Improving Learning Management Systems to Better Assist Computer Science Teaching in Qatar Higher Education Institutions

Dr. Mais Alkhateeb[1], Prof. Mosa Alokla[2], Eng. Mohammad Alokla[3], Msr.Eng. Eisa Alokla[4]

[1]Mathematic Department, Lusail University, Doha, Qatar

[2]Teaching & Learning Coordinator, Community College of Qatar CCQ, Doha, Qatar

[3]Frankfurt am Main, Germany

[4]TU Darmstadt, Mainz, Germany

ABSTRACT: Hybrid learning first appeared in the late 1990s as a new way of teaching for distance learning that used computers and the internet to improve students' learning and encourage teachers to change their teaching techniques, resulting in a shift in learning from a teacher-centered model to a more student-centered model.

This study will contribute to theory, practice, empirical and policy. Theoretically, the study considers the investigate the mediating effect of human resource information system on effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in Community College of Qatar (CCQ).

Furthermore, as a result of the COVID-19 epidemic, many postsecondary schools have moved to online delivery and learning, forcing many instructors to experiment with online and HL approaches, such as online multimedia and video presentations. In comparison to traditional face-to-face techniques or pure online settings, current research has largely verified that HL is seen to be beneficial (Hill et al., 2017) and has the potential to boost student happiness (Owston et al., 2013).

KEYWORDS: The Technology Acceptance Model (TAM), Hybrid Learning (HL), Community College of Qatar (CCQ), MOH IN Qatar, COVID-19, Square Structural Equation Model (PLS-SEM).

RESEARCH PROBLEM:

Hybrid learning (HL), an emerging of online and face-to-face training, has also been increasingly adopted to solve the issues linked with the need for a new pedagogy (Allen, et al., 2007), by discussing Qatar Higher Education Institutions, the region in which this research will be conducted, this research will be to conduct the Hybrid Learning Approach (HLA) on the Higher Education Institutions in the State of Qatar, which has seven Community College of Qatar (CCQ) throughout the country and has been forced to change its teaching methods due to the Covid 19 pandemic.

In hybrid learning, student happiness can impact motivation, student achievement, and completion rate. The course materials, which incorporate multimedia, simulations, hands-on exercises, and games given through the internet with live classroom sessions, may contribute to satisfaction in the mixed setting. Therefore, **this study will bridge the gap created** by the previous study to investigate the mediating effect of human resource information system on effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ.

The unit of analysis of this study will be CCQ. The students in the CCQ are the respondents of this study. The choice of respondents for the present study was considered in relation to the knowledge required on the issues under investigation.

The purpose of this study is to add to a better understanding of the present status of CCQ. Therefore, the population of this study consisted of all students in the 7 CCQ. Therefore, the populations of this study are 40,687 students. This study employed probability sampling design using proportional and simple random sampling. As a result, the pilot test questionnaire for this study will be based on existing research.

Improving Learning Management Systems to Better Assist Computer Science Teaching in Qatar Higher Education Institutions

RESEARCH OBJECTIVES:

The main objective of this study is to investigate the mediating effect of human resource information system on effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ.

The specific objectives are:

 i. To examine the effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ.

 ii. To determine the influence of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on human resource information system in CCQ.

iii. To examine the effect of human resource information system on satisfaction in CCQ.

iv. To examine the mediating effect of human resource information system on effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ.

RESEARCH QUESTIONS:

This study aimed to address the following questions:

 i. What is the effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ?

 ii. What is the influence of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on human resource information system in CCQ?

iii. What is the effect of human resource information system on satisfaction in CCQ?

iv. Does human resource information system mediate the effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ?

RESEARCH HYPOTHESIS

H_1: There is significant effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ.

H_2: There is significant influence of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on human resource information system in CCQ.

H_3: There is significant effect of human resource information system on satisfaction in CCQ.

H_4: Human resource information system mediate the effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ.

This study contributed to the theoretical understanding of the effect perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement on satisfaction in CCQ. Finally, the major findings of this study suggested that it would be worthwhile for CCQ to make a good effort in the implementation of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement in CCQ. Therefore, the study have had a substantial capacity for providing more precise applications related to satisfaction.

Hence, the findings of this study increased the existing empirical evidence in this field and fill the research gap specifically in the educational sector literature by focusing on areas not covered that is the effect perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement on satisfaction in CCQ

The practical contribution of this study and its policy significance lie in the context of defining strategy in relation to positioning CCQ in general and educational sectors in particular. Furthermore, this study will be significant to stakeholders in the education sectors in CCQ. It can help the government to identify challenges facing education sectors in CCQ in the country and devise ways of correcting and overcoming the shortcomings. In addition, it will be of great assistance to the information of the CCQ by helping them to devise various policies that can promote perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, engagement and satisfaction

Additionally, this study will enable researchers to identify the effect perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement on satisfaction in CCQ

In this current research an attempt is made to study the mediating effect of human resource information system on effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ. The research only concentrated on students in CCQ as the respondent. However, the limitation of this study

Improving Learning Management Systems to Better Assist Computer Science Teaching in Qatar Higher Education Institutions

will be the CCQ. Therefore, the CCQ represented by students as the respondents. The choice of respondents for the present study is considered about the knowledge required for the issues under investigation.

The key informants for this study were the students. These students would thus be knowledgeable about services of these Community College. In addition, this study will be limited with the only simple random sampling techniques. The researcher would then independently select a random sample from each stratum) will be used to collect sample since it is the most effective method and a virtuous choice when distinguished information is needed mainly when the target population for this study has been known as the CCQ. Moreover, the target population of this study will be the 40,687 students in Qatar. A sample size of the study is the portions or subgroup of the target population. According to G*Power (2017), the sample size of this study will be 380.

THEORETICAL FRAMEWORK

Although many factors can be incorporated to infer learner satisfaction, the notion that 'simpler is better' was adopted. Therefore, only learner characteristics were used to modify and extend TAM, so as to illustrate the role of such features, more specifically, learning styles. The framework shown in Figure 2.1 below explained the association among the independent variables, mediating variable and dependent variable, based on what has been mentioned in this chapter.
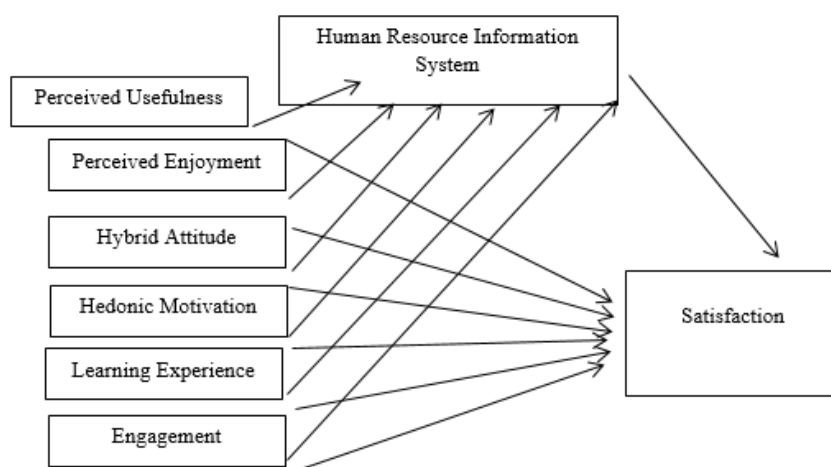

Figure 2.1 Proposed Research Framework

RESEARCH METHODOLOGY & DESIGN

Regardless of the subject of study, the study instrument was created with the use of well-known measurement scales from previous investigations. This research design (quantitative analysis) usually used when the primary objective of research. Figure 3.1 illustrates the research design process in this study
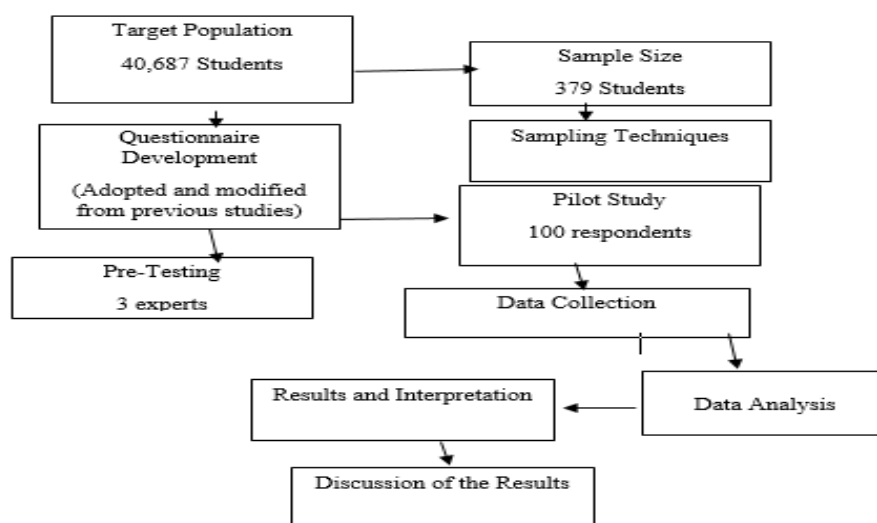

Figure 3.1 The Research Design Process

Improving Learning Management Systems to Better Assist Computer Science Teaching in Qatar Higher Education Institutions

SAMPLE SIZE

A subset of the population is referred to as a sample. A sample is a group of people chosen from the general population. The sample size for this study was obtained using the G*Power (2017) calculator. As a result, because the proportion of participants who would answer "favourably" or "unfavourably" according to the G*Power (2017) calculator was unknown, the proportion of 0.05 was chosen instead of 0.03 for a more homogeneous sample, as recommended by Dillman (2000). 0.05 will yield a larger sample size than 0.03; nevertheless, it will always yield an appropriate sample size for a smaller or larger population (Biemer & Lyberg, 2003).

Where N = 40,687, p = 0.5, B = 0.05, C = 1.96

$$N = \frac{(40,687)(0.5)(1-0.5)}{(40,687.0)\left(\frac{0.05}{1.96}\right) + (0.5)(1-0.5)}$$

$$N = \frac{(40,687)(0.5)(0.5)}{(40,687)(0.000651) + (0.5)(0.5)}$$

$$N = \frac{7559}{19.93} \qquad \textbf{N= 380}$$

As a result, using the G*Power (2017) calculator, the sample size for this study is 380 students in CCQ. Hence, to get more reliable and consistent results, the sample size will be raised to 10% of the original sample size, which is equivalent to 38 questionnaires (380+38=418), in order to reduce the degree of sampling error and mistakes that may occur throughout the data collecting process (Awang, 2019).

CONCLUSION

As a result, this research fill the gap created by the reviewed studies to hedonic motivation, learning experience, and engagement on satisfaction in CCQ. Moreover, this study employed Partial Least Square Structural Equation Model (PLS-SEM) to analyse the data which collected through survery questionnaire.

Qatar was the location of the pilot study. The data collected through a self-administered questionnaire. So 30 questionnaires provided. Reliability and exploratory factor analysis used to validate the data. The unidimensional, validity, convergent validity, construct validity, and discriminant validity of each component were all evaluated. In order to measure the predicted latent construct, reliability revealed how trustworthy and exact the estimates is. The estimation of reliability for the estimating model might be done using the criteria listed by this research. When the Cronbach's alpha coefficient is greater than 0.7, however, dependability is achieved (Hair, et al., 2014).

Furthermore, exploratory factor analysis (EFA) is a method for determining the structure of a relatively large set of components. If the accessibility between the observed and inactive variables is unknown or ambiguous, EFA predicted that it would investigate the information. A technique of the significance between compared measured variable was gathered into a particular component based on the factors loading to the amount of the relationship between the full deliberate variables to each factor. In this study, EFA were used to separate the underlying dimensions of items and to remove those that did not reach 0.6 of the factors loading cut-off threshold. Implying that items with factor loadings less than 0.6 do not meet the current study's latent components (Awang, 2012).

As a result, investigate the mediating effect of human resource information system on effect of perceived usefulness, perceived enjoyments, hybrid attitude, hedonic motivation, learning experience, and engagement, on satisfaction in CCQ are utilized and categorized.

REFERENCES

1) A N Cahyono& Zaenuri, M. S. (2019). The Design of Blended Learning Modules fo rHigher Education. *Journal of Physics: Conference Series*. doi:doi:10.1088/1742-6596/1387/1/012121

2) Annelies Raes1, 2. ·. (28 11, 2019). A systematic literature review on synchronous hybrid. *Learning Environments Research*. doi:https://doi.org/10.1007/s10984-019-09303-z

3) CHUKWUEMEKA, C. J. (2020). Investigation On The Influence Of A La Carte Model & Face To. *Journal of Research & Method in Education*. doi:ISSN: 2320–1940 Volume

4) Dixon, K. (2021). Science Motivation and Achievement Among Minority Urban High. *Journal of Science Education and Technology*. doi:(2021) 30:642–657

Improving Learning Management Systems to Better Assist Computer Science Teaching in Qatar Higher Education Institutions

5) HoweRobert, A. A. (8 2, 2021). Student Perspectives on Learning Experiences in a Higher Education. *TechTrend*. doi:https://doi.org/10.1007/s11528-021-00593-w

6) Hrastinski, S. (2019). What Do We Mean by Blended Learning? *TechTrends*. doi:TechTrends (2019) 63:564–569

7) Hyun Jin Cho1*, K. Z. (2021). Active learning through flipped classroom in mechanical engineering improving students' perception of learning and performance. *International Journal of STEM Education*. Retrieved from https://stemeducationjournal.springeropen.com/articles/10.1186/s40594-021-00302-2

8) Kumar, P. (1 7, 2021). Enriching Blended Learning andTeaching Through theUse ofDigital Marketing andInformation Technology. *International Journal of Advanced Research in Education and Society*. doi:e-ISSN: 2682-8138 | Vol. 3, No. 2,116-127, 2021

9) Namood-e-Sahar. (2020). COVID-19 Pandemic and Hybrid Learning System. *Empower Teaching*. Retrieved from https://www.researchgate.net/publication/348061100_COVID-19_Pandemic_and_Hybrid_Learning_System

10) Palmer, S. G. (29 9, 2020). *The Pandemic Pushed Universities Online. The Change Was Long Overdue.* Retrieved from Harvard Business Review: https://hbr.org/2020/09/the-pandemic-pushed-universities-online-the-change-was-long-overdue

11) Samsonova, O. (2020). Blended Learning Approach in UAE Higher Education: ASelected Annotated Bibliography. *International Journal of Higher Education Pedagogies*. doi:ISSN: 2669-2333

12) SuliemanAl-Qatawneh, N. R. (11 9, 2019). The effect of blended learning on the achievement of ninth grade students in science and their attitudes towards its use. *Heliyon*. doi:doi.org/10.1016/j.heliyon.2019.e02424

13) The Ministry of Education and Higher Education. (17 8, 2021). *Important Statement on Back-to-School Campaign, New School Year*. Retrieved from The Ministry of Education and Higher Education: https://www.edu.gov.qa/en/mediacenter/pages/mediacenter/newsdetails.aspx?itemid=337

14) Vijayakumar.S, T. H. (2020). Effectiveness of Enriched Virtual Model in Higher. *IJRAR*. doi:ISSN 2349-5138)