



PEDAGOGICAL USABILITY AND EFFECTIVENESS OF THE E-LEARNING SYSTEM IN MUNI UNIVERSITY, UGANDA

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Abstract:

This study was intended to unveil the pedagogical usability of the e-learning system in Muni University. The study adopted a case study design to allow in-depth study. Quantitative and qualitative approaches were employed. A total of 218 questionnaires were administered to the respondents and 179 questionnaires were received back registering a response rate of 82%. Descriptive statistics were computed. Inferential statistical analysis included correlation and multiple regressions, which were used to test the hypotheses. The correlation coefficient (r) was used to determine the strength of the relationship. The significance of the coefficient (p) was used to test the relationship between the independent and the dependent variables. Regressions and ANOVA determined which of the independent variables accounted most for the variance in the dependent variable. Qualitative data were analyzed under themes. Results show that pedagogical usability has very high influence on the effectiveness of the e-learning system at Muni University accounting for 82% variance.

Keywords: pedagogical usability, effectiveness, e-learning

1. Introduction

This study was intended to examine the effectiveness of the pedagogical usability of the e-learning system in Muni University. "Pedagogical usability" indicators indices included flexibility, autonomy and accessibility on the system. Effectiveness was considered in terms of Uploading Assignments, Quiz, Lecture notes, Chats, Forum, Choices, Workshops and other reading materials. Effectiveness of e-learning in

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Universities has become an issue of concern, despite the continuous government support for e-learning programs. The study was therefore intended to establish why, despite the government efforts on improvement of e-learning technologies, the effectiveness of the e-learning system in Muni University remained wanting. The study presents the background to the study, the problem statement and the objective; it continues to presents the methodology used to carry out the study, results, conclusion and recommendation.

1.1 Historical background

The term 'e-learning' has only been in existence since 1999. When the word was first utilized, other terms - such as 'online learning' and 'virtual learning' - also began to spring up in search of an accurate description of exactly what e-learning was. However, the principles behind e-learning have been well documented throughout history, and there is even evidence that suggests that early forms of e-learning existed as far back as the 19th century.

With the introduction of the computer and internet in the late 20th century, e-learning tools and delivery methods expanded. The first MAC in the 1980s enabled individuals to have computers in their homes, making it easier for them to learn about particular subjects and develop certain skillsets. Then, in the following decade, virtual learning environments began to truly thrive, with people gaining access to a wealth of online information and e-learning opportunities.

By the early 90s, several schools had been set up to deliver courses online, making the most of the internet and bringing education to people unable to attend a college due to geographical or time constraints. Technological advancements also helped educational establishments reduce the costs of distance learning - a saving that could then be passed on to the students, helping bring education to a wider audience.

At the end of the 90s, the learning management systems (LMS) spread widely. Some universities preferred to design and develop their own systems, but most of the educational institutions started with systems from the market. The dawn of the learning management systems (LMS) allowed students and teachers to exchange learning materials, do tests, communicate with each other in many ways, track and trace their progress. The environment was able to facilitate learning in quite an easy way: the product was simple to use, and for teachers it didn't represent a steep learning curve.

In the 2000s, businesses began using e-learning to train their employees. New and experienced workers alike now had the opportunity to improve upon their industry knowledge base and expand their skillsets. At home, individuals were granted

access to programs that offered them the ability to earn online degrees and enrich their lives through expanded knowledge. The future holds a new wave of e-learning inspired by social media, [Massive Open Online Courses \(MOOCs\)](#), [Selective Open Online Courses \(SOOCs\)](#) and even websites like YouTube.

Individuals and companies alike are taking the opportunity to use these different outlets to share information and learn from each other. [Filtered sits on this wave, and has the cutting-edge technology to help any individual grow their knowledge base.](#)

1.2 Theoretical background

There are really no theories of e-learning *per se* - only e-enhancements of theories of learning . That is to say, using technology to achieve better learning outcomes, or a more effective assessment of these outcomes, or a more cost-efficient way of bringing the learning environment to the learners. It is all the more important, when implementing e- learning approaches, to be clear about the underlying assumptions. A theory of e-learning would need to demonstrate on what pedagogic principles the added value of the 'e' was operating. Where, for example, the 'e' allows remote learners to interact with each other and with the representations of the subject matter in a form that could simply not be achieved for those learners without the technology then we have a genuine example of added value.

However, the role of the technology here is primarily to get remote learners into a position to learn as favourably as though they were campus-based, rather than offering a new teaching method. In such a case the enhancement should be seen as pragmatic rather than pedagogic, achieving cost effective access to learning, rather than a new way to achieve deep understanding of a concept. Even something that looks like a new paradigm for achieving learning outcomes, a peer-to-peer learner-matching tool, for example, may represent only an incremental advance in pedagogic terms, though its educational value may be enormous if it could be exploited through an educational infrastructure which integrated its use with quality assurance methods. It is important, therefore, not to take too narrow a view of what constitutes e-learning, or of where its main value might lie.

1.3 Conceptual background

Understanding e-Learning is simple. E-Learning is learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom. In most cases, it refers to a course, program or degree delivered online. There are many terms used to describe learning that is delivered online, via the internet, ranging from

Distance Education, to computerized electronic learning, online learning, internet learning and many others.

We define eLearning as courses that are specifically delivered via the internet to somewhere other than the classroom where the professor is teaching. It is not a course delivered via a DVD or CD-ROM, video tape or over a television channel. It is interactive in that you can also communicate with your teachers, professors or other students in your class. Sometimes it is delivered live, where you can “electronically” raise your hand and interact in real time and sometimes it is a lecture that has been prerecorded. There is always a teacher or professor interacting /communicating with you and grading your participation, your assignments and your tests. E-Learning has been proven to be a successful method of training and education is becoming a way of life for many learners globally.

1.4 Technologies

E-learning makes use of many technologies - some of which have been developed specifically for it, whilst others conveniently complemented the learning process, for example computer games. Communication technologies are also widely used in e-learning. Starting with the use of email and instant messaging, message forums and social networks, we see a plethora of tools that any internet user would use in any case (Henri, 1997; Stephenson, 2002; Alexander & Boud, 2001).

There are also some technologies that work in a complementary manner to other software and enable new features, for example software that adds a whiteboard on your video conferencing tool to allow you or your peers to make changes on other people’s work for review, or screen-sharing which allows someone to make a presentation while still making comments and giving input using the microphone.

E-learning makes good use of database and CMS (Content Management System) technologies. These two work hand in hand to store your course content, test results and student records. The data is stored in the database and the CMS provides a user interface for you to add, update and delete data. A good learning management systems (LMS) will often provide reporting tools to generate and store progress reports.

E-learning tools and technologies used to improve the quality of content are manifold. Software such as Flash and PowerPoint will help you make your presentations slick and interesting, with high quality, graphically rich content. There are word processing packages and HTML editors available these days that make formatting your text or web pages a breeze, removing a lot of the complexity. There are also lots of online services available that you can use to create interactive elements for your courses such as quizzes and games.

1.5 Pedagogy

Mortimore (1999) refers to pedagogy as a 'contested' term with 'changing connotations and pressures'. His preferred definition states that pedagogy is: any conscious action by one person designed to enhance learning in another.

Of particular interest to many e-learning researchers have been those pedagogies associated with social interactions and online discussions (Henri, 1997; Stephenson, 2002; Alexander & Boud, 2001). Online discussions are facilitated by Computer Conferencing, a web-based communication system that supports asynchronous, textual interaction between two or more persons. Online discussions combine input from tutors and students, and provide opportunities to examine their online interactions, which have been facilitated by the technology. Consequently, a great emphasis was placed on the written communications as they might reveal evidence of students' participation, contribution, communication and work that shows knowledge application, and criticality among other indicators of meaningful and effective learning. Moreover, tutors' input could be monitored for facilitation, feedback and other evidence of effective teaching.

1.6 Contextual background

Muni University is a Public university established by the Uganda Government by Statutory Instrument, 2013 No. 31, in accordance with the Universities & Other Tertiary Institutions Act 2006 as amended. Muni University campus is located in Arua District, 3Km South of Arua town in North-Western Uganda. The mandates of the University are research, teaching and community outreach. As a way of accomplishing her mandate, the university has invested in e-learning system to accomplish her mandate.

2. Statement of the problem

In a bid to improve equitable access to university education, the government of Uganda has over the past years spent resources in Muni University with the aim that the resources will improve community outreach, research, teaching and learning in the university. Muni University has received and used part of these resources to adopt e-learning technologies as means for delivering course content. However despite the adoption of the e-learning system, there are considerable challenges facing the usability and effectiveness of the systems that have caused considerable concerns but no empirical study has been conducted to provide scientific evidence on the matter under consideration thus the need for this study to fill the gap.

2.1 Purpose of the study

To establish the extent of the pedagogical usability and effectiveness of the e-learning system in Muni University

2.2 Research hypothesis

Pedagogical usability has a significant effect on e-learning system in Muni University

2.3 Significance of the proposed research and rationale

The users of e-learning systems in learning institutions need to know its effect on their teaching and learning process and knowing this will enable them to reach effective performance with least cost (Gray & Drew, 2008). As Johnson and Mullen (2007) argued, knowing the effectiveness of the E-learning system on teaching and learning is required if the administration must compare available systems to choose the best, even if there are no numbers of alternatives, knowledge of the impact of the system will help in making decisions on its quality, and the needs for improvement.

2.4 Justification of the study

According to Johnson (2008) countless reports, surveys, and studies have shown that e-Learning industry is not showing any signs of slowing down. In fact, an increasing number of individuals, corporations, and institutions are turning to e-Learning as they recognize its effectiveness and its convenience in the field of teaching and learning.

Accordingly, Muni University adopted e-Learning as a mode of teaching and all the undergraduate programs at the University are taught using the e-learning platform. The rationale for conducting this study is that it will provide the bench marks under which the usability of the e-learning system can be realized and effectiveness in Muni University is improved.

2.5 Geographical scope of the study

The study was conducted in Muni University. Muni University is a Public university established by the Uganda Government by Statutory Instrument, 2013 No. 31, in accordance with the Universities & Other Tertiary Institutions Act 2006 as amended. Muni University campus is located in Arua District, 3Km South of Arua town in North-Western Uganda.

2.6 Time scope of the study

The research investigations covered the period from 2014 to 2016. This is the period when the pioneer first year students and their followers were admitted.

2.7 Content scope of the study

In terms of content, the study intended to investigate the usability of the e-learning system in terms of user-friendliness, learnability/pedagogy, and technological infrastructure. The effectiveness of the e-learning system has been investigated in terms of upload learning materials, assignments, quiz, lecture notes, chats, forum, choices, workshops and reading materials and how they affect the effectiveness in terms of time, cost and quality of teaching and learning in Muni University.

3. Study Methodology

3.1 Research design

Orodho (2000) defines a research design as the scheme, outline or plan that is used to generate answers to the research problems. A research design can be regarded as an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevancy with the research purpose. It is the conceptual structure within which the research will be conducted. It will constitute the blueprint for collection, measurement and analysis of data (Kothari, 2003).

This study used a descriptive cross-sectional survey research design. In a descriptive cross-sectional survey research design, the study variables, that is independent and dependent variables were measured at the same point in time and this enabled description as well as comparison of various factors associated with the study (Bhattacharjee, 2012). This further helped the researcher to ensure that people's views and opinions were sought and described accordingly to establish the pedagogical usability and effectiveness of the e-learning system within the study scope.

The study used a descriptive cross-sectional survey research design because the study intended to pick only representative sample elements of the cross section of the study population. The study employed both qualitative and quantitative approaches.

3.2 Study population

The study was done at Muni University. The actual population was the 15 University Council members, 26 Academic staff, 77 Administrative staff and 23 guild officials. The study targeted key players in the teaching and learning department of Muni University who are conversant with the e-learning system.

3.3 Determination of sample size

Sampling is the procedure a researcher uses to gather people, places or things to study. It is the process of selecting a number of individuals or objects from the population such

that the selected group contains elements representative of the characteristics found in the entire group (Orodho & Kombo, 2002). A sample size of 82 respondents was determined using statistical tables of Krejcie & Morgan as cited by Amin (2005). The sample included various categories as specified in Table 1 below:

Table 1: Research respondents by category and sample

No.	Category of respondents	(N)	(S)	Sampling technique
1	Academic staff	26	14	Simple random sampling
2	Administrative staff	77	62	Stratified sampling
3	University Council	15	6	Purposive sampling
5	Total	142	82	

Key: *N* – Population Size, *S* – Recommended Sample Population (Krejcie & Morgan, 1970).

The sample sizes in the Table 1 above are derived from Krejcie & Morgan (1970) table given in Appendix.

3.4 Sampling Techniques and Procedure

Purposive sampling was used to select University Council members who were interviewed. The researcher chose this technique to select this category of respondents in order to focus on those that are the most knowledgeable and with vast experience about what to be investigated. Simple random sampling was used to select Academic staff and the students expected to participate in the research. The researcher chose this sampling technique for this particular group because this group of respondents is homogenous with almost equal understanding of the topic under investigation. In addition, they constitute a reasonable number to support selection by this procedure. Stratified sampling was used to select staff because it enabled the researcher to determine desired levels of sampling of representation for each group, and provide efficiency.

3.5 Data Collection Methods

There are several methods to collect required data for research purpose and these include face-to-face interview, key informants interview, focus group discussion (FGD), survey, observation, and documentary review. However, for the purpose of this study focus was on survey and documentary review and face to face interviews.

3.6 Survey

The selection of the survey method was guided by the nature of data to be collected, the time available and the objectives of the study (Touliatos and Compton, 1988). This method was used on all respondents who were selected to participate in the study. One of the reasons why this method was preferred is because the study involved variables that cannot not be observed and can only be derived from respondents' views, opinions and feelings (Touliatos & Compton, 1988).

3.7 Documentary review

Document analysis was used in studying the already existing literature and documents in order to either find gaps that could be filled by the study or evidence that could support or contradict the quantitative and quantitative findings (Kothari, 2004). To exhaustively investigate the study, the researcher used triangulation to capture a variety of information, and reveal discrepancies that a single technique would not reveal (Mugenda and Mugenda, 2003).

3.8 Data Collection Instruments

The researcher was guided by the nature of the problem under investigation in as far as data collection instruments are concerned. Accordingly, the study used interview guide, questionnaire and documentary checklists.

3.9 Questionnaire

A questionnaire is a data collection instrument used to gather data over a large sample or number of respondents (Kombo and Tromp, 2006). Structured questionnaire was developed following recommended guidelines by various scholars that include Kothari (2005); Sekaran & Bougie (2010) and Saunders, et al (2009).

3.10 Interview Guide

An interview guide is a set of questions that the researcher asks during the interview (McNamara, 2009). The researcher designed an interview guide which was used during the interview of respondents. The interview was face-to-face.

3.11 Documentary checklist

A documentary checklist was drawn in order to guide the researcher on the information required for the study. The researcher made use of the documentary checklist to request for the documents from Muni University. Documentary checklist was used in order to supplement the primary sources of data (Kothari, 2004).

3.12 Validity and reliability of Instruments

As observed by Vogt (2007), a number of studies have used this instrument and found both their reliability and validity values to be acceptable to the population being studied and in a different context thus recommends for testing the validity and reliability of the instruments. The instruments were pre-tested at Makerere University Business School (Arua Study Centre) to determine their validity and reliability.

3.13 Validity of instruments

Vogt (2007) defines validity as —the truth or accuracy of the research (pp. 117). Saunders et al (2009) adds that it is the extent to which the data collection instrument measures as well as the appropriateness of the measures coming to accurate conclusions. Validity tests was conducted for content, criterion & construct validity test how well the instrument was representative, captured relationships between the variables as well as measures the concepts (Saunders et al, 2009); Vogt, 2007; and Sekaran & Bougie, 2010). This study utilized triangulation to ensure validity of research findings prior to the administration of the research instruments. This instrument was checked by experts. Content validity ratio was used to calculate the Content Validity Index, using formula below;

$$CVI = \frac{\text{Total Number of items rated by all respondents}}{\text{Total Number of items in the Instrument}}$$

A content validity index of 0.7 and above according to Amin, (2005) qualified the instrument for the study.

3.14 Reliability of instruments

Reliability is defined by Vogt (2007) as the consistency of either measurement or design to give the same conclusions if used at different times or by different scholars. The first step in ensuring reliability was by providing clear operational definitions of the variables under study. Thereafter, internal consistency was measured through internal consistency reliability (Sekaran & Bougie, 2010) using split-half reliability method.

3.15 Data Analysis

The findings of the study were analyzed using both quantitative and qualitative methods. This involved uncovering structures, extracting important variables, detecting any irregularity and testing any assumptions (Kombo & Tromp, 2006). The researcher

further used triangulation method of analysis to come up with appropriate conclusions and recommendations.

3.16 Quantitative data analysis

The quantitative data analysis consisted of numerical values from which descriptions such as mean and standard deviations were made (Kombo & Tromp, 2006). The quantitative data gathered was organized, numbered and coded then entered using SPSS 12.0 for windows. The researcher used both descriptive and inferential statistics to analyze data.

3.17 Qualitative data analysis

This involved cleaning up of data from the focus group discussions, key informants interviews and the questionnaires categorizing them into themes and patterns and making a content analysis to determine the adequacy of the information credibility, usefulness and consistency (Mugenda & Mugenda, 1999). Data was analyzed before, during and after data collection and the tentative themes were defined.

3.18 Measurement of variables

By measurement, we refer to the formulae or scale that will be used in the study in relation to the variables (Kothari, 2004). The study variables were measured using nominal and ordinal types of measurements. The questionnaires specifically for respondents were measured on a five interval Likert Scale, the level of agreement was ranked as strongly agree, which reflected more agreement than just agreement or strongly disagree compared to just disagree. Ordinal Scale as measurement of variables was not only to categorize the elements being measured but also rank them into some order.

4. Presentation, Analysis and Interpretation of Results

4.1 Response rate

A total of 80 questionnaires were administered, 79 were returned and 02 were excluded because of errors leaving a total of 77 questionnaires for considerations. For the case of interviews, 02 respondents were interviewed. The findings are shown in the table below:

Table 1: The response rate

Instrument	Target population	Actual response	Response rate
Questionnaire	80	77	96.2%
Interview guide	15	02	40%
Total	95	79	83.1%

Source: Survey results, 2016

The table above shows the average response rate from questionnaires and interviews at 83.1%. This is in agreement with the threshold of 50% or better as put forward by Creswell (2005). Thus, the response rate for this study was appropriate.

4.2 Socio-demographic characteristics of the respondents

This section contains a detailed description of the results about gender, age, level of education and experience of respondent obtained after data analysis. In this section, frequency tables were used to represent findings against interpretation of demographic characteristics of respondents. The information was sought because the nature of the study necessitated the gathering of opinions and findings from across section of different people for a wider perspective and analysis of the findings.

Table 2: Socio-demographic characteristics of the respondents

Socio-demographic characteristics		Frequency	Percent	Valid percent	Cumulative percent
Gender	Male	81	79	79	79
	Female	22	21	21	100
Age	20-29	52	50	50	50
	30-39	39	38	38	88
	40-49	12	12	12	12
Level of education	O Level	4	4	4	4
	A Level	10	10	10	14
	Diploma	34	33	33	47
	degree	52	50	50	97
	Masters	3	3	3	100
Experience with e-learning	PhD	4	4	4	100
	Above 6 years	12	12	12	12
	4 to 5 years	35	34	34	46
	2 to 3 years	24	23	23	69
Attitude towards e-learning	1 year and below	32	31	31	100
	39	38	38	38	88
	Motivation for e-learning	21	21	21	100
	Familiarity with e-learning	12	12	12	12

Source: Survey results, 2016

On gender, the table above shows that majority of the respondent, that is, 81 (79%) were male and only 22 (21%) were female and that represented less than a quarter of the respondents. Similarly, the same table shows that majority of the respondents, that is, 52 (50%) were aged between 20 to 29 years followed by those between 30 and 39 years rated at 38%.

Cumulatively, the majority, 91 (88%) with the age of 20 to 29 years implies an active population with strong motivation for e-learning system. A less percentage 12% (12) of the respondents within the age brackets of 40 to 49 years implies that there are less respondents who are inexperienced with the e-learning system. The fact of the finding is that the majority of the respondents are familiar with the e-learning system.

On the level of education, half of the respondents were Master degree holders at 50% (52) followed by first degree holders 34 (33%). PhD respondents were 4 (10%), and diploma holders were 3 representing 3%. Table 4.3.1 further revealed that the majority of the respondents 35 (34%) are between four and five years of experience followed by those of one and below who were 32 (31%), then those of two to three years who were 24 (23%). The lowest category is of those in the age brackets of 6 years and above who were 12 (12%) indicating that very few respondents lacked experience with e-learning system.

4.7 Pedagogical usability and effectiveness of the e-learning system

While planning for e-learning system, pedagogical usability is considered a key component. Pedagogical usability was operationalized into delivery, flexibility, autonomy, and accessibility. A linear regression model was also run to determine the significance of the pedagogical usability and also to prove the second hypothesis.

Table 4.5.1: Response on delivery, flexibility, autonomy, and accessibility

Pedagogical usability	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Delivery mode is up to date	38 (37%)	49 (48%)	2 (2%)	13 (12%)	1 (1%)
System is flexible	23 (23%)	31 (30%)	16 (15%)	25 (24%)	9 (8%)
Users have autonomy	33 (32%)	51 (49%)	6 (6%)	11 (11%)	2 (2%)
There is easy access	30 (29%)	58 (56%)	12 (12%)	3 (3%)	0 (0%)

Source: Survey result, 2016

Table 4.5.1 indicates that 38 (37%) strongly agreed that e-learning delivery mode is up to date whereas 9 (48%) agreed, 2 (2%) were undecided and 13 (12%) disagreed while 1 (1%) strongly disagreed. With the biggest percent 85% (87) in agreement, it implies that the delivery mode at Muni University is up to date. Most of the respondents in the

interviews are in agreement with these findings as they revealed that the delivery mode contained a lot of relevant content.

The response also indicated that 23 (23%) of the respondents strongly agreed that the system is flexible, 31 (30%) agreed, 16 (15%) were neutral while 25 (24%) disagreed and 9 (8%). Cumulatively a slight majority of 53% are in agreement which shows that not every part of the system is flexible. In line with these findings, it was revealed from the interviews that system flexibility was good thus increased usage of the system.

Table 4.5.1 indicates that 30 (29%) strongly agreed that there is autonomy for users on the system 58 (56%) agreed, 12 (12%) were undecided and 3 (3%) disagreed while nobody strongly disagreed. Thus, only 5% of the respondents that disagreed with the statement indicate that in Muni University system autonomy is a great factor considered on the e-learning system.

As far as system accessibility was concerned, 31 (30%) strongly agreed, 44 (42%) agreed, 28 (28%) were undecided and 3 (3%) disagreed while nobody strongly disagreed. With the majority of the respondents 73(72%) not opposing the statement, it indicates that there is easy access on the e-learning system that allows uploading and down loading resources among the others issues considered in the study.

Table 4.5.2: Linear regression result of pedagogical usability and effectiveness of e-learning system coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
1 (Constant)	1.195	.346		3.455	.001
Pedagogical usability	.768	.088	.655	8.722	.000
Model	R	R Square	Adjusted R Square	Std. error of estimate	
1	.655 ^a	.430	.424	.48524	

a. Predictor: (Constant), Pedagogical usability a. Dependent variable: System Effectiveness

Source: Survey results, 2017

The Table above shows that *Pedagogical usability* has a positive significant effect on e-learning system ($\beta = .000 < 0.05$). *Pedagogical usability* further explains a 42.4% variation on e-learning system (Adjusted R Square = 0.424). The second hypothesis, H2 which states that *Pedagogical usability* has a significant effect on e-learning system in Muni University has been proved. Therefore, the null hypothesis has been rejected. Therefore, the proper the *Pedagogical usability*, the higher the effectiveness of the e-learning system.

5. Summary, Discussion, Conclusion and Recommendations

5.1 Summary of findings

The finding established in the survey about usability and effectiveness of the e-learning system in Muni University is summarized according to each objective as shown below:

5.2 Pedagogical usability and effectiveness of e-learning system

Linear regression results of Pedagogical usability against effectiveness of e-learning system indicates that there is a positive significant effect on effectiveness of e-learning system ($\beta < 0.05$) and further explains a 51.3 variation on effectiveness of e-learning system is attributed to Pedagogical usability.

Finding further established that the users have positive attitude towards the e-learning system with an overwhelming 94 (11%) respondents in agreement, respondents have high motivation with 72 (70%) in agreement, users are familiar with the pedagogy on the system with 79 (76%) in agreement, respondents are satisfied with the environment with 88 (86%) in agreement.

Multiple regression results of Pedagogical usability against effectiveness of e-learning system indicated that delivery methods affects the effectiveness of the system ($\beta = 0.452$), followed by flexibility ($\beta = 0.333$) and lastly autonomy ($\beta = 0.121$). In a broader perspective, Pedagogical usability significantly affects e-learning system positively with 65% variation. Therefore, the more the pedagogical usability, the better the effectiveness of the system at the University.

6. Discussions of the findings

6.1 Pedagogical usability and effectiveness of e-learning system

Finding from hypothesis testing showed that Pedagogical usability has a positive significant effect on e-learning system ($\beta < 0.05$) and further explains a 42.4% variation on effectiveness of e-learning system (Adjusted R Square = 0.424). In line with these findings, Partlow (1996) recognized that good pedagogical usability contribute positively to the effectiveness of the e-learning system. These findings are also in agreement with Tsaur and Lin (2004), who established that good pedagogical usability plays a vital role on the effectiveness of the e-learning system and a bad pedagogical design is nothing but a loss of time and money. Khan (2011) confirmed these findings that pedagogical usability has a significant effect on the e-learning system. Therefore, good pedagogical usability and design plays a key role in enhancing the effectiveness of the e-learning system.

The finding of the study also indicated that the majority 49 (48%) of the respondents agreed that delivery method developed is up to date, 38 (37%) of the respondents strongly agreed. E-content delivery method begins with the decision made in the need analysis process and end with a model for the program if the content is to be up to date and relevant. Using learning objective as a guide, e-learning normally determine what content to include in the curriculum, how detailed content should be and how the content should be presented. From these decisions, a lesson plan and relevant delivery methods are made. The findings are supported by Brandon Hall (2014) study which revealed that 49% of institution consider the delivery method imperative and so is the content to be regularly up dated. These findings also show that developing delivery method requires skilled people who can be from within the organization or hired as revealed by findings from interviews.

The finding of the study also indicated that 51 (49%) of the respondents agree that pedagogical flexibility is poor 33 (32%) of the respondents strongly agreed. Mo (2012) supports these findings by noting that with pedagogical flexibility, the quality of an assessment tool will depend heavily on the time and effort that go into research and development phases of the system. The finding of the study further indicates that 58 (56%) of the respondents agree that there is a limited autonomy on the system, 30 (29%) of the respondents strongly agreed. Pedagogical autonomy plays a vital role in providing direction for the effectiveness of the e-learning system. In line with these findings, Mo (2012) argues that pedagogical autonomy is one of the first and most important steps in developing an effective e-learning system. Myna (2009) does not dispute this and states that pedagogical autonomy helps to provide details of what is going to take place and such autonomy should be developed using learning objectives as a guide to determine what content should be included in the curriculum, how detailed the content should be and how it is to be presented.

7. Conclusion

Conclusions were drawn based on the findings of the study and are hereby presented accordingly.

7.1 Pedagogical usability and effectiveness of e-learning system

From the finding of the study, it can be concluded that considering appropriate delivery methods, flexibility and autonomy on the e-learning system enhances uploading of e-materials, quiz, chats, assignment and consequently contributes significantly to the

effectiveness of e-learning system as explained by pedagogical usability positively contributing to a variation of 51.3% on the effectiveness of the e-learning system.

8. Recommendation

Recommendations for this study are drawn from the findings and are based on the conclusions. The study recommends that Muni University should ensure that Pedagogical usability is properly designed to enhance effectiveness of e-learning system. Experience has shown that it can be relatively simple to make online tools or learning resource accessible, but this alone can be quite useless if the resource is difficult to use or understand because of lack of autonomy on the system. Therefore, there is need to explore usability further by introducing autonomy for system users, reviews its importance to effective online learning and looks at ways in which autonomy can be incorporated into the system.

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