

Antecedents of the Students' Acceptance of Online Courses: A test of UTAUT in the context of Sri Lankan Higher Education

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Abstract -The research comprehensively assessed the nomothetic validity of unified theory of acceptance and use of technology (UTAUT) in a voluntary environment with respect to Sri Lankan higher education. State university students in Sri Lanka who are having online learning experience, were considered, as the target population and the model of this study was tested with a field sample of 348 students. A measuring instrument with 5-point likert scale has used to obtain responses. First, the descriptive statistics of the study elaborated the primary data of the analysis. Secondly, the regression analysis was applied to analyze the relationships demarcated in the theoretical model of the study. Subsequently, the hypotheses were substantiated, by emphasizing the relationship among antecedents and online course acceptance. The factors, which are highly influential to enhance the level of technology acceptance of online courses, were filtered at the end, in order to take necessary management decisions and investments.

Keywords: Technology Acceptance, UTAUT, Online Courses, Information Systems, Behavioral Intention

I. INTRODUCTION

Online courses are in the midst of the newest pedagogical trends. The virtual nature of the online courses, enable learners to hastily learn, create and interconnect academic substances by achieving a great degree of information coverage, discounting time restrictions and proximity (Means et al. 2009; UUK, 2012a). In addition, online courses cost significantly less than the traditional methods since the need for resources is shortened (HEA, 2012b). Characteristics such as tracking capabilities, review capabilities, just in time learning opportunities and self-paced learning abilities have made online courses much more beneficial (Marcum, 2014). Despite the advantages of online courses, the adoption of online courses in Sri Lankan state educational institutes, as not as anticipated (Budget Estimation 2016 and 2017). In addition, the attrition rates are relatively high in online courses (Abeysekera, and Perera, 2015; Crompton et al. 2016; Hung, 2012). At the same time, only few amount of researches on online courses have conducted in Sri Lankan higher educational context. Therefore, the study attempted to identify the factors affecting the acceptance of online courses by considering theoretical overlaps and giving more attention to external factors.

II. THEORETICAL BACKGROUND AND RESEARCH MODEL

In examining the acceptance of IS such as online courses, several models were suggested by past researchers. TRA (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975), TBA (Ajzen, 1985), TAM (Davis et al. 1989), UTAUT (Venkatesh et al. 2003; Venkatesh et al. 2012), DIT (Rogers, 2003) and IRT (Ram & Sheth, 1989) are prominent among them. The UTAUT model can be considered as the conceptual foundation of study. Verified constructs, Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Hedonic Motivation (HM) and Habit (HT) are imbedded to the study. The UTAUT constructs PE and EE may also be viewed as TAM's perceived usefulness (PU) and perceived ease of use (PEOU), respectively (Venkatesh et al. 2003). PE is defined as the degree to which the individuals believe that the use of the technologies will result in performance gains. EE is the degree of ease associated with the use of the system. FC is students' judgment about the resources, which are offered to use the system. The FC is acting similar to perceived behavioural control (PBC) in TBA (Ajzen, 1991). The SI is defined as the level to which students perceive that important others believe that they should do an online course. This variable behaves similar to subjective norms (SN) in TPB and compatibility in DIT (Venkatesh et al. 2003). HM is the satisfaction gained from operating the system, while HT defined as the level that users operate the system automatically, owing to experience. The unique UTAUT variable voluntariness is plummeted, as students' actions are completely voluntary, affecting no variance in the dependent variable. There are seven constructs in the theoretical framework; PE, EE, SI, FC, HM, HT and BI. Acceptance or Behavioural Intention (BI) can be defined as the level of the intention to use the facility (Ajzen, 1985; Davis, 1989; Rogers, 2003; Venkatesh et al. 2012). The theoretical model of study discharges six hypotheses in total. Hypotheses 1, 2, 3, 4, 5 and 6 are mainly proposed based on UTAUT; Venkatesh et al. (2012).

H1: Performance Expectancy arouses the behavioural intention to use online courses.

H2: Effort Expectancy boosts the behavioural intention to use online courses.

H3: Social Influence induces the students' intentions to accept online courses.

H4: Facilitating Conditions positively related to students' intentions to accept online courses.

H5: Hedonic Motivation positively influence on students' intentions to accept online courses.

H6: Habit positively impact on students' intentions to accept online courses.

Variable	Questions	Source
Performance Expectancy	I think the OC enables me to accomplish my studies more quickly.	Venkatesh et al. (2003).
	I think the OC would make it easier for me to carry out my other work.	Venkatesh et al. (2003).
	OC increases my chances of achieving things that are important to me.	Venkatesh et al. (2003).
	Overall, I think the OC develops my capability.	Venkatesh et al. (2003).
Effort Expectancy	I think studying via OC would be easy.	Venkatesh et al. (2003).
	I think that handling OC's platform is difficult*.	Venkatesh et al. (2003).
	My interaction with OC is clear and understandable.	Venkatesh et al. (2003).
	It is easy to study from OC without help from others.	Venkatesh et al. (2003).
Intention to Use / Acceptance	I would use the OC for my study needs.	Davis (1989)
	Studying from OC is something that I would do.	Davis (1989)
	I would see myself using an OC for my study needs.	Davis (1989)
	I will continue to use OC in long term.	Davis (1989)
	I have a plan to study OC in the near future.	Venkatesh et al. (2012)
	I would love to use OC to gain knowledge.	Venkatesh et al. (2012)
	I do not have any intention to use an OC*.	Venkatesh et al. (2012)
Social Influence	People who are important to me think that I should study an OC.	Venkatesh et al. (2003).
	People who influence my behaviour think that I should study an OC.	Venkatesh et al. (2003).
	People whose opinions that I value prefer that I study an OC.	Venkatesh et al. (2003).
	Studying an OC is not giving me a good social recognition*.	Venkatesh et al. (2003).
Facilitating Conditions	I have the resources necessary to study the OC.	Venkatesh et al. (2003).
	OC is compatible with other technologies I use.	Venkatesh et al. (2003).
	Specialized instructions concerning use of the OC is available to me.	Venkatesh et al. (2003).
	I have enough internet coverage for my living area to carry out my OC studies.	Venkatesh et al. (2003).
Hedonic Motivation	Studying OC is pleasurable.	Venkatesh et al. (2012)
	OC is exciting.	Venkatesh et al. (2012)
	Studying OC is entertaining.	Venkatesh et al. (2012)
	OC is motivating me to carry out my studies.	Venkatesh et al. (2012)

Habit	The OC has become a habit for me.	Venkatesh et al. (2012)
	I must study an OC.	Venkatesh et al. (2012)
	OC is link with my lifestyle.	Venkatesh et al. (2012)
	I tend to use OC routinely, as it is very familiar.	Venkatesh et al. (2012)

Note: Online Course = OC

Table 1: Operationalization

III. RESEARCH METHOD

3.1.Data collection

State university students currently enrolled in online diploma courses, in Sri Lanka has taken as the target population of the study. 4878 students were selected out of 25 courses among five universities. The appropriate sample size is 357 and 550 students were chosen by considering the 65% response rate (Crompton et al. 2016; Mansour, 2016; Witt, et al. 2016). The sample size was determined in relation to Krejcie and Morgan (1970) outcomes. According to Silva et al. (2013), there are more within the group differences than among group differences, when consider the Sri Lankan higher educational context. Hence, the simple random sampling was selected in the study with the benefit of the higher generalizability. Correspondingly, all elements in the population have considered equally as a result of the selected sampling method (Sekaran and Bougie, 2014).

3.2.Instrument development

The measuring instrument (questionnaire) established according to the theoretical background and objectives of the study. Prominently, Venkatesh et al. (2012), Venkatesh et al. (2003) and Davis (1989) were considered at the operationalization process (Table 1). It was derived after the reliability and validity test of the original instrument. The finalized instrument was consisted with two parts (Part 1 and Part 2). Part 1 questions were targeted to obtain the demographic attributes of the respondents. Part 2 focused to test the model. All the variables belong to Part II measured on five-point Likert-type scale.

3.3.Results from descriptive analysis

78.4% students were within the age 20 to 40 while, 67.5 % of were female students. 83% of participants were unmarried and 92.8% were fulltime students. Most of the students (43.1%) were having 1 to 3 years online learning experience while, 64.7% were students. There were 61 workers, 59 executives and 3 top managers within the respondents. At the same time, the weighted means of the variables were scanned to distinguish the peak of the responses to the measuring instrument (questionnaire). Similarly, the mode values and median values were premeditated. Out of the theoretical model variables, all the mean values were above 2.5. It specifies that the students were pleased with the services delivered by the educational institutes with related to all six variables. The lowest mean value was for Social Influence (2.98) and highest for Performance Expectancy (3.54) out of independent variables.

3.4.Results from factor analysis

The Exploratory Factor Analysis (EFA) analysis establishes reliability and validity data, systematically with compared to Cronbach's Alpha analysis (Cohen et al, 2003). The convergent and discriminant validity of constructs were measured through the factor analysis procedure. The items in the questionnaire correlate sufficiently as the analysis of all seven constructs described between 0.3 to 0.9 correlations. Six constructs were excellent beyond 0.8, while Social Influence was 0.753 within the good range, 0.7 to 0.8. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was 0.939. According to Kaiser, (1974), values above 0.9 indicates that the sampling adequacy is 'marvellous'. The KMO value is significant (P value is less than 0.05) and it indicates that the study variables are adequate and appropriate to carried out an EFA test (Bozdogan, 1987). The communalities' values were adequate showing a figure above 0.6. Three factors have been extracted according to the total variance explained table. Those three variables explained about 71.872% of the variance in the model (Appendix 2). The Scree Plot (Figure 1) also suggests that six factors were extracted based on Eigenvalues above one. Hence, the EFA proved that different pragmatic contexts (Sri Lankan higher education sector) show different results contradictory to past studies' (UTAUT's) variable groupings and item groupings. The pattern matrix also described three factors as per the outcomes of the total variance explained.

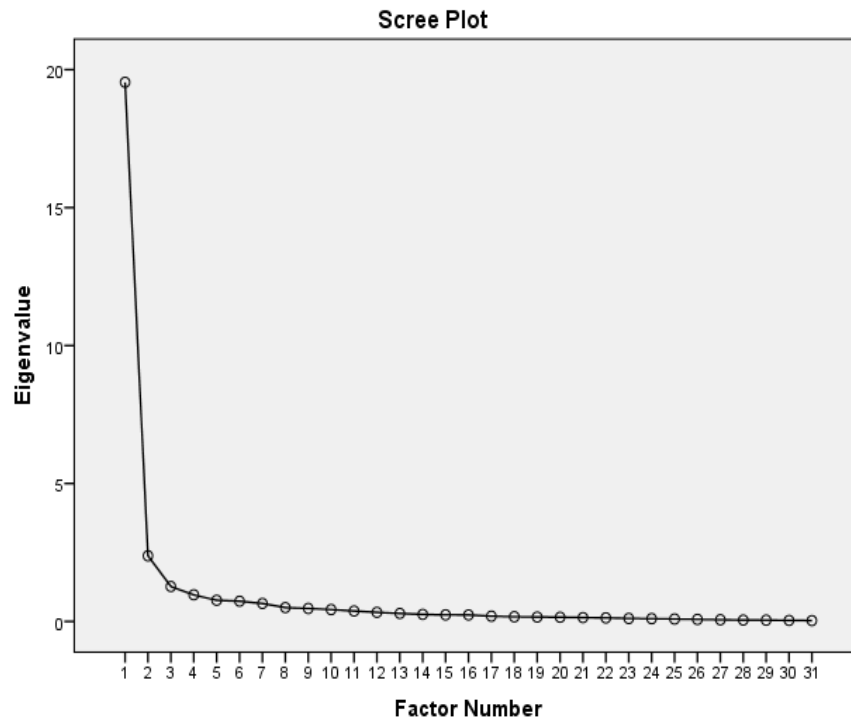


Figure 1: Scree Plot

3.5.Results from regression analysis

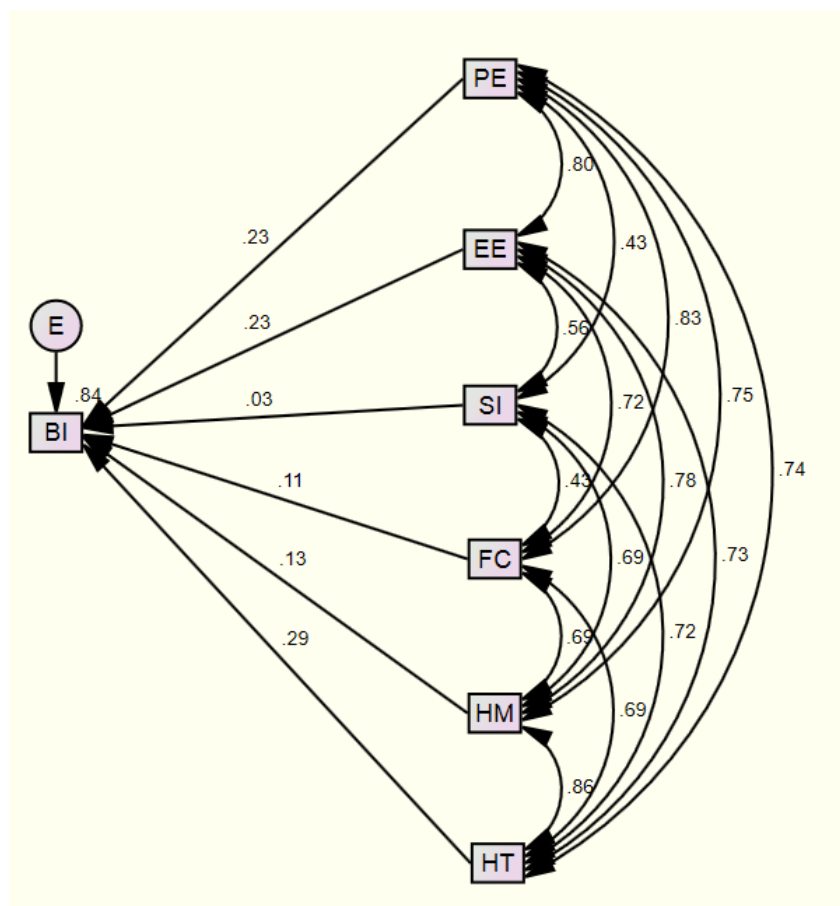


Figure 2: Regression Analysis Standards Estimates

Hypotheses	Estimate	S.E.	C.R.	P	Label
BI <--- PE	.453	.096	4.734	***	
BI <--- EE	.460	.080	5.733	***	
BI <--- SI	.058	.069	.831	.406	
BI <--- FC	.198	.072	2.747	.006	
BI <--- HM	.230	.083	2.776	.005	
BI <--- HT	.534	.089	6.007	***	

Table 2: Regression Weights(Default model)

According to the regression coefficient output (Table 4), the independent variable Social Influence (SI) is having a P-value greater than 0.05 (.410). Therefore, it is not a significant predictor of Online Course Acceptance (BI). At the same time, P-values for PE, EE, HM, HT and FC are having a P-value below 0.05. Hence, the independent variables, PE, EE, HM, HT and FC are significant predictors of BI. When consider the inter-correlations amongst the independent variables in the regression model, no variable represents a variance inflation factor (VIF) figure higher than 5.3. Mostly, the VIF values, which surpass value 10.00, viewed as having multicollinearity (Holmbeck, 1997). Henceforth, there is no any severe concern of multicollinearity, with related to model variables.

The R-squared value of the stepwise regression increased from 0.713 to 0.842 towards the addition of each independent variables. This describes that the independent constructs (HT, PE, EE, HM, and FC) explain 84.2 % of the variation in online courses acceptance (BI). At the same time, the residual plot (Figure 3) displays less heteroscedasticity, since the residuals distributed as the prediction moves from small to large. According to the Coefficients (Stepwise Regression), the regression equation explains as follows.

$$BI = -0.872 + .565 (HT) + .429 (PE) + .471 (EE) + .247 (HM) + .198 (FC)$$

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.872	.642		-1.359	.175		
HT	.565	.082	.310	6.903	.000	.229	4.359
PE	.429	.092	.219	4.660	.000	.209	4.795
EE	.471	.080	.235	5.898	.000	.290	3.449
HM	.247	.081	.144	3.042	.003	.207	4.838
FC	.198	.073	.109	2.720	.007	.290	3.451

a. Dependent Variable: BI

Table 5: Coefficients (Stepwise Regression)

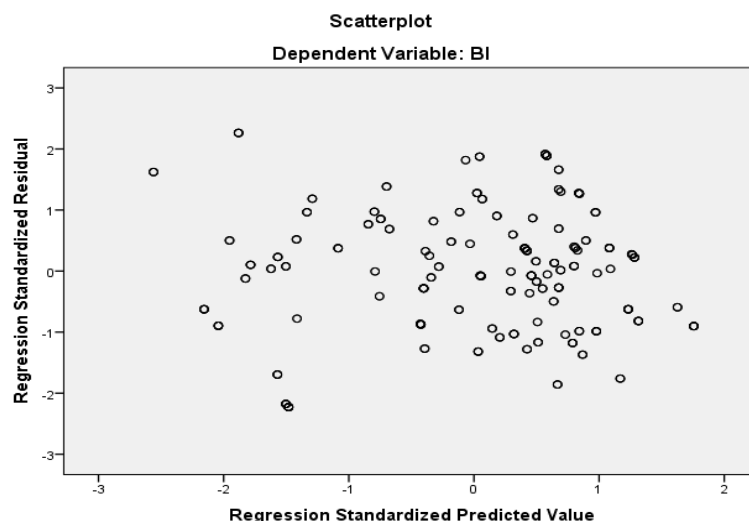


Figure3: The Residual Plot (Regression Scatterplot)

IV. CONCLUSIONS

This study aimed to develop an UTAUT model to predict and explain students' behavioural intentions with regard to adopting online courses, in the Sri Lankan higher educational context. Firstly, the linear model of the research elucidated that the independent constructs caused 84.2% variance in online courses acceptance (dependent variable). Out of all six independent constructs, HT, PE, EE, HM and FC are significant predictors of Online Courses Acceptance, while the construct SI was not significant. According to the regression outcomes, the Habit (HT) considered as the most influential independent variable, with representing 0.565 change in BI. The lowermost variance triggered by the construct Facilitating Conditions (FC) with only 0.198 alteration in the acceptance. Secondly, the EFA resulted three factors as per the Total Variance Explained outcome. Those three constructs explained 71.872% variance via the conceptual model of the study. Therefore, the EFA outcome indicated that the conventional UTAUT measuring instrument not persistently replicated at the pragmatic Sri Lankan higher educational circumstances. Thirdly, as per the residual plot outcomes, the centered dispersal of the plot of residuals interprets that the estimations and statistical forecasts are reasonable. At the same time, the homogeneously scattered residuals vary from smallest to largest prediction movement illuminated the less heteroscedasticity with identical variance in the acceptance across the range of values of independent variables. Consequently, the managerial implications based on the research concept reveal, that the advancements of online course service features with related to performance development, easy use, course facilitations, more IS platform practise and motivating features are imperative to increase the online course acceptance among Sri Lankan university students.

REFERENCES

- [1] N. Abeysekera, and M. J. Perera, "Model-Based Analysis of Student Satisfaction in Open Distance Learning, Kelaniya, Sri Lanka. Journal of Management", vol. 4, 2015.
- [2] I. Ajzen, "From Intentions to Actions: A Theory of Planned Behavior," in *Action Control: From Cognition to Behavior*, J. Kuhl and J. Beckmann (eds.), New York: Springer-Verlag, pp.11-39, 1985.
- [3] I. Ajzen, "the Theory of Planned Behaviour," *Organizational Behaviour and Human Decision Process* (50:2), pp. 179-211, 1991.
- [4] Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.
- [5] Bozdogan, H. 1987. Model selection and Akaike's information criterion (AIC): The general theory and its analytical extensions. *Psychometrika*, 52: 345-370.
- [6] Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied Multiple regression/correlation analysis for the behavioural sciences* (3rd ed.). Mahwah, NJ: Erlbaum.
- [7] Crompton, H., Burke, D., Gregory, K. H., & Gräbe, C. (2016). *The Use of Mobile Learning in Science: A*
- [8] Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003.
- [9] Davis, F.D. (1989). "Perceived Usefulness", "Perceived Ease of Use", and User Acceptance of Information Technology. *Mis Quarterly*, 13(3), 319-339.
- [10] Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- [11] Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology*, 65, 599-610.
- [12] Hung, S.Y., Chang, C.M. & Yu, T. J. (2006). Determinants of user acceptance of the e-Government services: the case of online tax filing and payment system, *Government Information Quarterly* 23 (1), 97-122.
- [13] Hung, J. L. (2012). Trends of e-Learning research from 2000 to 2008: Use of text mining and bibliometrics, *British journal of Education Technology*, 43 (1): 5-16.
- [14] Kaiser, H. (1974). An index of factor simplicity. *Psychometrika* 39: 31-36.
- [15] Krejcie, R. V., & Morgan, D. W. (1970). *Determining Sample Size for Research Activities*. Educational and Psychological Measurement.

- [16]Mansour, E. A. (2016). Use of smartphone apps among library and information science students at South Valley.
- [17]Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of evidence-based practices in online learning: A Meta-analysis and review of online learning studies. US Department of Education.
- [18]Ministry of Finance, (2016). Budget Estimation 2016, pp. 380-420.
- [19]Ministry of Finance, (2017). Budget Estimation 2017, pp. 401-441.
- [20]Ram, S., & Sheth, J. N. (1989). Consumer resistance to innovations: The marketing problems and its solutions. The Journal of Consumer Marketing, 6(2), 5–14.
- [21]Rogers, E. M. (2003). Diffusion of Innovations (5th ed.). New York, United States of America: Free Press.
- [22]Saunders, M., Lewis, P. and Thornhill, A. (2009). Research Methods for Business Students: 5th Edition.
- [23]Sekaran, U. & Bougie, R. (2014). Research Methods for Business: 5th Edition.
- [24]Silva, D. W. I., Kodikara, P., & Somarathne, R. (2013). Sri Lankan youth and their exposure to computer literacy. Sri Lanka Journal of Advanced Social Studies, 3(1). doi:10.4038/sljass.v3i1.7127.
- [25]UUK (2012a) Patterns and Trends in UK Higher Education 2012. London: Universities UK. Venkatesh, V., and Davis, F.D. (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies, Management Science, 186–204.
- [26]Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View, MIS Quarterly (27:3), pp. 425-478.
- [27]Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. MIS Quarterly, 36(1), 157-178.
- [28]Witt, R. E., Kebaetse, M. B., Holmes, J. H., Ryan, L. Q., Ketshogileng, D., Antwi, C., ... & Nkomazana, O. (2016).The role of tablets in accessing information throughout undergraduate medical education in Botswana. International journal of medical informatics, 88, 71-77.