

A Study on Factors Affecting to Students' Awareness and Acceptance of Smart Learning in Higher Education: (A Special Reference to Faculty of Islamic Studies & Arabic Language, South Eastern University of Sri Lanka)

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Abstract

This study aims to examine the factors affecting students' awareness and acceptance of smart learning in higher education by giving special reference to South Eastern University of Sri Lanka. The research problem of the study is what factors are affecting to students' awareness and acceptance of smart learning in higher education. The research methodology was case study and the primary data has been collected through formal questionnaire and in-depth interviews. The student found that there are many factors affecting students' awareness and acceptance of smart learning in higher education including organizational readiness, Level of organizational fit, Level of investment and organizational type, Level of risk, security and privacy, organizational intention and Change management factors, student's knowledge and experience, learning outcomes, students' attitudes, level of infrastructure facilities and learning environment. The model proved and found that there is a high relationship between two variables. The study secondly found that there is high effect of smart learning on students learning process, performance and outcomes. It is recommended for the higher education officials and stakeholders to consider on developing infrastructure facilities in higher education bodies, developing smart learning culture, increase student and teachers' knowledge, change attitudes and formulation of information technology development strategies in Sri Lankan higher education sector.

Keywords: Education, Learning, Smart, teaching and Faculty of Islamic Studies & Arabic Language.

Introduction

The world environment has been changed and evolved with the prominence of environmental forces and dynamic factors around environment. According to (Stoner, 2009), macro and micro environment has shaped the organizational and industry scoped and behavior by introducing changes to human practices and society. The technology has become key and dynamic environmental element which has shaped the behavior, practices, usage in the society. According to Eifert, (2014) the state of art technology, digital age, innovation, strategies, capabilities have influenced on every element in the society and environment to enhance the industry and organizational performance. The modern technology has supported education and learning industry in different ways to enhance the performance of stakeholders and participative institutions.

Teaching paradigms have been shifted from teacher centered teaching to the student centered learning by adapting social learning and ubiquitous learning, specially, new learning environments such as electronic based learning, smart technology have become so prominent with the help of the technological development. According to (Biggs, 1999), electronic learning (e-learning) regarded as any kind or form of teaching, tutoring or training that satisfies the needs of learners in different ages and abilities through electronic multimedia resources, internet, computers, mobiles and any other technology-based device. Moreover,

the concept of e-learning can also be defined as the ability of learner to learn in way or type that is different from conventional or ordinary learning.

There is no single definition for smart learning and various scholars, researchers; academics have defined smart learning in different ways. This refers the usage of technology for education today's digital age and it reflects how advanced technologies are enabling learners to digest knowledge and skills more effectively, efficiently and conveniently. The learner becomes a proactive leader rather than a static follower of the educational process. According to (D Liu, 2017), SL is a new environment of learning utilizing latest IT and network infrastructure combined with novel learning and teaching strategies and it is the emerging learning environment, allows learners to use all available learning devices and social media round the world. Smart learning has key features and advantages of Location-aware(in smart learning the real time location is major requirement of the systems to adapt the content and situation of the learner), Context-aware(exploring different activity scenarios and information), Socially-aware (sensing social relationships), Interoperable (setting standards for different resources, services and platforms), Seamless connection (providing continuous service when any device connects), Adaptable (pushing learning resources according to access, preference and demand), ubiquitous (predicting learner demands until clearly expressed by providing visual and transparent access to learning resources and services), Whole record (recording learning path data), Natural interaction (transferring the senses of multimodal interaction, including position and facial expression recognition), High engagement (Engagement in multidirectional interactive learning experiences) etc. Thus, it is evident that Smart learning is modern learning approach based on the technology and its environment.

Research problem of the study

“Education industry has been developed and changed in past few decades due to many reasons such as new demand, new concepts, technology and innovation, fundamental right of education, social requirement, government attention, political and legal enforcement, socio and cultural changes, economic movement etc” (Oye, 2010). Education and learning industry consists of many stakeholder parties including teachers, students, curriculum development, consultants, government, administrators, facilitators, regulators and other supportive stakeholder parties. These stakeholders' parties have different intentions in involving into the industry. Specially, it needs to enhance the performance of learning process. According to (Biggs, 1999), learning quality is highly important performance indicator in the industry and technology has become the key source in improving the learning quality and environment. In addition to this convenience, flexibility of learning has become key concerns of stakeholders then, technology based learning like Smart learning has become so important in implementing learning strategies and developing learning environment. The research problem of the study is what are the factors affecting to students' awareness and acceptance of smart learning in higher education?

Research objectives of the study

This study has several objectives

- 1) To identify the factors affecting to students' awareness and acceptance of smart learning in higher education.
- 2) To identify the effect of smart learning on students learning process and outcomes.
- 3) To provide the suggestions to implement effective and efficient smart learning system in Higher Educational Institutions in Sri Lanka

Literature Review

There are several literature reviews we can find for mobile learning. Jenni Rikala (2013) summarized most of the present research related to m – learning for further research. The researcher also directly collected most of the literature review from her research paper titled “Mobile Learning – a Review of Current Research. Organizational readiness for change is a multi-level, multi-faceted construct. As an organization-level construct, readiness for change refers to organizational members' shared resolve to implement a change and shared belief in their collective capability to do so. Organizational readiness for change varies as a function of how much organizational members value the change and how favorably they appraise three key determinants of implementation capability: task demands, resource availability, and situational factors. When organizational readiness for change is high, organizational members are more likely to initiate change, exert greater effort, exhibit greater persistence, and display more cooperative behavior. The result is more effective implementation [Breynar, 2009]. From the literature review, researchers decided to study the level of Organizational readiness, Level of organizational fit, Level of investment and organizational type, Level of risk, security and privacy, Student and teachers' knowledge and Learning outcomes and attitudes are considered as Independent variables of the study. Acceptability of the smart learning system is considered as the dependent variable.

Methodology & design

This research is deductive research approach where the research team aims to take a structured, quantitative, formal approach to complete the project mainly, primary data sources are used to conduct the study. With the analysis of the study problem, the case study method was selected and a formal survey was conducted by using a structured questionnaire and in-depth interview. Primary data was collected through the questionnaire, 100 under graduate students from Islamic Studies & Arabic Language of South, Eastern University of Sri Lanka. Sampling method is simple random sampling for collecting data. Data analysis was done through SPSS -20 versions and descriptive & inferential statistics were used for the data

analysis. Data presentations were done by Bar charts, Pie charts and histograms etc. Reliability and Validity of scale in questionnaire was expected to check for ensuring the reliability of data. As per table: 1, I show Cronbach's Alpha value for all seven variables is above 0.7 and it is shown that reliability of questionnaire is at acceptable level.

Reliability Statistics

Cronbach's Alpha	N of Items
.953	7

Item-Total Statistics

	Scale Mean if Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
The level of Organizational readiness	23.31	21.206	.869	.943
The level of Organizational fit	23.27	22.017	.773	.951
Level of investment and organizational type	23.20	21.737	.799	.949
Level of risk, security and privacy	23.34	20.974	.861	.944
Student and teachers' knowledge	23.32	21.210	.863	.944
Learning outcomes and attitudes	23.30	21.566	.822	.947
Acceptance ,awareness and effectiveness of SMART	23.22	21.729	.890	.942

Table 1 Reliability Statistics

Model and hypotheses development of the study

The level of Organizational readiness, Level of organizational fit, Level of investment and organizational type, Level of risk, security and privacy, Student and teachers' knowledge and Learning outcomes and attitudes are considered as Independent variables of the study. Acceptability and awareness is considered as the dependent variable.

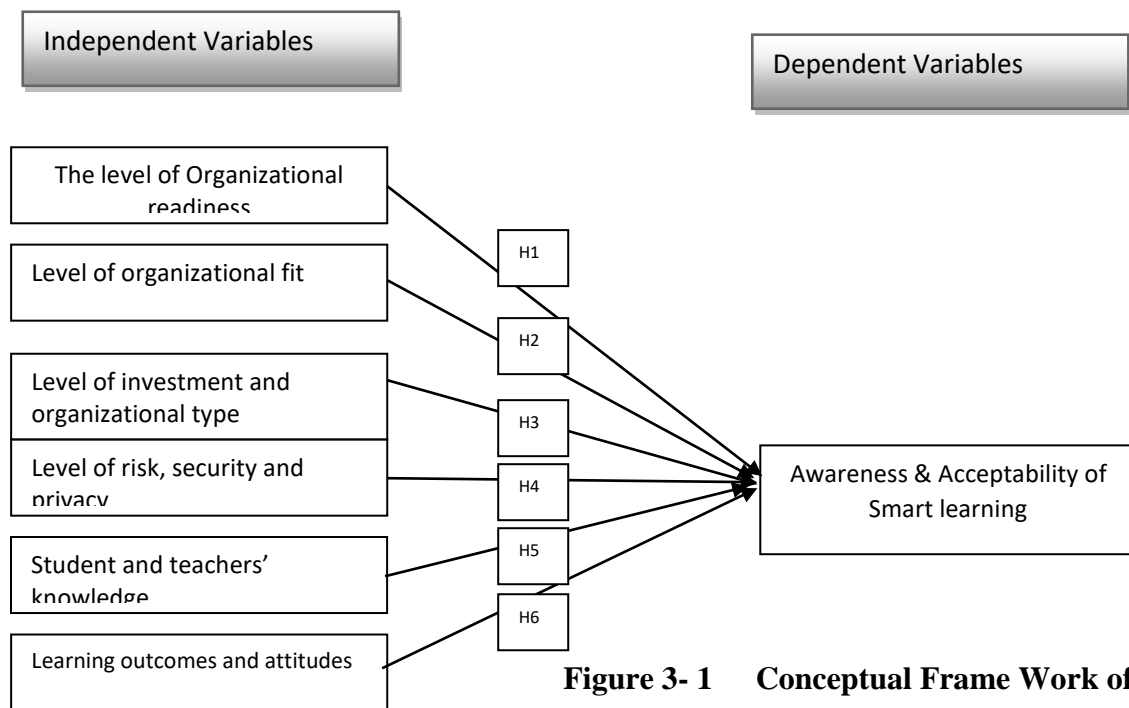


Figure 3- 1 Conceptual Frame Work of the study

There are seven hypotheses in this study.

H1=There is a relationship between the 'level of Organizational readiness's and 'Awareness & Acceptability' of Smart learning in Higher Education.

H2=There is a relationship between 'the level of Organizational fit' and 'Awareness & Acceptability' of Smart learning in Higher Education.

H3=There is a relationship between the level of 'investment and organizational type' and 'Awareness & Acceptability' of Smart learning in Higher Education.

H4=There is a relationship between 'the level of risk, security and privacy' and 'Awareness & Acceptability' of Smart learning in Higher Education.

H5=There is a relationship between ‘Student and teachers’ knowledge’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education.

H6=There is a relationship between ‘Learning outcomes and attitudes’ and Awareness & Acceptability of Smart learning in Higher Education.

H7=There is an effect of Smart learning on students learning process and outcomes

Data analysis and Results

The sample consists of 100 under graduate students from faculty of Islamic Studies & Arabic Language of South, Eastern University of Sri Lanka There were .62 % of respondents are males and rest of sample is females (38%). With the analysis of age structure of the students, they are in age category 20-30 category. ICT usage ability of the students is 100%.

Correlation value between the ‘level of Organizational readiness’s and ‘Awareness & Acceptability’ of Smart learning in Higher Education is 0.760 which shows a high relationship between two variables. The significance value of model is 0.000 which is below 0.05 ($0.000 < 0.05$). Then, Null hypothesis is rejected and alternative hypothesis is accepted. That proved that there is a relationship between the ‘level of Organizational readiness’s and ‘Awareness & Acceptability’ of Smart learning in Higher Education.

Correlation value between the level of Organizational fit’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education is 0.778 which is at high relationship level. The significance value of model is 0.000 which is below 0.05 ($0.000 < 0.05$). Then, Null hypothesis is rejected and alternative hypothesis is accepted. That proved that there is a relationship between ‘the level of Organizational fit’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education

Correlation value between the level of ‘investment and organizational type’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education is 0.831 which is at high relationship level between variables. The significance value of model is 0.000 which is below 0.05 ($0.000 < 0.05$). Then, Null hypothesis is rejected and alternative hypothesis is accepted. That proved that There is a relationship between the level of ‘investment and organizational type’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education.

Correlation value between ‘the level of risk, security and privacy’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education is 0.743 which is at high relationship level between variables. The significance value of model is 0.000 which is below 0.05 ($0.000 < 0.05$). Then, Null hypothesis is rejected and alternative hypothesis is accepted.

That proved that there is a relationship between ‘the level of risk, security and privacy’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education.

Correlation value between ‘Student and teachers’ knowledge’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education is 0.865 831 which is at very high relationship level between variables. The significance value of model is 0.000 which is below 0.05(0.000<0.05). Then, Null hypothesis is rejected and alternative hypothesis is accepted. That proved that There is a relationship between ‘Student and teachers’ knowledge’ and ‘Awareness & Acceptability’ of Smart learning in Higher Education.

Correlation value between ‘Learning outcomes and attitudes’ and Awareness & Acceptability of Smart learning in Higher Education is 0.727 which is at high relationship level between variables. The significance value of model is 0.000 which is below 0.05(0.000<0.05). Then, Null hypothesis is rejected and alternative hypothesis is accepted. That proved that there is a relationship between ‘Learning outcomes and attitudes’ and Awareness & Acceptability of Smart learning in Higher Education.

Hypothesis	Significant values	Hypothesis testing results
H1	0.000	Alternative hypothesis accepted
H2	0.000	Alternative hypothesis accepted
H3	0.000	Alternative hypothesis accepted
H4	0.000	Alternative hypothesis accepted
H5	0.000	Alternative hypothesis accepted
H6	0.000	Alternative hypothesis accepted
H7	0.000	Alternative hypothesis accepted

Table 2 Hypothesis testing summary Source (Author eleeration, 2019)

Correlations

		The level of Organizational readiness	The level of Organizational fit	Level of investment and organizational type	Level of risk, security and privacy	Learning outcomes and attitudes	Student and teachers' knowledge	Acceptance, awareness and effectiveness of SMART
The level of Organizational readiness	Pearson Correlation	1	.589**	.647**	.970**	.666**	.955**	.760**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	100	100	100	100	100	100	100
The level of Organizational fit	Pearson Correlation	.589**	1	.783**	.576**	.847**	.598**	.778**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	100	100	100	100	100	100	100
Level of investment and organizational type	Pearson Correlation	.647**	.783**	1	.635**	.743**	.657**	.831**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	100	100	100	100	100	100	100
Level of risk, security and privacy	Pearson Correlation	.970**	.576**	.635**	1	.649**	.988**	.743**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	100	100	100	100	100	100	100
Learning outcomes and attitudes	Pearson Correlation	.666**	.847**	.743**	.649**	1	.635**	.865**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	100	100	100	100	100	100	100
Student and teachers' knowledge	Pearson Correlation	.955**	.598**	.657**	.988**	.635**	1	.727**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	100	100	100	100	100	100	100
Acceptance, awareness and effectiveness of SMART	Pearson Correlation	.760**	.778**	.831**	.743**	.865**	.727**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	100	100	100	100	100	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3 Correlation analysis of the study Source:

As per simple regression analysis, it is shown that correlation value between effect of Smart learning and students learning process and outcomes is 0.862 which shows a very high relationship between two variables. The significance value of model is 0.000 which is below 0.05 ($0.000 < 0.05$). Then, Null hypothesis is rejected and alternative hypothesis is accepted. That proved that there is an effect of Smart learning on students learning process and outcomes.

Proposed regression formula is $Y = a + bx$

$$Y = 0.915 + 0.785X$$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.862 ^a	.743	.740	.403

a. Predictors: (Constant), Effect of Smart learning

Table 4 Regression analysis of the study

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.931	1	45.931	282.929	.000 ^b
	Residual	15.909	98	.162		
	Total	61.840	99			

Table 5 Anova

a. Dependent Variable: Outcomes/effectiveness of Smart learning

b. Predictors: (Constant), Effect of Smart learning

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.915	.185		4.932	.000
	Effect of Smart learning	.785	.047	.862	16.820	.000

Table 6 Coefficients

a. Dependent Variable: Outcomes/effectiveness of Smart learning

Source: (Survey data analysis, 2019)

The in-depth interview found that new technology adaptation is influenced by many factors. These factors are Organizational readiness, Level of organizational fit, Level of investment and organizational type, Level of risk, security and privacy, Organizational intention and Change management factors, students' knowledge and experience, learning outcomes, student's attitudes, level of infrastructure facilities, learning environment. These factors effect on acceptance and awareness of new technology like Smart learning. It found that Smart learning is highly important for improving learning outcomes. In order to develop Smart learning technology and environment, the respective authorities need to develop infrastructure facilities in higher education bodies, developing Smart learning culture, increase student and teacher's knowledge and change attitudes by giving national level attentions.

Conclusion and Recommendation

Based on survey, in-depth interview and literature analysis, It is concluded that there are many factors affecting to Students' Awareness and Acceptance of Smart Learning in Higher Education including Organizational readiness, Level of organizational fit, Level of investment and organizational type, Level of risk, security and privacy, Organizational intention and Change management factors, students' knowledge and experience, learning outcomes, students attitudes, level of infrastructure facilities, learning environment. Secondly, It is concluded that there is high effect of Smart learning on students learning process, performance and outcomes. It is recommended for authorities and stakeholders to consider on developing infrastructure facilities in higher education bodies, developing Smart learning culture, increase student and teachers' knowledge and change attitudes and formulation of ICT development strategies in Sri Lankan higher education sector.

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