universities.

Appendix

Appendix A

Instrument for variables

Variable	Measure	Source
User Satisfaction (SAT)	SAT1: My decision to use the Online learning was a wise one. SAT2: Online learning has met my expectations. SAT3: Overall, I am satisfied with the Online learning.	(Isaac et al., 2018a)
Actual Usage (USE)	USE1: I regularly use online learning. USE2: I prefer communication through online learning. USE3: I promote the use of online learning to my colleagues.	(Nistor et al., 2014) (Lin, 2007)
Performance Impact (PI)	PI1: online learning helps me to accomplish my tasks easily and quickly. PI2: online learning helps me acquire new knowledge and skills. PI3: online learning helps me to come up with innovative ideas. PI4: The use of online learning improves communication between Students. PI5: The use of online learning improves communication between Students and the lecturers. PI6: online learning helps to share my general knowledge.	(Kim et al., 2007) (Khayun and Ractham, 2011) (Isaac, et al., 2016) (Wu and Wang, 2006) (Hou, 2012) (Princely, 2014) (Datta, 2011) (Liu et al., 2010)

References

- Abd-Elaziz, M.E., Aziz, W.M., Khalifa, G.S., Abdel-Aleem, M., 2015. Determinants of Electronic word of mouth (EWOM) influence on hotel customers' purchasing decision. *Int. J. Heritage, Tour. Hosp.* 9, 194–223.
- Abou-Shouk, M.A., Khalifa, G.S., 2017. The influence of website quality dimensions on e-purchasing behaviour and e-loyalty: a comparative study of Egyptian travel agents and hotels. *J. Travel Tour. Mark.* 34, 608–623.
- Abrego-Almazán, D., Sánchez-Tovar, Y., Medina-Quintero, J.M., 2017. Influence of information systems on organizational results. *Contaduría y Adm.* 62, 321–338. <https://doi.org/10.1016/j.cya.2017.03.001>
- Agwa, Y., Aziz, W., Khalifa, G., 2018a. Evaluating Food and Beverage Courses in Higher Private Tourism and Hotels Institutes in Alexandria: Professionals' Perception. *Int. J. Heritage, Tour. Hosp.* 11.
- Agwa, Y., Aziz, W., Khalifa, G., 2018b. Evaluating of Food and Beverage Courses in Higher Private Tourism and Hotels Institutes in Alexandria: The Students' Perspective. *Int. J. Heritage, Tour. Hosp.* 11.
- Al-Ali, W., Ameen, A., Isaac, O., Khalifa, G.S.A., Hamoud, A., 2019. The Mediating Effect of Job Happiness

- on the Relationship between Job Satisfaction and Employee Performance and Turnover Intentions : A Case Study on the Oil and Gas Industry in the United Arab Emirates. *J. Bus. Retail Manag. Res.* 13, 1–15.
- Al-Ali, W., Ameen, A., Issac, O., Nusari, M., Ibrahim Alrajawi, 2018. Investigate the Influence of Underlying Happiness Factors on the Job Performance on the Oil and Gas Industry in UAE. *Int. J. Manag. Hum. Sci.* 2, 32.
- Al-Maamari, Q.A., Kassim, R.-N., Raju, V., Al-Tahitah, A., Ameen, A., Abdulrab, M., Muhammed Kassim, R.-N., Raju, V., Al-Tahitah, A., Ameen, A., Abdulrab, M., 2018. Factors Affecting Individual Readiness for Change: A Conceptual Framework. *Int. J. Manag. Hum. Sci.* 2, 13–18.
- Al-Obthani, F., Ameen, A., Nusari, M., Alrajawy, I., 2018. Proposing SMART-Government Model : Theoretical Framework. *Int. J. Manag. Hum. Sci.* 2, 27–38.
- Al-Shamsi, R., Ameen, A., Isaac, O., Al-Shibami, A.H., Sayed Khalifa, G., 2018. The Impact of Innovation and Smart Government on Happiness: Proposing Conceptual Framework. *Int. J. Manag. Hum. Sci.* 2, 10–26.
- Aldholay, A., Isaac, O., Abdullah, Z., Abdulsalam, R., Al-Shibami, A.H., 2018. An extension of Delone and McLean IS success model with self-efficacy. *Int. J. Inf. Learn. Technol. IJILT-11-2017-0116*. <https://doi.org/10.1108/IJILT-11-2017-0116>
- Aldholay, A.H., Abdullah, Z., Ramayah, T., Isaac, O., Mutahar, A.M., 2018. Online learning usage and performance among students within public universities in Yemen. *Int. J. Serv. Stand.* 12, 163–178. <https://doi.org/10.1504/IJSS.2018.10012964>
- Alharthi, B.A.F.H., Khalifa, G.S.A., Ameen, A., Isaac, O., Al-Shibami, A.H., 2019. Investigating the Influence of Strategic Planning on University Operational Performance: The Mediating Role of Organizational Commitment in UAE. *Int. Bus. Manag.* 13, 49–62.
- Alkhateri, A.S., Abuelhassan, A.E., Khalifa, G.S.A., Nusari, M., Ameen, A., 2018. The Impact of Perceived Supervisor Support on Employees Turnover Intention: The Mediating Role of Job Satisfaction and Affective Organizational Commitment. *Int. Bus. Manag.* 12, 477–492.
- Alkutbi, S., Alrajawy, I., Nusari, M., Khalifa, G.S.A., Abuelhassan, A.E., 2019. Impact of Ease of Use and Usefulness on the Driver Intention to Continue Using Car Navigation Systems in the United Arab Emirates. *Int. J. Manag. Hum. Sci.* 3, 1–9.
- Almarashdeh, I., 2016. Sharing instructors experience of learning management system: A technology perspective of user satisfaction in distance learning course. *Comput. Human Behav.* 63, 249–255. <https://doi.org/http://dx.doi.org/10.1016/j.chb.2016.05.013>
- Alrajawy, I., Isaac, O., Ghosh, A., Nusari, M., Al-Shibami, A.H., Ameen, A., 2018. Determinants of Student's Intention to Use Mobile Learning in Yemeni Public Universities: Extending the Technology Acceptance Model (TAM) with Anxiety, *International Journal of Management and Human Science (IJMHS)*.
- Ameen, A., Ahmad, K., 2014. A Systematic Strategy for Harnessing Financial Information Systems in Fighting Corruption Electronically, in: *Knowledge Management International Conference (KMICe) 2014*, 12 – 15 August 2014, Malaysia. pp. 12–15.
- Ameen, A., Ahmad, K., 2013a. Proposing Strategy for Utilizing Financial Information Systems in Reducing Corruption, in: *3rd International Conference on Research and Innovation in Information Systems – 2013 (ICRIIS'13)*. pp. 75–80.
- Ameen, A., Ahmad, K., 2013b. A conceptual framework of Financial Information Systems to reduce corruption. *J. Theor. Appl. Inf. Technol.* 54, 59–72.
- Ameen, A., Ahmad, K., 2012. Towards Harnessing Financial Information Systems in Reducing Corruption : A Review of Strategies. *Aust. J. Basic Appl. Sci.* 6, 500–509.
- Ameen, A., Ahmad, K., 2011. The Role of Finance Information Systems in anti financial corruptions: A theoretical review, in: *11 International Conference on Research and Innovation in Information Systems (ICRIIS'11)*. Ieee, pp. 267–272. <https://doi.org/10.1109/ICRIIS.2011.6125725>
- Aparicio, M., Bacao, F., Oliveira, T., 2017. Grit in the path to e-learning success. *Comput. Human Behav.* 66, 388–399. <https://doi.org/10.1016/j.chb.2016.10.009>
- Badran, N., Khalifa, G., 2016. Diversity Management: Is it an Important Issue in Hotel Industry in Egypt? *International J. Heritage, Tour. Hosp.* 7, 275–286.
- Baharuden, A.F., Isaac, O., Ameen, A., 2019. Factors Influencing Big Data & Analytics (BD&A) Learning Intentions with Transformational Leadership as Moderator Variable: Malaysian SME Perspective. *Int. J. Manag. Hum. Sci.* 3, 10–20.
- Cham, T.H., Lim, Y.M., Cheng, B.L., Lee, T.H., 2016. Determinants of knowledge management systems success in the banking industry. *VINE J. Inf. Knowl. Manag. Syst.* 46, 2–20.

<https://doi.org/10.1108/VJIKMS-03-2014-0021>

- Chin, W.W., 1998. Issues and opinion on structural equation modeling. *MIS Q.* 22(1), 7–16.
- Cohen, J., 1988. *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed. Routledge, London.
- Datta, P., 2011. A preliminary study of ecommerce adoption in developing countries. *Inf. Syst. J.* 21, 3–32. <https://doi.org/10.1111/j.1365-2575.2009.00344.x>
- Daud, N.M., 2008. Factors determining intranet usage: an empirical study of middle managers in Malaysian port industry. Faculty of Business and Law, Multimedia University.
- DeLone, W.H., Mclean, E.R., 2003. The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *J. Manag. Inf. Syst. / Spring* 19, 9–30. <https://doi.org/10.1073/pnas.0914199107>
- DeLone, W.H., McLean, E.R., 2016. *Information Systems Success Measurement*, Series in Information Technology Management. now Publishers Inc. PO.
- Dokhan, G., Akkoyunlu, B., 2016. Modeling the continuance usage intention of online learning environments. *Comput. Human Behav.* 60, 198–211. <https://doi.org/10.1016/j.chb.2016.02.066>
- Gefen, D., Straub, D., Boudreau, M.-C., 2000. Structural equation modeling and regression: Guidelines for research practice. *Commun. Assoc. Inf. Syst.* 4, 1–79.
- Global Competitiveness Report, 2017a. Stage of Development in United Arab Emirates . World Economic Forum.
- Global Competitiveness Report, 2017b. Stage of Development in Bangladesh compare to other South Asia Countries, World Economic Forum.
- Haddad, A., Ameen, A., Mukred, M., 2018. The Impact of Intention of Use on the Success of Big Data Adoption Via Organization Readiness Factor. *Int. J. Manag. Hum. Sci.* 2, 43–51.
- Hair, J.F., Hult, G.T.M., Ringle, C., Sarstedt, M., 2017. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 2nd ed. Thousand Oaks: SAGE., London.
- Hou, C.-K., 2012. Examining the effect of user satisfaction on system usage and individual performance with business intelligence systems: An empirical study of Taiwan’s electronics industry. *Int. J. Inf. Manage.* 32, 560–573. <https://doi.org/10.1016/j.ijinfomgt.2012.03.001>
- Husin, I.E., Abou-Shouk, M.A., Khalifa, G.S.A., 2013. Evaluating tourism and hospitality graduates: perceptions of stakeholders in Egypt., in: *Proceedings of the 3rd Regional Conference on Tourism Research*, 29-31 Oct, 2013, Langkawi, Malaysia. pp. 764–774.
- Isaac, O., Abdullah, Z., Ramayah, T., Mutahar, A.M., 2018a. Factors determining user satisfaction of internet usage among public sector employees in Yemen. *Int. J. Technol. Learn. Innov. Dev.* 10, 37–68. <https://doi.org/10.1504/IJTLID.2018.10012960>
- Isaac, Osama, Abdullah, Z., Ramayah, T., Mutahar, A.M., 2017a. Internet usage , user satisfaction , task-technology fit , and performance impact among public sector employees in Yemen. *Int. J. Inf. Learn. Technol.* 34, 210–241. <https://doi.org/10.1108/IJILT-11-2016-0051>
- Isaac, O., Abdullah, Z., Ramayah, T., Mutahar, A.M., 2017. Internet usage, user satisfaction, task-technology fit, and performance impact among public sector employees in Yemen. *Int. J. Inf. Learn. Technol.* 34, 210–241. <https://doi.org/10.1108/IJILT-11-2016-0051>
- Isaac, O., Abdullah, Z., Ramayah, T., Mutahar, A.M., Alrajawy, I., 2018b. Integrating User Satisfaction and Performance Impact with Technology Acceptance Model (TAM) to Examine the Internet Usage Within Organizations in Yemen. *Asian J. Inf. Technol.* 17, 60–78. <https://doi.org/10.3923/ajit.2018.60.78>
- Isaac, Osama, Abdullah, Z., Ramayah, T., Mutahar, A.M., Alrajawy, I., 2017b. Towards a Better Understanding of Internet Technology Usage by Yemeni Employees in the Public Sector: An Extension of the Task-Technology Fit (TTF) Model. *Res. J. Appl. Sci.* 12, 205–223. <https://doi.org/10.3923/rjasci.2017.205.223>
- Isaac, O., Abdullah, Z., Ramayah, T., Mutahar, A.M., Alrajawy, I., 2016. Perceived Usefulness, Perceived Ease of Use, Perceived Compatibility, and Net Benefits: an empirical study of internet usage among employees in Yemen. 7th Int. Conf. Postgrad. Educ. Univ. Teknol. MARA (UiTM), Malaysia 899–919.
- Isaac, O., Aldholay, A., Abdullah, Z., Ramayah, T., 2019. Online learning usage within Yemeni higher education: The role of compatibility and task-technology fit as mediating variables in the IS success model. *Comput. Educ.* 136, 113–129. <https://doi.org/https://doi.org/10.1016/j.compedu.2019.02.012>
- Joseph F. Hair Jr , William C. Black , Barry J. Babin, R.E.A., 2010. *Multivariate Data Analysis*, 7th ed. Prentice Hall.
- Kannana, V.R., Tan, K.C., 2005. Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance. *Omega Int. J. Manag. Sci.* 33, 153–162.
- Khalifa, G.S.A., 2018. The Egyptian Hotels, Where in the Competitive Environment? *Competitive Strategies*

- and Market Orientation and its Impact on Customer Loyalty: The Mediating Role of Operational Performance. *Int. J. Manag. Hum. Sci.* 2, 60–72.
- Khalifa, G.S.A., 2015. Ethnic Restaurants' Meal Experience: Egyptian Customers' Perceptions. *J. Fac. Tour. Hotel.* 9, 92–112.
- Khalifa, G.S.A., Abou-Shouk, M.A.A., 2014. Investigating the Success Factors of Hotel Websites: The Case of Egyptian Hotels. *Asia-Pacific J. Innov. Hosp. Tour.* 3, 1–21.
- Khalifa, G.S.A., Fawzy, N.M., 2017. Measuring E-Service Quality (Expectation Vs. Perception) From Travel Agencies' Perspective: An Empirical Study on Egyptian Hotel Websites. *Int. J. Recent Trends Bus. Tour.* 1, 36–48.
- Khalifa, G.S.A., Hewedi, M.M., 2016. Factors Affecting Hotel Website Purchasing Intentions: Evidence from Egypt. *J. Fac. Tour. Hotel.* 8, 50–69.
- Khalifa, G.S.A., Mewad, E.-H.A., 2017. Managing drivers and boundaries of information technology risk management (ITRM) to increase Egyptian hotels market share. *Int. J. Recent Trends Bus. Tour.* 1, 12–31.
- Khayun, V., Ractham, P., 2011. Measuring e-excise tax success factors: Applying the DeLone & McLean information systems success model, in: *Proceedings of the Annual Hawaii International Conference on System Sciences*. pp. 1–10. <https://doi.org/10.1109/HICSS.2011.303>
- Kim, C., Lee, I.-S., Wang, T., Mirusmonov, M., 2015. Evaluating effects of mobile CRM on employees' performance. *Ind. Manag. Data Syst.* 115, 740–764. <https://doi.org/10.1108/IMDS-08-2014-0245>
- Kim, H.W., Chan, H.C., Gupta, S., 2007. Value-based Adoption of Mobile Internet: An empirical investigation. *Decis. Support Syst.* 43, 111–126. <https://doi.org/10.1016/j.dss.2005.05.009>
- Kline, R.B., 2010. Principles and practice of structural equation modeling, 3rd ed. The Guilford Press, New York.
- Lin, H.F., 2007. Predicting consumer intentions to shop online: An empirical test of competing theories. *Electron. Commer. Res. Appl.* 6, 433–442. <https://doi.org/10.1016/j.elerap.2007.02.002>
- Liu, Y., Li, H., Carlsson, C., 2010. Factors driving the adoption of m-learning: An empirical study. *Comput. Educ.* 55, 1211–1219. <https://doi.org/10.1016/j.compedu.2010.05.018>
- Marylin, P., Ghosh, A., Isaac, O., Aravinth, S.J.V., Ameen, A., 2019. The Impact of Emotional Intelligence on Work Life Balance among Pharmacy Professionals in Malaysia. *Int. J. Manag. Hum. Sci.* 3, 29–34.
- Mohamed, M.S., Khalifa, G.S.A., Al-Shibami, A.H., Alrajawi, I., Isaac, O., 2019. The Mediation Effect of Innovation on the Relationship between Creativity and Organizational Productivity: An Empirical Study within Public Sector Organizations in the UAE. *J. Eng. Appl. Sci.* 14, 3234–3242.
- Mohamed, M.S., Khalifa, G.S.A., Nusari, M., Ameen, A., Al-Shibami, A.H., Abuelhassan, A.E., 2018. Effect of Organizational Excellence and Employee Performance on Organizational Productivity Within Healthcare Sector in the UAE. *J. Eng. Appl. Sci.* 13, 6199–6210.
- Mohamud, S.S., Khalifa, G.S.A., Abuelhassan, A.E., Kaliyamoorthy, S., 2017. Investigating the Antecedents of Coffee Shop Customers' Behavioral Intentions in Kuala Lumpur. *Int. J. Recent Trends Bus. Tour.* 1, 1–14.
- Montesdioca, G.P.Z., Maçada, A.C.G., 2015. Measuring user satisfaction with information security practices. *Comput. Secur.* 48, 267–280. <https://doi.org/10.1016/j.cose.2014.10.015>
- Morsy, M.A., Ahmed, G.S., Ali, N.A., 2016. Impact of Effective Training on Employee Performance in Hotel Establishments. *Int. J. Heritage, Tour. Hosp.* 10, 92–109.
- Nistor, N., Lerche, T., Weinberger, A., Ceobanu, C., Heymann, O., 2014. Towards the integration of culture into the Unified Theory of Acceptance and Use of Technology. *Br. J. Educ. Technol.* 45, 36–55. <https://doi.org/10.1111/j.1467-8535.2012.01383.x>
- Nusari, M., Al Falasi, M., Alrajawy, I., Khalifa, G.S., Isaac, O., 2018. The Impact of Project Management Assets and Organizational Culture on Employee Performance. *Int. J. Manag. Hum. Sci.* 2, 15–26.
- Petter, S., McLean, E.R., 2009. A meta-analytic assessment of the DeLone and McLean IS success model: An examination of IS success at the individual level. *Inf. Manag.* 46, 159–166. <https://doi.org/10.1016/j.im.2008.12.006>
- Princely, I., 2014. an examination of information technology assets and resources as antecedent factors to ERP SYSTEM success, in: *Eighth Mediterranean Conference on Information Systems*. Verona, pp. 1–17.
- Qoura, O., Khalifa, G.S., 2016. The Impact of Reputation Management on Hotel Image among Internal Customers: The Case of Egyptian Hotels. *International J. Heritage, Tour. Hosp.* 7, 261–274.
- Ringle, C.M., Wende, S., Becker, J.-M., 2015. SmartPLS 3. Bonningstedt: SmartPLS [WWW Document].
- Shamsi, R.S.H.A., Ameen, A.A., Isaac, O., Al-Shibami, A.H., Khalifa, G.S., 2018. The Impact of Innovation and Smart Government on Happiness: Proposing Conceptual Framework. *Int. J. Manag. Hum. Sci.* 2,

10–26.

- Sudigdo, A., Khalifa, G.S.A., Abuelhassan, A.E.-S., 2019. Driving Islamic Attributes, Destination Security Guarantee & Destination Image to Predict Tourists' Decision to Visit Jakarta. *Int. J. Recent Trends Bus. Tour.* 3, 59–65.
- Trung, N.V.H., Khalifa, G.S.A., 2019. Impact of Destination Image Factors on Revisit Intentions of Hotel's International Tourists in Ba Ria-Vung Tau (Br-Vt) The Mediating Role of Positive Word-of-Mouth. *Int. J. Recent Trends Bus. Tour.* 3.
- Wang, Y.-S., Liao, Y.-W., 2008. Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success. *Gov. Inf. Q.* 25, 717–733. <https://doi.org/10.1016/j.giq.2007.06.002>
- Werts, C.E., Linn, R.L., Jöreskog, K.G., 1974. Intraclass reliability estimates: Testing structural assumptions. *Educ. Psychol. Meas.* 34, 25–33.
- Wu, J.H., Wang, Y.M., 2006. Measuring KMS success: A respecification of the DeLone and McLean's model. *Inf. Manag.* 43, 728–739. <https://doi.org/10.1016/j.im.2006.05.002>
- Xinli, H., 2015. Effectiveness of information technology in reducing corruption in China. *Electron. Libr.* 33, 52–64. <https://doi.org/10.1108/EL-11-2012-0148>