Towards Personalized Learning Environment in Universities In Developing Countries through Blended Learning: A Case of Muni University

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Abstract:

Personalized Learning Environment (PLE) is the future of education at higher education institutions (HEIs), and blended learning is a means to achieve it in emerging regions. However, several challenges hamper its implementation. This study therefore uses a combination of research approaches to investigate these challenges and report on the experience of more than a year of adoption and implementation of blended learning in Muni University in an effort to improve the quality of education as well as to set in the foundation for PLE.A total of 200 questionnaires were distributed and total of 165 were collected, making a return rate of 82.5%. The results indicate that, the respondents had skills and university has the will to implement blended learning environment however, critical issues related to user training, technical support and proper benchmarking were insufficiently included as essential and integral part of the implementation. The study recommends that self-enrolment of the students be enabled and Coverage must be extended, Training should be given to students, FAQs should be included and enrolment process should be simplified.

Key Words: Blended Learning; Personalized Learning Environment; Pedagogical Methods

Introduction:

Several developing countries identified education as a key factor of development, and hence prioritized it by increasing budgetary allocations, policy improvements and subsequent initiatives such as universal primary education(UPE) and universal secondary education (USE) were adopted(Louise,2008) aimed at increasing the quality, and equality of access to education by removing financial barriers(Louise,2008, Anthen& Alen,2009). However, these initiatives resulted in immensely increased intakes in both primary and secondary schools, with the effect spilling over into universities. Coupled with other challenges such as insufficient learning resources, understaffing, insufficient learning spaces, and inadequately qualified staff would affect the quality and access to education. To overcome these challenges, the Ugandan government through the Ministry of Education and Sports (MoES) and the Ministry of Information and Communication Technology (MoICT) enacted policies to integrate ICT into education(Ministry of Information and Communication Technology policy Uganda, 2012) because of their track record as tools that improve the quality and access to education by promoting constructive inquiry, enhances pedagogical methods, facilitate research, allows anywhere any time access to learning contents, strengthens collaboration and enhances communication. ICTs also compel an information and knowledge economy where successful economic development is fuelled and sustained by timely access to vital information. ICTs are also known for bridging the digital divide while promoting the acquisition of lifelong learning. When Muni initiated their study programs, they adopted blended learning into their learning environment in order to tap into the potentials presented by ICTs and set a road map into a PLE. However, this initiative encountered several challenges. This research therefore aims at investigating the real challenges and recommending interventions to overcome them. The study uses a mixed method to gather data and present it for analysis using statistical methods.

Muni University E-Learning Preparedness:

Muni University (MU), a public university was established in 2013 by Act of Parliament and currently the university has only one faculty, of Techno science with one department of Computer and Information Science (CIS). Since its inception, the university has witnessed a significantly high number of students as compared to other newly established universities and fewer staff members who with higher workloads. To overcome this challenge, the university introduced the use of Moodle e-learning platform to reduce the workload on the teaching staff as a step towards creating a personalized learning environment since it is the future of learning whereby learners can learn at their own pace, time and from anywhere. The blended learning environment includes free access to Internet to all staff and students and free university email identity to facilitate communication between staff and students. And to supplement the blended learning approaches, the university also procured over 50 Amazon Kindle e-book readers and pre-loaded them with the relevant electronic learning materials and stocked them in the library where students can have easy access to borrow them and can then read the preloaded materials at their own pace and from the confines of their rooms. The e-book readers were mainly for the learners who neither have their personal laptops nor personal tablets for ubiquitous access. At Muni University, every student is expected to own a mobile device to help access the E-learning platform.

However, from observations, all the kindles are underutilized since from the records, the list of students borrowing the e-book readers is very short and the utilization of the Moodle e-learning platform is underutilized since it is limited to putting learning materials mainly .pdf notes, e-books and lecture slides. It was also noticed that currently Moodle is only being used for providing course materials, in the same format as they would be given in classroom. In addition, other Moodle functions, such as discussion forums, chats, assignment handling, have not been fully utilized at all. In addition, it has been noticed, that even though lecturers are able to create a course on Moodle and upload materials, Moodle has not yet been well adopted and integrated into the learning process by both the lecturers and students; negating potential student-centered learning approaches inherent in the use of e-learning. Understanding the reasons behind this current state also motivated this study.

Personalized Learning Environment:

The rapid growth of the individual difference research since the early 19th centuries has brought improvements and solutions in the education field. In order to ensure that learners engage and take responsibility for their own learning, many researchers like Kim, (2009), suggested that the differences and distinctiveness of each learner must be taken into account in preparing the learning procedures. The differences of learners include their learning styles, learning orientations, learning rates, cognitive styles, multiple intelligence, talents and many more. Several strategies such as their learning styles, learning orientations, learning rates, multiple intelligence, talents cognitive based strategies, whole-personal, name-recognized, have been put forward by earlier studies by Samah et al (2011) that can be adopted within the personalized learning environment. The essence of personalized learning environment is that, it takes individual differences into consideration (Samah et al ,2011)by emphasizing individual differences and needs using a student-centered approach (Kim,2009).

The research done by Martinez M (2001), summarized the attributes of transforming learners (transformances), performing learners (performances), conforming learners (conformances) and resistance learners (resistances) as follows:

(a) Transforming learners (Transformances) are found to be assertive, expert and highly self-motivated learners, they use holistic thinking and prefer exploratory learning. In planning, they set and accomplish personal long- and short-term challenging goals, and maximize efforts to reach their goals. In addition, they are responsible for their own learning, managing their goals, learning, progress and outcome themselves and easily frustrated if given little learning autonomy.

(b) Performing learners (Performances) are found to be self-motivated and focused learner's situation ally, they only meet above-average group standards if there is a benefit. In planning, they set and accomplish short-term and task-oriented goals, and minimize their efforts. However, they prefer coaching and interaction to reach their goals. In addition, they may be responsible for their own learning if it is in areas of interest, but may give up control in less interest areas.

(c) Conforming learners (Conformances) are found to be low-risk and extrinsically motivated learners, they use learning to easily achieve group standards. In planning, they follow and try to accomplish simple task oriented goals set and conducted by others, and maximize their efforts in supportive environments. In addition, they are less responsible for their own learning, and thus want continual guidance to achieve short-term goals.

(d) Resistance learners (Resistances) are found to be active or passive resistant learners, they avoid using learning to achieve academic goals set by others.

In early years, personalization is defined as an adaptation of the learning process and content to individual characteristics and preferences of learners (Cronbach &Snow, 1977). Then, in the 21st century, personalization in instruction is defined as an instruction that tailored learners' learning styles, intelligences, interest preferences, and so forth (Gilbert, Han 2002).There are a few strategies of personalized approach that can be adapted in the learning environment, such as the whole-person, name-recognized, self-described and cognitive-based strategies. First, the whole-person strategy emphasizes the cognitive, emotion, intention and social aspects of learners. These aspects are major elements in learning, they have their own importance in learners' learning progress. As an example, emotion has the ability to influence learners' attention, perception and memory (Gagné et al 2005). This will encourage them to engage in their own learning. Secondly, the name-recognized strategy emphasizes the recognition of learners' names, which is valued by most people when being acknowledged as an individual. Thirdly, self-described strategy is the personalized approach that is based on answers provided by learners. Lastly, the cognitive-based strategy is an approach that only refers to the cognitive process, strategy and ability of learners.

Challenges Faced while using the Moodle E-Learning Platform:

Delivering e-learning content is beneficial to many institutions including Universities as it tackles one of the main problems facing higher education, the lack of enough qualified staff and adequate infrastructure (Myriam et al, 2016). In addition, it provides flexibility and addresses the needs of a growing population of students seeking university education in a country where classrooms and infrastructure are not growing at the same pace (Etiegni, 2014).

Also, as will be argued, Information and Communication Technology (ICT) has much potential in transforming the present isolated, teacher-centered and text-bound classrooms into rich, student-focused, interactive knowledge environments (Omwenga,2007).However, providing e-learning services has not always been successful in developing countries. Factors such as social, cultural and economic affect the thinking of people and play an important role in shaping motivations and acceptance of technology (Qureshi et al, 2012). Furthermore, developing countries have challenges that make it difficult to provide efficient e-learning services, for instance, lack of consistent and affordable electricity, lack of affordable and high speed Internet connection, and lack of adequate computer skills among the lectures and students (Amiel, & Reeves, 2008). ICT has vast potential to provide and improve learning at a lower cost, improved accessibility, and greater flexibility. This imposes a number of challenges such as; IT support requirements, training, infrastructure, among others; all which must be addressed by institutions before e-learning services can be implemented successfully in the learning environment(Qureshi et al, 2012). In addition, providing e-learning services requires changes and motivation within the staff in order to redesign the curriculum, learn how to use the required technology, and provide institutional support and infrastructure (Athena and Alec, 2009).

In summary, this work particularly focused on identifying and analyzing e-learning challenges from the students' perspective, as the adoption of e-learning among lectures is central to its success. Six broad categories of challenges were identified that include; lack of infrastructure, insufficient training, poor Internet access, lack of technically adept users as well as lack of university support, privacy/security concerns, and lastly, motivation, and contextual factors.

2.0 METHODOLOGY:

This study used mixed methods to obtain and analyze data. First, the researchers conducted two focused group interviews. The first one with students and the second with the teaching staff. The discussions were conducted along three themes. The first theme aimed at collecting data about the skills the respondents

currently possesses to adequately utilize the blended learning platform. The second theme, "what challenges do you face while using the Moodle platform?" was primarily to establish if both the staff and students have any particular challenges they face while using the blended learning platform. The third them was about what was to be done to overcome the challenges. The results of the discussions were transcribed and, the issues which surfaced were formulated into questionnaires and administered administered voluntarily. A 5 point Likert scale items (1=strongly agree, 2=agree, 3=neutral, 4=disagree 5=strongly disagree was used to measure the challenges and suggestions for improving e-learning. A total of 200 questionnaires were distributed and total of 165 were collected, making a return rate of 82.5%. The instrument was tested and was reliable with Cronbach's alpha of 0.781. The results were presented inform of percentages (Bar graph), means, standard deviation and mode.

3.0 RESULTS AND FINDINGS:

The results obtained provided insight into the skills of the participants as well as the challenges they face. Out of 165 student participants, 60.4% belonged to Bachelor of Information Systems (BIS) while 39.6% belonged to Bachelor of Science in Information Technology (BIT) as shown in figure 1 below. Of the 165 participants, 121 (73.2%) were male while 44 (26.7%) were female.

Figure 1: Programme of study

3.1 Skills participants currently possess:
To answer the first research question, *"What skills do participants currently possess?"*, data about four different skills were collected. Computer, computer application, internet and e-learning (Moodle) skills were tested as shown in the figures below.

Computer Skills:

As shown in figure 2 below, 89% of the students can use flash and external disks for the transfer of data, 80.5% know how to boot a computer and students showed that the skills were less in connecting computer components together (59%), connecting other devices like printer, scanner (57%) and troubleshooting computers in case of failure (53%) as shown above in figure 2 below.
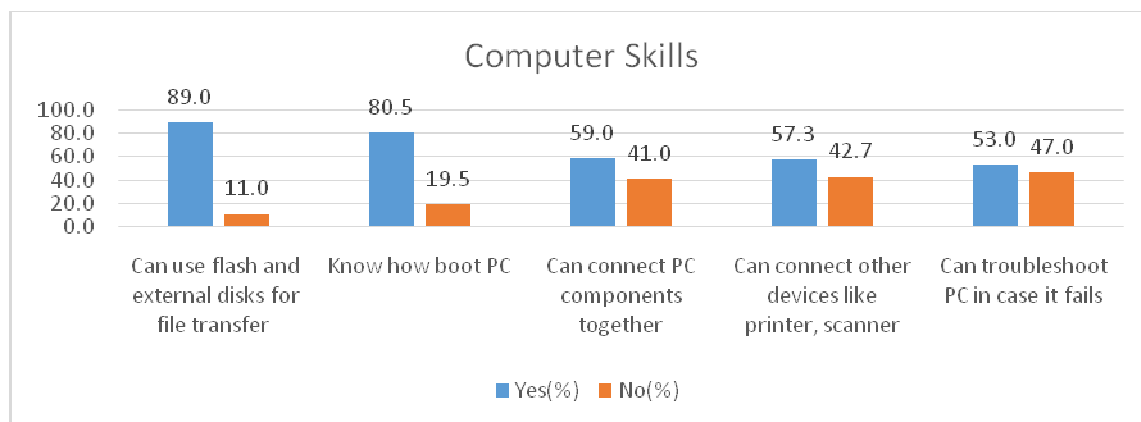

Figure 2: Participants response on Computer Skills

Application skills:

In terms of application skills, the results in figure 3 shows that students had proficient applications skills, they can do a virus scan on their personal computers (82.9%), Students are able to work well with office applications like Microsoft word, (69.5%), students are also able to install any application needed to use (61.6%) while only 55.5% of the respondents could be able to learn other applications on their own and 51.2% cannot compress files and open compressed files.
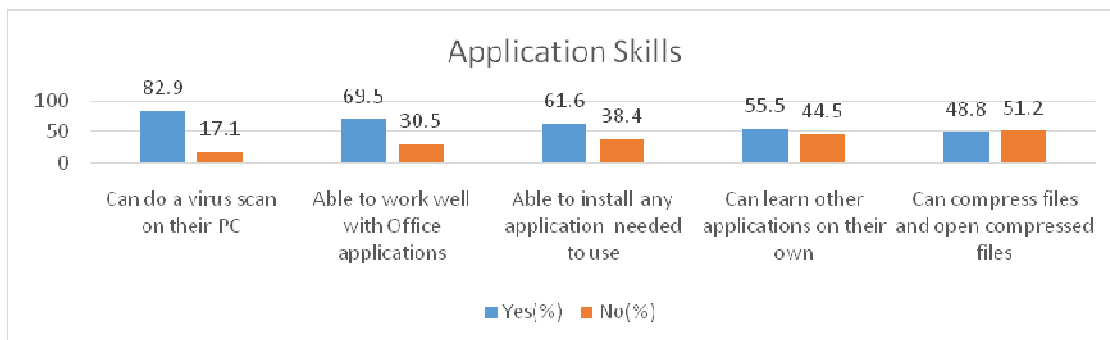

Figure 3: Participants response on Application Skills

Online Skills:

The results in figure 4 shows that 81.1% of students are able to search materials online, 75% of students can chat online using social media tools and be able to send attachments in emails and Moodle. 65.2 % can download and upload file /folders while 54.3% of students can update software and anti-virus online and 53.7% of students are comfortable using Moodle. It was also reported that 75% of students do not know how to use online storage like drop box & google-drive and 93% of students had never used Moodle before joining Muni University.
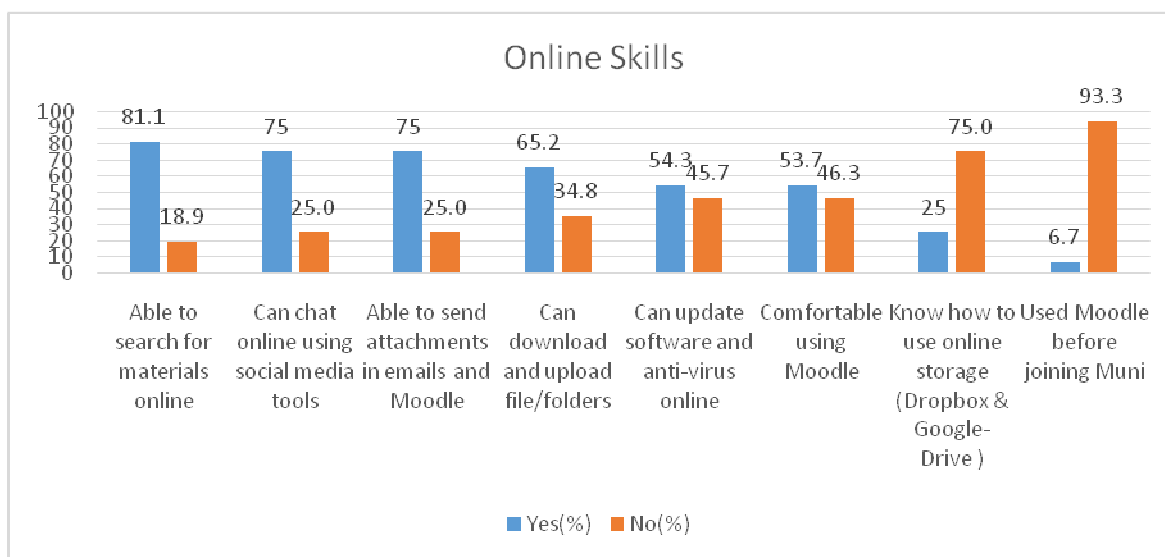

Figure 4: Participants response on Online Skills

E-Learning Skills:

Lastly, the results of e-learning skills indicate that, 61.6% can download content from Moodle, submit assignments (59.1%), send messages to the course lecturer (55.5%), need to be trained in using Moodle (56.7%), access course materials with ease (54.3%) and can take quizzes (53%) and participate in online discussions (52.5%). However, only 43.3% can do self-enrolment for a course in Moodle as shown in figure 5.
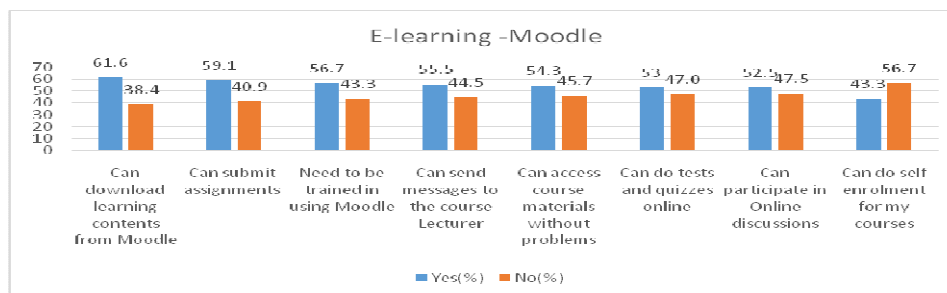
Figure 5: Participants response on E-Learning Skills

3.2 Challenges Faced While Using Moodle E-Learning Platform:

To answer a second research question, "What challenges do students currently face while using Moodle e-learning platform?", a five (5) Likert scale items (1=strongly agree, 2=agree, 3=neutral, 4=disagree 5=strongly disagree) was used to measure the challenges in terms of the mean, standard deviation and their ranks, and the following results were obtained. Limited Local Area Network coverage scored a mean of 1.69 ranked 1, no help desk with mean of 1.98 ranked 2, unreliable access with mean of 2.07 ranked 3, no basic training on Moodle use with mean of 2.19 ranked 4, limited storage space per user with mean of 2.25 ranked 5, no available documentation with mean of 2.35 ranked 6, while no room for comments or suggestions for improvement with a mean of 2.41 ranked 7 and lastly there was also challenge on the enrolment process with a mean of 2.45 ranked 8. The mode was also used to show the most appearing response using a five (5) Likert scale of (1=strongly agree, 2=agree, 3=neutral, 4=disagree 5=strongly disagree)

Table 1: Participants response on challenges faced while using Moodle

No	Challenges faced while using the Moodle e-learning platform	Mean	Mode	Std.Deviation	Rank
1	Limited LAN coverage	1.69	1	1.1	1
2	No help desk	1.98	1	1.38	2
3	Unreliable access	2.07	1	1.21	3
4	No basic training	2.19	1	1.33	4
5	Limited storage space per user	2.25	1	1.29	5
6	No documentation available	2.35	1	1.25	6
7	No room for comments or suggestions	2.41	1	1.46	7
8	The enrolment process is long	2.45	2	1.26	8

4.0 DISCUSSION:

PLE is the future of learning environments and as such, MU in its efforts to adopt technology enhanced learning aims to achieve PLE in order to reap its benefits and potentials. However, the results of this study reveal that there is much preparatory work yet undone. These include aligning the university interests and learners' needs. These needs include provision of basic training with regard to the use of technology to improve the quality and access to education.

The finding showed that Limited LAN coverage, Unreliable access, no basic training and Limited storage space per user were among the top challenges faced while using the Moodle e-learning platform. These results are, similar to other related work which identified several challenges affecting e-learning such as; lack of infrastructure, insufficient training, poor Internet access, lack of technically adept users as well as inadequate university support, privacy/security concerns, and lastly, motivation, and contextual factors and provided recommendations(Myriam et al, 2016, Qureshi et al,2012, Frehywotet al, 2013).

Several unanticipated findings surfaced. These include issues like no help desk, lack of documentation on e-learning and Moodle, no room for comments and suggestions. It was surprising to that the students would find documents about e-learning and Moodle of use and how they value help desk support. These were valuable findings useful to improving the MU learning environment because it reduces on printed resource, that are expensive to produce and difficult to share with a wider group of learners (Lwoga, 2012).

5.0 CONCLUSIONS AND RECOMMENDATIONS:

PLE is the future of learning environment therefore HEI must prepare to benefit from this setting, through continuous and gradual improvement using ICTs. However, considerably wide gap exists between the university's interests and learners needs. Suitable pedagogical methods using blended learning are highly likely to significantly narrow this gap and address the immediate learner needs. First, the researchers recommend that the university puts critical focus on addressing the technical and pedagogical challenges identified. Second, the researchers also recommend that the university provides a policy that will particularly focus on enforcing the use of blended learning in a manner that will achieve PLE more adaptively. Lastly, the researchers recommend that, the university should have continuous user training on the use of Blended learning.

6.0 ACKNOWLEDGMENT:

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