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A Comparative Study of the Factors Influencing the Adoption of E-learning by Lecturers at Universities in Bulawayo, Zimbabwe

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Abstract: *E-learning is a fairly new concept in education which uses the internet technology to deliver the digital content and to provide a learner-oriented environment for the teachers and students. Many educational institutions across the globe are using e-learning for their lesson delivery. This study focused on determining the factors that influence the adoption of e-learning by lecturers at universities in Bulawayo, Zimbabwe. Due to financial constraints, 65 respondents who were selected through convenience sampling technique proportionally drawn from the three universities in Bulawayo were included in this research. The researchers used a self-constructed questionnaire to collect data. To validate the instruments in terms of content, the researchers used experts and then a pilot study was administered at Zimbabwe Open University (ZOU) which was not to be included in this study. The results from pilot study were computed using Cronbach's Alpha reliability coefficient and were found at 0.940 which ascertains consistency and stability of responses from respondents. For the actual study,following the coding and tabulation of data, statistical analyses were made using SPSS. This research found that lecturers at the universities in Bulawayo have not adopted the use of e-learning in their lesson delivery. They generally believed that they were computer literate as well as their students but using e-learning may not be beneficial to their students. Furthermore, they lacked motivation and institutional support; they perceived it difficult to use e-learning in their subjects and they had a negative attitude towards it. Among the factors that were studied: lecturer's attitude towards e-learning; lecturer's competence and nature of the subject have great influence on the adoption of e-learning by lecturers at the universities in Bulawayo. There were no statistically significant differences among perceptions of the respondents on the factors that influence the adoption of e-learning by lecturers in each university.*

Key Terms: *E-learning; E-learning adoption; information technology; university lecturers*

I. Background of the Study

The traditional educational delivery system in universities for a relatively long period of time has been a classroom with a professor giving lectures to students who in response, listen and take notes. Progress in information technology has enabled new educational delivery methods such as e-learning. Richard and Haya (2009) stated that e-learning is a new concept in education which uses the internet technology to deliver the digital content and to provide a learner-oriented environment for the teachers and students. As a result, many universities have widely embraced this new e-learning world. The internet has become one of the most important means to provide learning resources for students, to share and obtain information (Richard & Haya, 2009). Many educational institutions across the globe are using e-learning for their lesson delivery. However, it is not the case with the universities in Bulawayo. Although this technology is being accepted in educational institutions, it has not yet been institutionalised by the majority of universities.

Schou and Shoemaker (2007) expressed their concern that the behaviour of human beings is 'difficult to predict and control', yet the adoption of new systems including e-learning is dependent on their cooperation. Many authors like Whitten, Bentley and Dittman (2004), Stair and Reynolds (2006), Laudon and Laudon (2007) to name just a few, seemed to be constantly pointing to the success of system implementation or adoption as dependant on employee cooperation and management support.

Adoption of e-learning by universities is crucial as they are supposed to be on the cutting edge and give their graduates an up to date learning experience. As stated by Babic (2012), introducing e-learning into higher education institution is beneficial as it brings about changes at organizational, economical and technical levels. There are three universities operating from Bulawayo in Zimbabwe which are Solusi University, Lupane State University and National University of Science and Technology (NUST). A number of researches have been conducted in the area of e-learning. However, no research has been conducted that seeks to compare factors that influence the adoption of e-learning by lecturers at universities, let alone in Bulawayo. This study sought to find out the factors that influence the adoption of e-learning by lecturers at the universities in Bulawayo. Thus, this

gave the researchers a ground breaking experience as the research was original and not a mere reproduction of other people's ideas.

II. Literature Review

The review of related literature centered mainly on e-learning adoption, lecturer competence, lecturer's attitude towards e-learning, lecturer's perception of students, institutional factors, nature of the subject, and lecturer's motivation. This section identified the research by way of reviewing the already documented literature in this area of research. It revealed contributions made by earlier scholars and focused on the themes of the study. Important areas were handled as subtopics in this section. Under this section, different areas were looked at to help in understanding ideas and theories applicable to this study.

2.1 E-learning Adoption

According to Chokri (n.d.), "E-learning is referred to as the use of information and communication technologies to facilitate the access to online learning/teaching resources and to provide students with collaborative environments and tools" Despite the wide use of information and communication technology in university teaching, research on e-learning adoption suggests that it has not reached its full potential (Zemsky& Massy, 2004). As stated by Elgort (2005), Adoption of e-learning in the university context is influenced by a number of factors, including organisational, socio-cultural, intra- and interpersonal factors, to mention a few.

To understand the factors which influence lecturers' adoption of e-learning, there are various theories and models which include the technology acceptance model. The technology acceptance model has its foundations in the theory of social psychology which was developed by Fishbein and Ajzen (1975) as Theory of Reasoned Action (TRA) which points out the key factors which influence the behavioural intent: attitude toward behaviour and subjective norm; if users have the intention of accepting technology, they will do so, but under the strong influence of the environment.

Perceived adequacy of technical support to both lecturers and students alike on the use of e-learning and other information technologies has an important impact on the adoption of e-learning in education (Timothy, 2009). Thus, to facilitate for the adoption of e-learning, there is need to ensure the information systems used by the university are always readily accessible and whenever there are challenges, the lecturers and the students have ready access to help.

The theory of the diffusion of innovations was developed in the United States by Rogers in 1962 (Wikipedia, n.d.). Various descriptive synonyms for Rogers' original category names are also in use, namely 'technology enthusiasts' representing the innovators, 'visionaries' in place of early adopters, 'pragmatists' interchangeable with early majority, 'conservatives' for late majority and 'sceptics' representing the laggards (Wikipedia, n.d.). The figure below shows Rogers' innovation adoption lifecycle as it also applies in the adoption of e-learning.

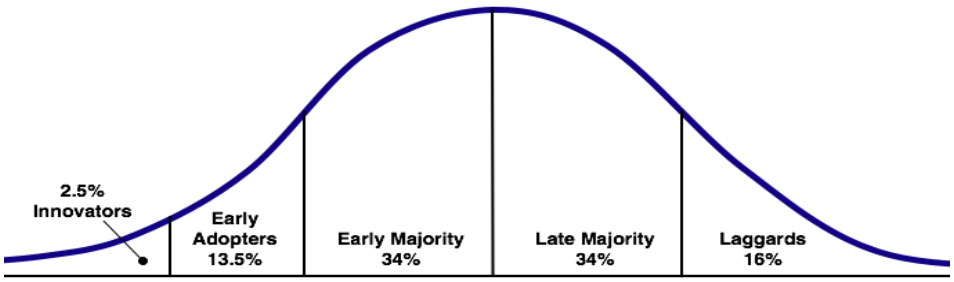

Figure 1: Innovation Adoption Lifecycle according to Rogers (1962) Adapted from Wikipedia

Among the influencing factors are lecturer's attitude toward technology, competencies in the use of technology and motivation to learn and use new technology. Given the various stages of e-learning adoption, it is of paramount importance to ensure that universities make it increasingly easy for lecturers to adopt e-learning if it is to be used at all. There is need to offer technical support, encouragement and training for lecturers especially those who are not in the first two groups, the innovators and the early adopters so they can gain confidence and use e-learning.

Zemsky and Massy (2004) identified four different cycles of e-learning adoption; each of them requires different levels of adjustment in the teaching methods. They describe the first one as enhancement to the traditional course and it has minimal changes in the teaching and learning process. In the second cycle, there is introduction of new course management systems. This is followed by the use of imported course objects like multimedia applications and interactive simulations. Finally, the most challenging e-learning adoption cycle is characterised by new course configurations, where "faculty and their institutions re-engineer teaching and

learning activities to take full and optimal advantage of the new technology. Thus, it requires active teacher and student commitment, learning of new technology and assumption of new roles.

According to Zemsky and Massy (2004) cycles three and four remain in the innovators' stage although both the first and second e-learning adoption cycles are in the early majority stage. However, even when using e-learning technologies most have not changed their way of teaching, thus failing to realise the full potential of e-learning.

2.2 Lecturer Competence

For anyone to be able to use e-learning it is critical that they should be computer literate. As stated by Liu (2005), the lack of computer knowledge is closely related to computer anxiety and the level of perceived usefulness of e-learning technology. Lecturers who have high expertise in using internet for learning will be comfortable adopting e-learning as it will require them to do some online discussion moderations, assess the various contributions made in e-learning forums and evaluate some assignments, tests or exercises and quizzes that are done and submitted using the e-learning platform. The expertise of lecturers in information and communication technologies is an external factor linked to Davis model and influence intentions of adoption of innovation through ease of use and usefulness (Davis 1989).

This concept is closely aligned with uses determination, lecturers who view e-learning as serving the learning process well and are able to utilise it for their teaching purposes are most likely to be those that have good computing skills. With e-learning, Fresen (2011) stated that lectures can be downloaded to web pages, and follow-up dialogue can be facilitated, effectively moderated, and directed by the teacher, using group communication tools. Without appropriate computing skills, it becomes difficult for lecturers to adopt e-learning as they may fail to effectively discharge their duties.

2.3 Lecturer's Attitude Towards E-learning

The lecturer's belief about the usefulness of an innovation, as explained by Colorado and Eberle (2009), plays a major role in the process of accepting that innovation in teaching and in encouraging changes in the curricula. Lecturer's attitude is an important motivational factor in developing and applying e-learning competence. Davis (1989), in his Technology Acceptance Model (TAM), stated that the perceived usefulness is a determinant of developing a particular attitude towards the use of an innovation. Thus, if the lecturers view e-learning as useful in their teaching, they are more likely to be motivated to adopt it in their teaching.

Wikipedia (n.d.) noted that there is a pervasive scepticism among faculty and administrators about the quality and effectiveness of online research and teaching. This attitude tends to hinder progress in the implementation and adoption of e-learning in tertiary institutions. On the other hand, IT officials believe that their top priorities, and biggest challenges, are getting faculty to work with technology and helping them to integrate technology with instruction (Green, 2001). Unless lecturers become willing to learn to integrate the use of technology in their instruction, the adoption of e-learning in the universities will be a nightmare. Lecturers must become skilled at using e-learning technologies in order to effectively carry out the function of guiding instruction and the shaping of instructional context in which e-learning is used.

2.4 Lecturer's Perception of Students

The characteristics of the student have an influence on the adoption of e-learning by lecturers in teaching. Student capabilities as stated by Osika et al. (2009) can be an obstacle in using e-learning technology in teaching. If lecturers perceive that the students are incompetent or will struggle mustering the content due to their inadequate technological skills and online learning experience, they may choose not to adopt the use of e-learning in their courses.

E-learning technologies can, under certain circumstances determined by the institution, provide flexibility, convenience, and meet individual student needs with just-in-time learning. Specifically, uses of technology can play a critical role in providing flexible and open access to the growing needs of individual students. Besides, e-learning, according to Wikipedia (n.d.), has successfully eliminated some of the major disadvantages of earlier distance learning solutions such as the long content update cycle and the lack of feedback mechanisms during the learning process. E-learning facilitates for self-paced learning process, accessibility, convenience, highly customisable individual learning style, interactive learning content and more active participation of students in the learning process. Lecturers who use e-learning should have confidence in their students that they will cope with the demands of using the technology and successfully learn with little or no supervision.

2.5 Institutional Factors

Numerous authors confirmed that institutional strategy is an important obstacle in adopting e-learning (Keller, 2009; Marwan & Sweeney, 2010; Samarawickrema& Stacey, 2007). On a similar note, Marshall (2005)

evaluated the institutional capability to sustain and deliver e-learning and cited that, the lack of a clear relationship between e-learning technologies deployed by universities and desired educational outcomes was a major problem. To support the adoption of e-learning, the institution must make a deliberate effort to ensure that its systems do support its use by all lecturers. Thus, technical support should be available to help those who need it; internet should be readily accessible to lecturers and students and be reliable. "Unless a state of institutional sustainability is achieved, it is likely that e-learning activity will in the long term be limited to enthusiasts" (Nichols, 2008:598).

E-learning plays an important role in the education and training activities. Technology and cost barriers are continuing to shrink allowing for wider adoption of e-learning technology. According to Lucier and Torsilieri (2001) any university in e-learning must consistently deliver great performance that matters to its customers, raise customers' expectations and generate rapid growth. Often the more secure or complex the e-learning system, the more costly it is, and the more dependent on the third parties that the institution calls to its aid (Petterson, 2008: 9). Thus, it is only possible to use such systems if the university's administration takes a keen interest and fully supports the institution wide use of e-learning.

Whilst it may prove to be costly to invest in e-learning technologies, it would be a good thing if the universities would care more about benefits in the long term, making the clients (lecturers and students) happy, for the only good client is a happy client (Petterson, 2008: 11). Students and lecturers will be happier to be associated with institutions that values and supports educational endeavours by availing the use of current leaning technologies.

2.6 Nature of the Subject

Ozkan and Findik (2010) confirmed the importance of the e-learning technology compatibility attribute in relation to the differences in certain academic departments. Thus, before adopting new technology, one looks at the use of that technology, how it fits in the existing work practice and the problems and benefits of integrating that technology with existing practice in traditional classrooms. Thus, when the problems are perceived as outweighing the benefits of using e-learning, the technology is less likely to be adopted by lecturers.

Before using e-learning, the reasons for its use should be defined. According to Rebman et al. (2004), certain physical educational activities require classical approach in a traditional classroom. Thus, not all courses are easy to teach through e-learning. However If institutions adopt the use of e-learning and integrate it with simulations, it stands a greater chance of giving its students the great exposure they need without even having to use the actual required scarce resources for practice purposes. This approach, if well implemented may prove to be beneficial as it saves the university large costs of acquiring material resources needed for demonstrations and practice.

2.7 Lecturer's Motivation

Research by Robertson (2004) indicates that university lecturers use ICT tools only if they are aligned with their beliefs about teaching and learning, and in the way that aligns with their beliefs. Another factor that, according to Rogers (1995), influences adoption of innovations is whether or not the innovation meets a perceived need. If Lecturers do not realise that they have a need for e-learning, they are more unlikely to adopt it.

Osika et al. (2009) displayed the acceptance of e-learning technology "through motivational factors, which they grouped as intrinsic factors and extrinsic or institutional factors." Thus, there is self-motivation which comes usually due to one's beliefs about self, own abilities and interests whilst there are other motivators or de-motivators for adoption that come from external influences like support from the organisation.

The experience with learning management systems and computer experience are strong motivators in teachers' acceptance of e-learning (Gautreau, 2011). Those lecturers who are more comfortable using computers and are well versed with computer based learning systems are more likely to be motivated to adopt e-learning in their teaching.

III. Purpose of the Study

The purpose of this study was to determine the factors influencing the adoption of e-learning by lecturers at universities in Bulawayo. This included the study of the respondents' perceptions on the factors that affect the adoption of e-learning by lecturers at the universities in Bulawayo; the extent to which the various factors influence the adoption of e-learning by lecturers in the universities in Bulawayo; and finding out if there are differences between the perceptions of the respondents on the factors that influence the adoption of e-learning by lecturers in each university.

IV. Significance of the Study

To the Universities: the knowledge gained from this research was aimed at helping university administrators and lecturers in decision making. Since the research was conducted in their institutions, the research findings will be availed to them as and when they need them and copies of this research will be made available at the university library. Thus, this will help the universities to make sound decisions and policies that seek to enhance the adoption and use of e-learning to enhance their lesson delivery. Furthermore, it aimed at helping them address any problems that might be there at present and to improve the level of e-learning usage by lecturers for the benefit of the university students.

For researchers: this study was aimed at enriching the researchers academically and equipping the researchers with research skills. Further, it added to the researcher's body of knowledge.

V. Statement of the Problem

E-learning is a new concept in education which uses the internet technology to deliver the digital content and to provide a learner-oriented environment for the teachers and students. The internet and e-learning have become one of the most important means to provide learning resources for students, to share and obtain information (Richard and Haya 2009) and to promote the construction of life-long learning experiences and learning society. Many educational institutions across the globe are using e-learning for their lesson delivery. However, it is not the case with the universities in Bulawayo. Given the proliferation of e-learning in other countries, the adoption rate of e-learning by universities in Bulawayo for their lesson delivery is below what one would expect for universities. This has led to wariness that lecturers are interested and able to use current technologies in their lesson delivery. This study sought to find out the factors that influence the adoption of e-learning by lecturers at the universities in Bulawayo.

VI. Research Questions

1. What are the respondents' perceptions on factors affecting the adoption of e-learning by lecturers at the universities in Bulawayo?
2. To what extent do the factors such as lecturer's competence; lecturer's attitude towards e-learning; lecturer's perception of students, institutional factors, nature of the subject and lecturer's motivation influence the adoption of e-learning by lecturers at the universities in Bulawayo?
3. Are there differences among perceptions of the respondents on the factors that influence the adoption of e-learning by lecturers in each university?

VII. Research Methodology

A total of 65 respondents drawn from the three universities were included in this research. The respondents in this study were selected through convenience sampling technique. Convenience sampling is a quantitative sampling procedure in which the researcher selects participants because they are willing and available to be studied (Creswell, 2005: 590). To ensure there was balanced representation per institution, a minimum of 20 questionnaires were administered in each institution since the number of lecturers was almost the same. This allocation of quotas helped ensure that there is no under or oversampling in each institution.

The researchers then distributed the questionnaires personally to the respondents and collected them after 2 days. The researchers went back and collected the ones which had not been returned after 3 days. A total of 60 questionnaires were returned giving a return rate of 92%.

The data collected was coded and scored for each factor that was added for all respondents and then analysed using SPSS computer based statistical package. The mean score was used to determine the overall views of the respondents on each factor as a measure of central tendency while standard deviation was used to measure dispersion. The results were analysed to establish descriptive characteristics of responses and provide facilitation and summarisation of the data via univariate analysis such as frequencies, means, and standard deviations which indicate the central, average or typical scores on the items/scales.

Table 1: Evaluation and interpretation of the responses

Scale	Verbal interpretation	Mean Interval
1	Strongly Disagree	1.00 – 1.50
2	Disagree	1.51 – 2.50
3	Not Sure	2.51 – 3.50
4	Agree	3.51 – 4.50
5	Strongly Agree	4.51 – 5.00

Research Findings and Discussion

*Research question 1***:** What are the respondents' perceptions on factors affecting the adoption of e-learning by lecturers at the universities in Bulawayo?

Table 2: E-learning Adoption

	Mean	Std. Dev
I use e-learning for most of my courses	3.0000	1.44972
I use e-learning for flexibility in lesson delivery	2.8833	1.34154
I use e-learning in my course to help students understand the concepts better	2.9000	1.39855
I use e-learning to narrow the digital divide between Zimbabwe and the rest of the world	2.5667	1.31956
Average e-learning adoption	**2.8375**	**1.25872**

The results in Table 2 above show a mean of 2.8375 on average for e-learning adoption. The score is below 4.0 which means respondents are generally saying that they have not yet adopted the use of e-learning in their lesson delivery.

On lecturer's competence, the results in Table 3 with a mean score of 3.9733 which is close to 4.0 shows that lecturers agree that they have the necessary skills required for them to use e-learning. The results have a low standard deviation of 0.95914 which basically means that lecturers are not differing much in their responses although there are some who accept that they lack the necessary skills

Table 3: Lecturer's Competence

	Mean	Std. Dev
I have expertise in using internet for teaching	3.7167	1.31602
I possess an email address which I use for teaching purposes	3.9833	1.30827
I have expertise in using a computer for teaching	4.0833	.96184
I have expertise in general web surfing	4.0333	1.10418
I understand the application of technology in my course	4.0500	1.06445
Average lecturer's competence	**3.9733**	**.95914**

Although the results are in the range of 4.0, the lecturers' responses show that they doubt their expertise which is needed to use internet for teaching with a mean of 3.7167 and a high standard deviation of 1.31602 which shows the great variation of the lecturers' responses. This is likely to be contributing to the low adoption rate of e-learning by lecturers at the universities in Bulawayo.

Table 4: Lecturer's Attitude Towards E-learning

	Mean	Std. Dev
I use e-learning to make teaching more enjoyable.	3.1333	1.39572
I am comfortable with learning new technology.	4.2667	.95432
I use e-learning for the prestige or recognition associated with using it	2.4500	1.26792
I use e-learning to help achieve the aim of education.	3.3333	1.45750
Average lecturer's attitude towards e-learning	**3.2958**	**1.01210**

On lecturer's attitude towards e-learning, the results in Table 4 are showing an average mean score of 3.2958 which is on the range of 3 meaning that lecturers are not sure about their attitude towards e-learning. This score is less than 4; hence it means that lecturers are not agreeing that they have a positive attitude towards the use of e-learning in their courses. This skepticism has a tendency of hindering the adoption of e-learning by faculty at the universities.

Table 5: Lecturer's Perception of the Students

	Mean	Std. Dev
My students learn better using e-learning.	2.9667	.90135
My students are capable of using computer for learning.	4.0000	.86358
My students have high expertise in general web surfing.	3.5167	.94764
My students perform better with individualised learning supported by e-learning.	2.8167	.99986
Average lecturer's perception of the students	**3.3250**	**.65629**

The results in Table 5 above show that lecturers do not perceive their students as capable of learning and performing better when using e-learning. However, they agree that the students are capable of using computers for learning. The results shave a low standard deviation showing that the responses from the lecturers are not differing much.

Table 6: Institutional Factors

	Mean	Std. Dev
My university encourages the use of e-learning.	3.6167	1.13633
My university has the capacity to support institution wide use of e-learning.	2.8333	1.22359
My university uses current technologies to facilitate instruction	2.9833	1.12734
My university's administration supports the use of e-learning	3.2333	1.15519
Technology is a financial priority in my university	2.7167	1.10610

My university's internet services are reliable.	2.9667	1.23462
My university's ICT department addresses computer problems timeously.	2.8667	1.19981
Average institutional factors	**3.0310**	**.79696**

With a low standard deviation of .79696 and a low mean score of 3.0310, the respondents are showing that the universities are not doing much to ensure the adoption of e-learning by lecturers at the universities in Bulawayo. Thus, the results show that institutions are not making a deliberate effort to ensure that their systems support the use in lesson delivery by lecturers.

Table 7: Nature of the Subject

	Mean	Std. Dev
I integrate the use of technology in my course.	3.9333	.88042
My use of e-learning supports students' evaluation in my course.	2.9667	1.35255
My use of e-learning enhances the students' learning experience in my course.	3.1333	1.17122
The e-learning package I use is flexible enough to meet my course's demands.	2.8500	1.14721
Average nature of the subject	**3.2208**	**.98408**

The lecturers agree that they integrate the use of technology in their courses as shown by the mean score of 3.9333 and a low standard deviation of .88042. However, they are not sure whether e-learning is flexible enough and capable of fully supporting their teaching and learning activities in their courses as shown by the mean score of 3.2208 and standard deviation of .98408 in Table 7 on the average nature of the subject.

The mean score of 3.4292 below the required 4.0 for agree and a standard deviation of .90326 as shown in Table 8 shows that lecturers are not motivated to use e-learning. Some agree that e-learning system meets their needs as lecturers and can lessen their work's demands although there is great variation in the responses as shown by high standard deviations. The major challenge that is contributing to low motivation is lack of technical assistance they need and the necessary skills required to transition from classroom teaching to online instruction.

Table 8: Lecturer's Motivation

	Mean	Std. Dev
The e-learning system meets my needs as a lecturer.	3.7000	1.21153
Using e-learning lessens my work's demands.	3.6667	1.03607
I have the skills I need in the transition from classroom teaching to online instruction.	3.2167	1.29001
I have convenient access to technical assistance throughout the duration of the course.	3.1333	1.09648
Average lecturer's motivation	**3.4292**	**.90326**

Thus, although lecturers realize the need for using e-learning, they are not motivated to adopt it as they lack the necessary skills and assistance they need to adopt its use in their lesson delivery.

Table 9: All variables

	Mean	Std. Dev
Average e-learning adoption	2.8375	1.25872
Average lecturer's competence	3.9733	.95914
Average lecturer's attitude towards e-learning	3.2958	1.01210
Average lecturer's perception of students	3.3250	.65629
Average institutional factors	3.0310	.79696
Average nature of the subject	3.2208	.98408
Average lecturer's motivation	3.4292	.90326
Factors group average	**3.3018**	**.71632**

The results in Table 9 above show that lecturers in general do not agree to most of the factors which were under study except for lecturer's competence which has a mean score of 3.9733 which is on the range of 4.0 which means that they perceive themselves as competent or able to use computers.

Research question 2: To what extent do the factors such as lecturer's competence; lecturer's attitude towards e-learning; lecturer's perception of students, institutional factors, nature of the subject and lecturer's motivation influence the adoption of e-learning by lecturers at the universities in Bulawayo?

Table 10: Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Lecturer's attitude towards e-learning	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	Nature of the subject	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	Lecturer's competence	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
a. Dependent Variable: E-learning adoption			

Table 10 above shows the results of the stepwise regression which was done to determine the extent to which the factors such as lecturer's competence; lecturer's attitude towards e-learning; lecturer's perception of students, institutional factors, nature of the subject and lecturer's motivation are influencing the adoption of e-learning by lecturers at the universities in Bulawayo. Of all the variables that were considered, the results show that lecturer's attitude towards e-learning, nature of the subject and lecturer's competence are the ones which influence the adoption of e-learning by lecturers at the universities in Bulawayo.

Table 11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.831[a]	.690	.685	.70655
2	.866[b]	.750	.742	.63969
3	.883[c]	.779	.767	.60734
a. Predictors: (Constant), Lecturer's attitude towards e-learning				
b. Predictors: (Constant), Lecturer's attitude towards e-learning, Nature of the subject				
c. Predictors: (Constant), Lecturer's attitude towards e-learning, Nature of the subject, Lecturer's competence				

Thus, lecturers at the universities in Bulawayo are not adopting the use of e-learning mainly because they lack the positive attitude towards the use of e-learning. The nature of the subjects they teach also has significant contribution to their decision not to adopt e-learning and their lack of competency or skills needed for them to change from traditional classroom teaching to online method of lesson delivery.

Table 12: ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.524	1	64.524	129.254	.000[a]
	Residual	28.954	58	.499		
	Total	93.478	59			
2	Regression	70.153	2	35.077	85.718	.000[b]
	Residual	23.325	57	.409		
	Total	93.478	59			
3	Regression	72.822	3	24.274	65.807	.000[c]
	Residual	20.657	56	.369		
	Total	93.478	59			
a. Predictors: (Constant), Lecturer's attitude towards e-learning						
b. Predictors: (Constant), Lecturer's attitude towards e-learning, Nature of the subject						
c. Predictors: (Constant), Lecturer's attitude towards e-learning, Nature of the subject, Lecturer's competence						
d. Dependent Variable: E-learning adoption						

All the above mentioned independent variables are strong predictors of the outcome of the dependent variable which in this case is e-learning adoption as shown by their Sig. values of .000 in Table 12 above. These three variables account for 77.9% of the effect of the independent variables on the dependent variable as shown in Table 11 above with a total R Square value of .779 and the adjusted R Square value of .767. Of the three variables, the major contributor to non-adoption of e-learning by lecturers at the universities in Bulawayo is the lecturer's attitude. Lecturers at the universities in Bulawayo are not likely to adopt the use of e-learning unless they change their beliefs about its usefulness. The next variable on the list is the nature of the subject. Finally, there is lecturer's competence on the use of technology in lesson delivery.

Research question 3: Are there differences among perceptions of the respondents on the factors that influence the adoption of e-learning by lecturers in each university?

Table 13: Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Lecturer's competence	University A	20	4.1600	1.02926	.23015	3.6783	4.6417	2.20	5.00
	University B	20	3.9600	.72140	.16131	3.6224	4.2976	2.40	4.80
	University C	20	3.8000	1.09928	.24581	3.2855	4.3145	1.40	5.00
	Total	60	3.9733	.95914	.12382	3.7256	4.2211	1.40	5.00
Lecturer's attitude towards e-learning	University A	20	3.3500	.94032	.21026	2.9099	3.7901	1.50	4.50
	University B	20	2.9625	.83617	.18697	2.5712	3.3538	1.50	4.25
	University C	20	3.5750	1.18127	.26414	3.0221	4.1279	1.00	5.00
	Total	60	3.2958	1.01210	.13066	3.0344	3.5573	1.00	5.00
Lecturer's perception of	University A	20	3.1500	.69962	.15644	2.8226	3.4774	2.00	4.50
	University B	20	3.3500	.27386	.06124	3.2218	3.4782	3.00	3.75

students	University C	20	3.4750	.84643	.18927	3.0789	3.8711	1.00	4.25
	Total	60	3.3250	.65629	.08473	3.1555	3.4945	1.00	4.50
Institutional factors	University A	20	2.9429	1.07546	.24048	2.4395	3.4462	1.57	4.57
	University B	20	2.9143	.61384	.13726	2.6270	3.2016	1.86	3.86
	University C	20	3.2357	.61011	.13642	2.9502	3.5213	2.29	4.29
	Total	60	3.0310	.79696	.10289	2.8251	3.2368	1.57	4.57
Nature of the subject	University A	20	3.3000	1.02470	.22913	2.8204	3.7796	1.50	4.50
	University B	20	3.0250	.90648	.20270	2.6008	3.4492	1.50	4.75
	University C	20	3.3375	1.03643	.23175	2.8524	3.8226	1.25	4.75
	Total	60	3.2208	.98408	.12704	2.9666	3.4750	1.25	4.75
Lecturer's motivation	University A	20	3.2000	1.17988	.26383	2.6478	3.7522	1.00	5.00
	University B	20	3.6000	.59824	.13377	3.3200	3.8800	2.75	4.75
	University C	20	3.4875	.83302	.18627	3.0976	3.8774	2.25	5.00
	Total	60	3.4292	.90326	.11661	3.1958	3.6625	1.00	5.00
Factors group average	University A	20	3.3004	.80997	.18112	2.9213	3.6795	1.90	4.49
	University B	20	3.1749	.55190	.12341	2.9166	3.4332	2.24	4.14
	University C	20	3.4301	.77358	.17298	3.0681	3.7921	1.80	4.57
	Total	60	3.3018	.71632	.09248	3.1168	3.4868	1.80	4.57

Considering the results in Table 13 above, the mean for all the factors combined is 3.30 for university A, 3.17 for university B and 3.43 for university C with all the universities having a standard deviation less than 1. Thus, all universities are falling into the same category in terms of the results. All the factors considered one by one show that the responses are all in the same category in all the three universities except for lecturer's attitude towards e-learning where university C has a mean score of 3.58 which falls in the category of agree whilst university A and university B have the means of 3.35 and 2.96 respectively which are in the range of not sure which means they do not agree.

Table 14: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
E-learning adoption	Between Groups	5.519	2	2.759	1.788	.177
	Within Groups	87.959	57	1.543		
	Total	93.478	59			
Lecturer's competence	Between Groups	1.301	2	.651	.700	.501
	Within Groups	52.976	57	.929		
	Total	54.277	59			
Lecturer's attitude towards e-learning	Between Groups	3.840	2	1.920	1.933	.154
	Within Groups	56.597	57	.993		
	Total	60.436	59			
Lecturer's perception of students	Between Groups	1.075	2	.538	1.259	.292
	Within Groups	24.337	57	.427		
	Total	25.412	59			
Institutional factors	Between Groups	1.266	2	.633	.997	.376
	Within Groups	36.207	57	.635		
	Total	37.473	59			
Nature of the subject	Between Groups	1.165	2	.582	.593	.556
	Within Groups	55.972	57	.982		
	Total	57.136	59			
Lecturer's motivation	Between Groups	1.702	2	.851	1.045	.358
	Within Groups	46.434	57	.815		
	Total	48.136	59			
Factors group average	Between Groups	.651	2	.326	.627	.538
	Within Groups	29.622	57	.520		
	Total	30.274	59			

Another difference is on lecturer's motivation where university A and university C have mean scores of 3.20 and 3.49 respectively which means that lecturers in these 2 universities are not agreeing that their attitude towards use of e-learning is positive whilst lecturers in university B have a mean score of 3.60 which means they agree to that fact. Further analysis was made using ANOVA to determine if the means are statistically different and the results are as shown in Table 14 above. For all the variables that were tested, the Sig values are greater than 0.05 which means that there is no significant difference among the perceptions of the respondents on the factors that influence the adoption of e-learning by lecturers in each university. Any differences that exist on the perceptions of the respondents on the factors that influence the adoption of e-learning by lecturers at the universities in Bulawayo are just by chance and not that universities are different.

VIII. Conclusions and Recommendations

This research found that lecturers at the universities in Bulawayo have not adopted the use of e-learning in their lesson delivery. They generally believed that they are computer literate as well as their students but using e-learning may not be beneficial to their students. Furthermore, they lack motivation, institutional support, they perceived that it is difficult to use e-learning in their subjects and they have a negative attitude towards e-learning. Among the factors that were studied, lecturer's attitude towards e-learning; lecturer's competence and nature of the subject have great influence on the adoption of e-learning by lecturers at the universities in Bulawayo. There are no statistically significant differences among perceptions of the respondents on the factors that influence the adoption of e-learning by lecturers in each university.

Based on the research findings, it is recommended that lecturers at the universities in Bulawayo be trained on how to integrate the use of technology in their courses as such knowledge may help motivate them to adopt the use of e-learning in their lesson delivery. Further, they need to be educated on the usefulness of e-learning technology and the benefits it has to both the educator and the student. Institutions should promote the adoption and use of e-learning technology and provide adequate support to the faculty who use it and ensure that internet services are reliable.

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