E-Learning in High Learning Institution: A Utility by Lecturers to Course Design and Delivery of Methodology

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Abstract:- Electronic-learning is meant to be the main product of integrating and using recent and more innovative ways of information technology in the field of the education world. concerningthis rapid increase in the e-learning field, there still found a range of problems facing the users of e-learning systems.One of the key issues is quantifying e-learning readiness. E-learning readiness is vital for the success of distance education curricula that integrates the use of ICT resources for academic and administrative functions.Objectives are Hinged onto to Access to ICT Equipment,ability to integrate e-learning technology,ICT-Literacy and Internet Mastery by Lecturers and Internet Mastery by Lecturers on course design and delivery of methodology.The underpinnedTam Theory, whose research approach isbased on bothquantitative and qualitative.The findings reveal that there was a better preparedness of technological readiness in comparison to social-cultural factors and attitudes towards e-learning, and Lecturers were more positive about their level of readiness.

Keyword:-E-Learning, Readiness, HLI, Lecturers, ICT.

I. INTRODUCTION

E-learning has been explained by many authors. Wagner et al. (2008) defined it as the learning experience facilitated by the use of electronic technologies. Focusing on e-learning in the current organizations, it can be explained as the transmission of academic content or learning experiences facilitated by using electronic technology.E-learning is a fast emerging component that facilitates learners in the sector of education. Progressive advancements in ICT are enabling the possibilities of future growth. Developed countries have acknowledged theiradvantages and integrated it warmly but in third world countries,this is still a new concept. There are many hindrances in third world countries for theirusage and growth.

E-learning has many advantages such as independence of learning place (learner can learn from home in a more friendly atmosphere or at the working place) it reduces the cost of travel, meals, and lodging, free choice of learning time and speed, easy and fast distribution and dissemination of new information to many people, Multimedia and interactive learning is motivating and ensures learning success.

E-Learning has come out in the spotlight as the next generation of learning in the world since the very enhanced platform of the Internet has increased the speed of communication. E-Learning provides outstandingmerits to the economy (Strother, 2002) when combining a large many students.IT in the education sector is broadlyidentified as a mechanism to enhance the value of the teaching and learning environment (UP 2004). Therefore, the use of technology and computers in various fields including education has altered the ways services are delivered to the end-users, making automating applications common in the E-learning systems.

The World Economic Forum's Networked Readiness Index 2013 measured Rwanda'shighest in information technologyabsorption in the EAC region, next by Kenya, Uganda, Tanzania, and Burundi respectively.On broadband usage, Rwanda, Uganda, and Kenya are the first countries in East Africa set to integrate a high-speed Fourth Generation (4G) broadband network that boosts the download speeds of up to 100 Megabytes per second. Internet consumptionin Uganda ranked at 17 percent, Rwanda at 8.3 percent, Kenya (41.1 percent), Tanzania 13 percent, and Burundi (2 percent).

An e-learning assessment is very vital for the integration of an e-learning strategy, showing the issuestoconsider before and during an e-learning implementation.

The importance of this research is to assess the readiness of high learning institutions in adopting e-learning.Higher education institutions in Rwanda are heavily investinga huge amount of their facilities in these teaching and learning information technologiesbesides necessarily understanding the different dynamicsthat could affect their best adoption and hence a reason for the investment.

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Learning is a major sector in Rwanda as a country and as a result, High learning institutions have accepted the importance of injecting large sums of money in the technology to reduce the operation cost, attract students, and satisfy the customers' needs for convenience and technical innovation. E-Learning is an innovation that has not yet attracted much research more so in Rwanda's private education sector; this study seeks to address this gap.The domination of e-learning as a method of delivery for academic instructions is well documented. Current lecturers and students include those that have likely had experience in traditional classroom environments, without any experience in an online learning environment.

HYPOTHESIS

H1:Access to ICT Equipment by Lecturer has a statistical impact on course material design and delivery of methodology.
H2: *The a*bility to integrate e-learning technology has a statistical impact on course material design and delivery of methodology.
H3: ICT Literacy and Internet Mastery by Lecturers have a statistical impact on course material design and delivery of methodology.
H4: Internet Mastery by Lecturers has a statistical impact on course material design and delivery of methodology.

II. LITERATURE REVIEW

E-learning is also explained as learning that can be conducted from any place and accessible at a time of your choice by someone using electronic means to gather datain absence of another live person present (Zhang & Nunamaker, 2003). E-Learning is internet-based learning and is an important part of distance learning. But, eLearning is not only about the usage of Web-based technologies or distance learning, it provides a way in which students and other stakeholders exchange information and gain knowledge. It can involve a wide variety of learning methodologies and technologies from materials available online, CD-ROMs, DVDs to videoconferencing (Sigala et. al., 2002).

Lecturers can be considered as the first user of the e-learning system in an institution which is at an initial phase of adoption of the system. Lecturers are the key elements for adapting and implementing the entire learning environment to an e-learning platform since they are directly engaged with students and course contents. The role played by the instructor in e-learning are many such as designing courses, curricular transformations, integrating e-learning technologies, delivering materials, teaching the course, and monitoring and administrating the students' activities. (Bonanno, P. (2011).

Study by Borotis and Poulymenakou (2004), Olatokun and Opesade (2008), Mohamed Hussain Thowfeek and Husnayati Hussin (2008), Ipsos MORI (2006), Yucel (2006), Kaur and Abas (2004), indicate that the factors on E Learning as summarised below,derive a literature mitigation:

Table 1: E-learning readiness factors from literature

Authors	Factors
Aydin and Tasci (2005)	Human resources, learning management system, learners, content, IT, finance, vendor.
Psycharis (2005)	Resources category (technological readiness, economic readiness, and human resources readiness) Education (Content and the educational) Environment (entrepreneurial, leadership, and culture).
Yucel (2006)	leadership, technical skill, speed, applicability analysis, culture, content, and resources
Economist Intelligence Unit	The connectivity environment, government investment and policy, and social and cultural attitudes surrounding Internet adoption.
Chapnick (2000)	Psychological; Sociological; Environmental; Human resources; Financial readiness; Technological skill (aptitude); Equipment; Content readiness
Haney (2002)	Human resources; Learning management system; learners; Content; Information technology; Finance; and Vendor
Mohamed Hussain Thowfeek and Husnayati Hussin (2008)	Instructors' readiness (awareness, training, and confidence) Students' readiness (awareness, training, and confidence), the need for e-learning (the type of program or courses); Infrastructure; institutional support;Motivation and incentives; and the E-learning system itself.
EIU & IBM, 2003a).	Connectivity; Capability; Content; Culture; Education system; the richness of content; and willingness to adapt to new ways
Kaur and Abas (2004)	Use of eight constructs: Learner, Management, Personnel, Content, Technical, Environmental, Cultural and Financial readiness.

Based on different models and factors identified by different authors in the literature and critical analysis about assessing the readiness for e-learning and considering the stakeholders' analysis perspective, the following factors are identified to assess the lecturers' readiness:

III.   DESIGN, POPULATION AND DATA COLLECTION TOOLS

We employed an exploratory research design , a mixed research approach was used which included both quantitative and qualitative data. The importance of integrating quantitative survey data, even qualitative interview data, was to enable both breadth and depth of datain regards to the e-Learning readiness.The researcher used simple random Sampling Techniques**.** In this study, the researcher useddegree confidence of 95% and a margin of error of 5% and will use the Slovin formula which stipulates that:

$$n = \frac{N}{1 + Ne^2}$$

Where: n = sample size
       N= total population

e = margin of error

Considering our total population which is equal to 300 lecturers, we calculate our simple size as follow:

$$Sample(n) = \frac{300}{1 + (300 * (0.05)^2)} = 60 \cong 60$$

So our sample size is 56

A total of 56 Questionnaires were also distributed to lecturers by the researchers.

Participants reported their perceptions on these e-learning related items with a five-point Likert-scale where 1 being "strongly disagree" and 5 beings "strongly agree".Data were analyzed using the Statistical Package for Social Scientists (SPSS) and descriptive statistics (frequency counts were deduced for each question). The frequency counts were used as the major statistical data analysis method. Data from the questionnaires were used as a quantitative data source.

IV.   DATA ANALYSIS, FINDING, AND DISCUSSION

Table 2: Ability to integrate e-learning technology into course design and course delivery methodology (Lecturers)

Statement	Opinions frequency (%)				
	Never	Sometimes	Not Sure	Hardly Always	Always
Have enough IT competency to prepare the e-learning materials	7.1	12.5	14.3	28.6	37.5
Support the integration of e-learning in respective department	5.4	8.9	0	35.7	50.0
Ready to integrate e- learning into my teaching	0	0	19.6	12.5	67.9
E-learning technology improves teaching methodology	7.1	5.4	3.6	35.7	48.2
Need training on e-learning	3.6	10	1.8	25.0	59.6

E-learning implies the usage of technology to design and deliver course; as revealed from the table 2, 66.1% (Strongly and Completely Agree) of lecturers have enough IT competency, while 85% (Strongly and Completely Agree) of lectures support the integration of e-learning in their respective department. In the same regards, 85.9% (Strongly and completely agree) of lecturers agree that technology brings about quality teaching as it improves teaching methodology. Besides, the findings here above show that lecturers are able and ready to integrate technology and need being training needed 80.4% (Strongly and completely agree) in terms of e-learning technology into course design and course delivery methodology. Once the need is satisfied, the lecturers will master digital file usage in e-learning.

Table 3: Access to ICT Equipment (Lecturers)

Statement	Opinions frequency (%)				
	Never	Sometimes	Not Sure	HardlyAlways	Always
Have access to a computer with adequate software	1.8	5.4	10.7	22.5	59.6
Access to internet and being regular internet user	0	3.6	14.3	23.2	58.9
Have access to effective IT infrastructure available at the university	3	7.9	16.8	48.6	23.7
Internet network at my university speedy enough	7.1	6.1	14.3	40.4	32.1
Access to internet with uninterrupted connectivity	12.5	3.6	20.8	32.5	30.6

Access to computers and the internet for lecturers is crucial in e-learning as preparation and delivery of course materials require them. The research data showed in Table 3 that 82.1% (Hardly always and Always) of lecturers have access to computers and internet, and more than 72.3% (Hardly always and Always) of lecturers have access to IT infrastructure and network at a fast speed, this could be a positive factor to enhance and facilitate e-learning from materials preparation to course delivery. However, 63.1% (Hardly always and Always) of lecturers state that internet connectivity is interrupted. There is a need for improvement to establish a stable and fast internet connection.

Table 4: Socio-cultural mindset towards E-learning (Lecturers)

Statement	Opinions frequency (%)				
	Never	**Sometimes**	**Not Sure**	**HardlyAlways**	**Always**
Being Goal-oriented and good at setting and achieving them	5.4	1.8	12.2	46.8	42.9
Learn best by figuring things out by myself	5.4	1.8	14.3	41.1	37.5
Regulate and adjust Behavior to complete Course requirements	5.4	10.7	14.3	29.9	39.8
Good at completing tasks Independently	0	4.3	12.5	42.9	40.4
Adopt new technology and I do not give up once confronted with technology-related obstacles	4.1	10.2	16.1	35.7	33.9
Complete work and keep self-control despite online distractions (e.g., friends sending emails or Websites to surf).	5.4	7.1	16.1	21.4	50.0

E-learning requires strong self-control and time management aptitude, the research data showed in table 4 shows that more than 80 %(Hardly always and Always) of lecturers are goal-oriented and good at completing tasks, this shows a positive mindset on e-learning readiness and adoption. Resistance to new technology and related obstacles are tolerated at 69.6% (Hardly always and Always) thus there is a need for raising awareness and establishing digitalization of academic services. A good number of Lecturers are focused despite online distraction at 71.4% (Hardly always and Always), this reveals a consistent commitment to their work and a promising engagement for e-learning success.

Attitude towards e-learning (Lecturers Perception of e-learning - this research showed that at 83.9%

E-learning requires strong self-control and time management attitude, the research data showed in table 4 shows that more than 80 % .

NULL HYPOTHESIS TEST
$H0_1$: ICT Equipment as used by Lecturer has no statistical effect on the course material design and delivery of methodology.
$H0_2$:Ability to integrate electronical learning technology has no statistical effect on the course material design and delivery of methodology.
H03: ICT Literacy by Lecturershave no statistical effect on the course material design and delivery of methodology.
H04: Internet Mastery by Lecturers has no   statistical effect on the course material design and delivery of methodology.

Hypotheses Tests: Table 5

Hypotheses	Hypotheses tests	Decision rule and regression model
HO₁: ICT Equipment as used by Lecturer has no statistical effect on the course material design and delivery of methodology.	Beta test(β) HO_1 : $\beta = 0$ HA_1 : $\beta \neq 0$ Will conduct a t-test to ICT Equipment *as used* by Lecturer has *no* statistical *effect* on *the* course material design and delivery of methodolog	$I = \alpha + \beta_1 M$ $\beta_1 = 0.56$ P= 0.00, t= 4.67 Where α: - Y Intercept β: - Regression coefficient I: - *course design and delivery of methodology* ICT:- *ICT Equipment by Lecturer* $\beta_1 = 0$: Accept Ho if β_1 is $\leq \alpha$ $\beta \neq 0$: Reject Ho if β_1 is $\geq \alpha$ Reject the Null hypothesis hence, *access to ICT Equipment by Lecturer has to Influence,* t = 4.67, is greater than 1.96, p is less than 0.05.
HO₂: *Ability to integrate electronical* learning technology has *no* statistical *effect* on *the* course material design and delivery of methodology.	Beta test(β) HO_1 : $\beta = 0$ HA_1 : $\beta \neq 0$ Will conduct a t-test to assess the : *Ability to integrate electronical* learning technology has *no* statistical *effect* on *the* course material design and delivery of methodology	$I = \alpha + \beta_2 IR$ $\beta_1 = 0.36$ P= 0.01, t = 3.07 Where α: - Y Intercept β: - Regression coefficient I: - *course design and delivery of methodology* IEL:- *The ability to integrate e-learning technolog* $\beta_1 = 0$: Accept Ho if β_2 is $\leq \alpha$ $\beta \neq 0$: Reject Ho if β_2 is $\geq \alpha$ *The ability to integrate e-learning technology has a statistical influence on course design and delivery of methodology ;* Reject the Null hypothesis hence, *the ability to integrate e-learning technology has Influence,* t = 3.07, is greater than 1.96 hence significant, p is less than 0.05. is greater than 1.96.
HO₃: *ICT Literacy* by Lecturers *has no* statistical *effect* on *the* course material design and delivery of methodology.	Beta test(β) HO_1 : $\beta = 0$ HA_1 : $\beta \neq 0$ Will conduct a t-test to Assess I*CT Literacy* by Lecturers *has no* statistical *effect* on *the* course material design and delivery of methodology	$I = \alpha + \beta_3 UP$ Where α: - Y Intercept β: - Regression coefficient I: - *course design and delivery of methodology* UP:- University policies $\beta_1 = 0$: Accept Ho if β_3 is $\leq \alpha$ $\beta \neq 0$: Reject Ho if β_3 is $\geq \alpha$
HO₄: Internet Mastery by Lecturers has *no* statistical *effect* on *the* course material design and delivery of methodology	Beta test(β) HO_1 : $\beta = 0$ HA_1 : $\beta \neq 0$ Will conduct a t-test to assess the Internet Mastery by Lecturers has *no* statistical *effect* on *the* course material design and delivery of methodology	$I = \alpha + \beta_4 IR$ Where α: - Y Intercept β: - Regression coefficient I: - Course design and delivery of methodology. :-*Internet Mastery by Lecturers* $\beta_1 = 0$: Accept Ho if β_4 is $\leq \alpha$ $\beta \neq 0$: Reject Ho if β_4 is $\geq \alpha$

V. CONCLUSION

E-learning information systems are known to be the most used recent IT facilities in higher academic institutions. The research has highlighted that e-learning is notso similar to the traditional ways of learning in thosenumerousinstitutions and industry factors might have an impact on the overall success of an e-learning strategy. It has been reasoned that many issues pointing to the individual learners, the institution's culture, technology, content, and other organizational and industry factors, need to be evaluated much earlier before an institution designs and implements an e-learning strategy.

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