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Research Article
Investigating Factors Influencing the Implementation of e-learning at Rural Based Universities

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Abstract

Objective: This research aims to investigate the factors influencing the implementation of e-learning at University of Venda which is one of the rural based universities in South Africa. The university recently introduced the use of blackboard, learning management systems (LMS) platform. The researchers looked at the implications faced by both students and lecturers when LMS was introduced. **Methodology:** Mixed methods research methodology was used for the study. To understand the impact of the LMS on teaching and learning activities, the researchers found it necessary to establish the adoption rate of the LMS for the university and compare it to that of urban universities which have already implemented similar systems. The researchers went on to establish the factors influencing the poor implementation rate in rural universities. Factors such as the level of usage of the LMS and perceptions of users were identified to assist in reaching at the conclusion on failure or success of the e-learning program. **Results:** The results indicated some positive perception by both educators and students. There were noted interest for the LMS usage and eagerness to apply the LMS in teaching and learning activities. **Conclusion:** However, the results indicated that, lack of training, poor awareness program and poor infrastructure, were the contributing factors of the failure of the e-learning program. Reshaping the perceptions by learners and educators might also contribute to the success of e-learning implementation.

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INTRODUCTION

The rapid development in information communication technologies had greatly influenced the teaching and learning in universities. More investment in technologies by higher educational institutions (HEIs) creates a novel teaching and learning environment which provides effective ways of delivering education and training through the web. Mason and Rennie[1], stated that education and training is required to be placed at the forefront of the rural development to build skilled human capacity needed. They went on to say that e-learning had the potential to bridge the educational gaps and improve the lives of millions of people in the developing world. It was asserted that one of the urgent needs of developing countries was to utilize e-learning facilities in tertiary institutes[2].

Biehl and Prescott[3] defined e-learning as part of a broader category to the learning environment which compliments conventional learning that has been digitalized supporting online multimedia and computer technologies. E-learning can also be defined as virtual learning, virtual campus, distance learning, tele-learning, online courses, online training and many others[4]. E-learning has a much greater potential than just delivery of content online. It connects individuals and builds a learning network by supporting knowledge sharing and collaborative learning articulated[5].

Weng[6] differentiates e-learning and conventional learning by stating that conventional learning was a teacher-centered approach in which the learners and educators communicate at the same time and placed the learners acquire knowledge passively. Whereas e-learning was a student-centred approach where the educator and learners can communicate at any time any place giving emphasis to a virtual and collaborative community and the learners acquire knowledge actively. This approach had brought a break-through in education, overcoming the limitations of conventional learning by offering a personalized and independent learning environment.

E-learning platforms: Guenaneche and Radigales[7], stated that e-learning platforms integrate different tools including management tools, evaluation, monitoring, communication tools and others. The software application provides technological support for learners and academics to enhance teaching and learning activities. The platforms can facilitate e-learning activities or a combined mode of both conventional and e-learning activities for teaching and learning. According to Costa *et al*.[8], different expressions were used to describe various software applications used for e-learning such as virtual learning environment, learning management system or course management system. According to Piotrowski[9], e-learning platforms provide a consolidated support system for communication, delivery, creation, collaboration, assessment and organization for teaching and learning activities. University of Pretoria had a service called e-education[10] for the academic staff to be able to communicate and integrate with a variety of other technologies such as i.e. mobile phones.

Benefits and challenges of e-learning platform: Social equity, economic competitiveness, multimedia-rich content, accessibility, financial benefits, avoiding the commute to campus, improved access to information, lifelong learning and convenience of time and place and flexibility are outlined as benefits of e-learning[11]. Arkorful and Abaidoo[12] concluded by suggesting that e-learning increases the level of user satisfaction and decreases level of stress for the learners. Some studies revealed the challenges that e-learning has[12-14]. Arkorful and Abaidoo[12] also stated that the complete absence of personal and physical interaction between the educators and their learners was the major drawback of e-learning[12]. Unwin[13] further stated that many learners and academics were not familiar with most of these platforms, this becomes a disincentive[13]. Access to the latest platforms and technologies usually dependent on the economic status of individuals and institutions. Learners in rural universities like the University of Venda find these technologies expensive and unaffordable. Albidewi and Tulb[14] alluded that an institution may face high initial costs related to technology, infrastructure and training of staff and students.

E-Learning platform at University of Venda: University of Venda recently introduced a learner management system (LMS) called blackboard to support the conventional classroom teaching and learning. According to Hwang and Yi[15], blackboard system is a web-based comprehensive class management system accessible via the internet. It creates a virtual environment where interaction between learners and academics was facilitated through the use of available communication tools. Gbur[16] describes blackboard as an information delivery tool for learners and a management tool for academics. There was always anxiety associated with the implementation of any new system for any organization. The adoption rate of the new system will depend on how well the institution accepts the change and this also determines how long it will take to utilize the system to its full potential. Acknowledgment of the LMS and quick appreciation of its resources by users will speed up the rate of its adoption. Rural

based universities, such as the University of Venda must be proactive to benefit from the potential that e-learning provides in terms of facilitating teaching and learning.

According to Suleman *et al.*[17], e-learning initiatives in most developing countries do not fulfil their full potential, that was to say they either partially or totally fail. Yaghoubi *et al.*[2] also stated that the HEIs generally face problems when adopting these latest technologies. This results from them ignoring the perceptions and attitudes of the users. South African Universities can be classified into two categories, with those in urban areas in one category and those in rural areas (also referred to as previously disadvantaged) on the other. E-learning is an emerging technology and its effective implementation continues to lagin developing economies. The other challenge for e-learning was the generation gap between the students and their lecturers. Students are now more exposed to new technologies, such as those involving internet and digital mobile devices. The generational gap results in the different levels of appreciation for the various e-learning tools available.

Research statement: According to Steyn *et al.*[18], the adoption rate of technologies in South African Universities was higher in previously advantaged institutions and lower in previously disadvantaged rural based institutions. As observed by Qureshi *et al.*[19], this could be attributed to high illiteracy rates in terms of ICT, poor strategies to promote e-learning programs at the institutions and resistance to change from conventional classroom methods to e-learning. The above disadvantages for rural communities affect implementation of e-learning in rural based tertiary institutions. Despite the potential of e-learning platform to support conventional teaching and learning activities, its implementation, just like any other new technologies, usually faces challenges. The challenges include lack of equipment, poor infrastructure and misguided perceptions by both students and some of the lecturing staff.

This research focused on the causes of failure of e-learning initiatives in institutions of higher learning. The failure had a great impact on how the HIEs use the platform to support teaching and learning. This research made an analysis of the major factors that influence the implementation of e-learning programs in the rural based tertiary institutions. An understanding of these factors will greatly inform those tasked with strategizing the implementation, in making proper considerations so as to avoid failure.

Aim and research questions: The aim of this research study was to investigate factors influencing the implementation of e-learning in rural based universities. The research attempts to provide answers to the following research questions:

- What was the current level of usage for the e-learning platform by the learners?
- What level of promotion and support was being provided for the platform by the responsible university structures?
- What was the learners' perception towards the platform on use?
- How had been the progress in the implementation of the program since the date of inception?
- How does the implementation of e-learning at the University of Venda compare to other urban based universities in terms of success?
- Does the location of the university (rural based) influence the implementation of e-learning?
- What were the main factors influencing the rate of adoption for e-learning at the University of Venda?

MATERIALS AND METHODS

The research design was used to plan, structure and execute the research in order to maximize the validity of findings[20]. Research design was the conceptual structure within which research was conducted. It provides the researcher with a blue print of the collection, measurement and analysis of data[21]. The research took the survey methodology approach in which individual units were sampled from a population and associated data collection techniques applied. A total of 147 data collection exercises were carried out on a sample consisting of University students, lecturing staff and administrators of e-learning platform at the University of Venda. The research was a case study, which explored the e-learning program at the University of Venda for a specific period of time on its inception period. As a case study, the research was bounded to the place which is the rural based University of Venda. Mixed methods[22] approach (qualitative and quantitative) were found suitable for this study as they complement each other. Collection of data from the population sample involved the use of questionnaires with open and close ended questions. Note that a target population is a well-defined collection of participants which have common binding characteristics[23].

Random sampling was used in this study, to select participants from the students. The random sampling technique selects a sample from the population whereby every individual in the population has an equal chance of being selected[24]. Purposive sampling was applied to select

participants from the administrative staff and lecturing staff. The level of involvement with the e-learning program was considered in selecting these samples.

RESULTS AND DISCUSSION

This section represents the results of the findings based on the analysis of data collected from the students, lecturing staff and e-learning support staff involved in the e-learning program at the University of Venda.

Students results

Level of education of respondents: The respondents were asked to indicate their current level of study. The level of study may influence certain responses to questionnaires. According to Table 1, 15.9% of the respondents were currently 1st year students, 13.6% of the respondents were 2nd year students, most respondents were 3rd year students which was 48.9% followed by 13.6% of the respondents who were post-graduate students.

Computer literacy: A survey was conducted to determine computer literacy levels amongst the sampled population and to establish awareness the essence and use of the e-learning platform. The usage of the platform was mainly based on availability of computing facilities within the university.

Computer facilities at home and campus: The respondents were asked to indicate whether they have some computer facilities at home. A sample of 88 respondents was used. 76.1% of the respondents indicated that they do and 23.8% indicated that they do not. The respondents were further asked to indicate whether, they use the computer facilities provided by the university within the campus. 98.8% indicated they use ,whereas 1.1% indicated that they do not use. Based on this result, almost all the students use the computer facility provided on campus.

Computer training: The findings on whether the respondents had any computer training experience prior to using the e-learning platform were presented in Table 1. Of the sample of 88 respondents 69.3% indicated that they had computer training experience and 30.6% of the respondents indicated not having any computer training experience. Furthermore, 67.2% of the respondents who had computer training were males whereas 74.1% of the respondents were females. It was also noted that the higher the level of education, the higher the percentage of the students who have training (Fig. 1).
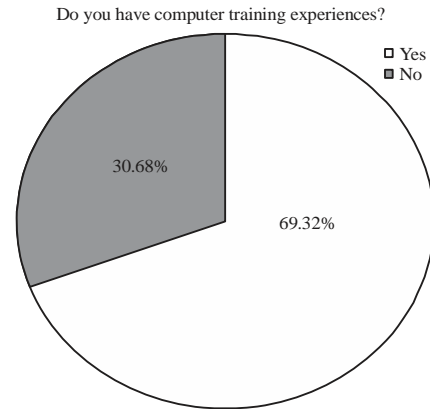

Fig. 1: Computer training experience
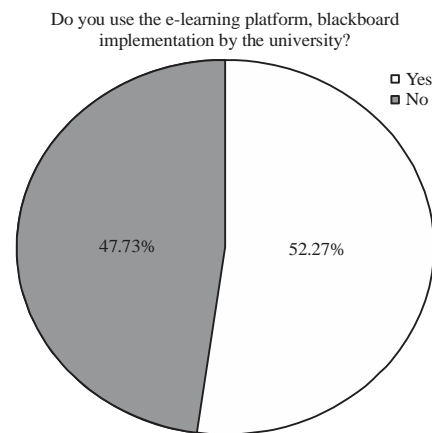
Fig. 2: Usage of e-learning platform

Utilization of the learner management system: From Fig. 2, 52.7% of the 88 respondents, indicated that they use blackboard and 47.7% respondents indicated not using blackboard. From this, it was also indicated that 59.3% of the females use the e-learning platform whereas 49.2% of the males use the platform. It was also observed that 83.3% of post graduate students use the e-learning platform more than other students. The researchers went on to compare the number of students who have computer training to that of the blackboard users. 60.7% of the respondents who had computer training used the platform whereas only 33.3% of the respondents who did not have any computer training used the e-learning platform. This indicates that efficient computer training increases the usage of the e-learning platform.

Preferred mode of study: A sample of 88 respondents was asked to indicate their preferred mode of study. The options included conventional learning, e-learning and blended

Table 1: Students level of study

Level of study	Frequency	Percentage	Valid percentage	Cumulative percentage
1st year student	14	15.9	15.9	15.9
2nd year student	12	13.6	13.6	29.5
3rd year student	43	48.9	48.9	78.4
4th year student	7	8.0	8.0	86.4
Post-graduate student	12	13.6	13.6	100.0
Total	88	100.0	100.0	

Table 2: Understanding of the term e-learning

	Responses		
Terms of e-learning	N	Percentage	Percentage of cases
Computer-based learning	61	29.0	70.9
Distance learning	43	20.5	50.0
Web-based learning	41	19.5	47.7
Online learning	57	27.1	66.3
None	8	3.8	9.3
Total	210	100.0	244.2

Table 3: Devices used to access blackboard

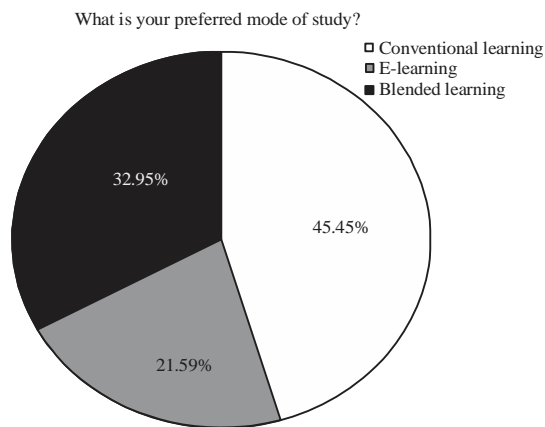|	Responses		
Devices	N	Percentage	Percentage of cases
Desktop	39	31.7	46.4
Laptop	32	26.0	38.1
Smartphone	17	13.8	20.2
Tablet	24	19.5	28.6
None	11	8.9	13.1
Total	123	100.0	146.4

Fig. 3: Preferred mode of study

learning. From Fig. 3, the majority 45.4% of the respondents preferred conventional learning over any other form of learning. This was followed by 32.9% of respondents which preferred blended learning and 21.5% of the respondents preferred e-learning above any other method of learning.

E-learning usage and understanding of e-learning: The respondents understanding of the term e-learning was showed in Table 2. As suggested by Sanchez and Hueros[18],

e-learning can be defined as computer based learning, web-based learning, distance learning, virtual learning, virtual campus, distance learning, tele-learning, online learning, online courses, online training and many others.

Device used to access blackboard: The respondents were asked to identify which devices they use to access blackboard as shown in Table 3. Students mostly used desktops and laptops to access blackboard. This was followed by tablets which were issued to students by the University of Venda[25]. The least popular device was smartphones due to cost.

Purposes of using blackboard: The respondents were asked to indicate for which purposes they use blackboard. Out of 88 of sample, 2.3% had missing cases. Results in Table 4 showed the responses from 86 students, 34.5% use blackboard to access study material online. This was followed by 20.0% respondents who use blackboard for online tests/assignments submission, 18.2% indicated the purpose of blackboard to keep up to date with announcements from the academics, 14.5% indicated that they use blackboard to engage in group discussions and 12.7% indicated that they do not use blackboard for any of these purposes.

Table 4: Purposes of using blackboard

Purposes	Responses		Percentage of cases
	N	Percentage	
Access study material online	57	34.5	66.3
Tests/Assignments	33	20.0	38.4
To keep up to date with announcements from the educator	30	1 8.2	34.9
To engage with other learners in groups discussion forums	24	1 4.5	27.9
None	21	1 2.7	24.4
Total	165	100.0	191.9

Table 5: E-learning perception: Student motivation

| Comments	Level of agreement												
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Missing		
	N	%	N	%	N	%	N	%	N	%	N	%	Mean
Student motivation													
E-learning is more encouraging then conventional learning	6	6.8	6	06.8	28	31.8	36	40.9	12	13.6	0	0.0	2.48 Agree
E-learning facilitates learning more than conventional learning	4	4.5	11	12.5	33	37.5	30	34.1	8	09.1	2	2.3	2.31 Neutral
E-learning engages students more in the learning activities then conventional learning	2	2.3	11	12.5	24	27.3	37	42.0	14	15.9	0	0.0	2.57 Agree
E-learning is more productive than conventional learning	2	2.3	11	12.5	34	38.6	28	31.8	12	13.6	1	1.1	2.43 Neutral
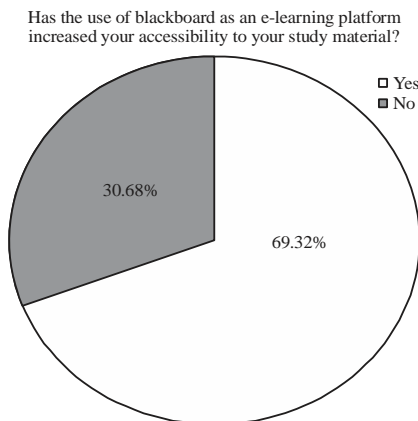
Fig. 4: Increased accessibility using blackboard

Tools used to engage with blackboard: The respondents were asked to identify the tools they use for teaching and learning engagement purposes. The following tools were identified to be the most commonly used:

- E-mails
- Virtual classrooms
- Social networks
- Video conferencing
- Discussion forums
- Audio/video content

There was a segment of respondents that proved to be very conscious about the availability of all these technological tools and their capacity in supporting teaching and learning activities.

Increased accessibility of study materials through use of blackboard: The researchers established the view on whether blackboard has increased the accessibility to study material for the students. From Fig. 4, out of a sample size of 88, the majority of the respondents 69.3% agreed whereas 30.7% disagreed. Therefore, it can concluded that blackboard increased the accessibility of study materials for the students. This can be attributed to the 24 h of the day availability of the e-learning platform from anywhere the student might be.

Computer labs efficiency and connectivity at University of Venda: Results in Fig. 5 showed the respondents view on whether the computer labs are efficient for the use of e-learning platform. Of the sample size of 80, 72.7% respondents agreed whereas 27.3% disagreed. Respondents indicated that there was good internet connectivity within the computer labs to support the use of the e-learning platform.

E-learning perception: One of the objectives of this study was to establish the perception of the users towards e-learning. Perception was divided into four categories namely student motivation, student attitude, reliability of the e-learning platform, user support and student self-efficacy. The respondents were also asked to identify the benefits and challenges encountered in their use of the e-learning platform.

Students' motivation: In Table 5, perception on e-learning was investigated based on students' motivation. Majority of the respondents 40.9% agreed that e-learning was more

Table 6: E-learning perception: Student attitude

Comments	Level of agreement												
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Missing		
	N	%	N	%	N	%	N	%	N	%	N	%	Mean
Student attitude													
E-learning enables students to complete tasks more efficiently than conventional	2	2.3	10	11.4	24	27.3	39	44.3	11	12.5	2	2.3	2.55 Agree
I believe that e-learning is very useful tool for online courses	0	0.0	6	5.8	9	10.2	43	48.9	29	33.0	1	1.1	3.09 Agree
I believe that e-learning can be integrated with conventional learning to receive benefits of both learning methods	4	4.5	6	5.8	15	17.0	27	30.7	34	38.5	2	2.3	2.94 Strongly agree
The e-learning platform provides flexibility towards learning	2	2.3	5	5.7	17	19.3	39	44.3	25	28.4	0	0	2.91 Agree
E-learning provides an opportunity to acquire new knowledge	2	2.3	5	5.7	20	22.7	39	44.3	21	23.9	1	1.1	2.83 Agree
I believe a level of training and assistance is required when introduced to the system	0	0.0	5	5.7	11	12.5	27	30.7	44	50.0	1	1.1	3.26 Strongly agree

Table 7: E-Learning perception: Reliability on the e-learning platform/university support

| Comments	Level of agreement												
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Missing		
	N	%	N	%	N	%	N	%	N	%	N	%	Mean
Reliability on e-learning platform/University													
I received training from the University for using blackboard	21	23.9	21	23.9	19	21.5	15	17.0	11	12.5	1	1.1	1.70 Strongly disagree/ disagree
The learning process using blackboard is structured and clear	2	2.3	8	9.1	24	27.3	40	45.5	13	14.8	1	1.1	2.52 Agree
The features of blackboard are easy to use	1	1.1	10	11.4	27	30.7	32	36.4	17	19.3	1	1.1	2.52 Agree
There is ease in navigation and management of content on blackboard	1	1.1	7	8.0	33	37.5	33	37.5	13	14.8	1	1.1	2.57 Neutral/agree
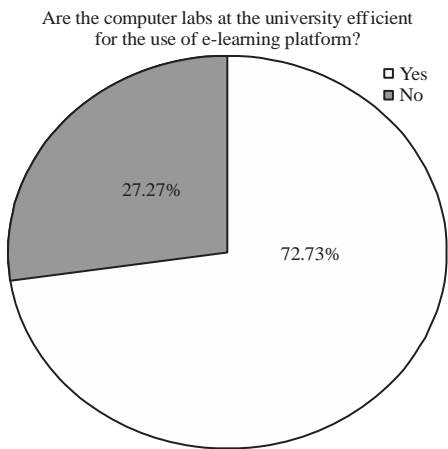
Fig. 5: Computer labs efficiency at University of Venda

encouraging than conventional learning. About 37.5% of the respondents were undecided on whether e-learning facilitates learning more than the conventional approach. Of the respondents, 34.1% support the notion that e-learning facilitates learning better than conventional methods, 42.0% of the respondents agree that e-learning engages the students more in their learning activities and 38.6% neither agree nor disagree on the statement that e-learning is more productive than conventional learning.

Students' attitude: On students' attitudes towards e-learning in Table 6, 44.3% of the respondents agree that e-learning enables them to complete their tasks such as tests and assignments more efficiently than conventional learning. 48.9% of the respondents agree that e-learning is a useful tool for online courses.

Respondents (38.6%) strongly agreed to the statement that e-learning should be integrated with conventional learning to receive benefits from both teaching and learning methods, this means that students had a positive attitude towards blended learning and should be more encouraged. 44.3% of the respondents agree that e-learning provides flexibility and an opportunity to acquire new knowledge. 80.7% of the respondents agree to the statement that a level of training is required when the e-learning platform is introduced to the students and it cannot self-taught.

E-learning system's reliability: The results in Table 7 gave the survey to establish reliability of the system from the students' perspective. Of the respondents, 47.8% disagree to having

Table 8: E-learning perception: Student self-efficacy

Comment	Level of agreement												
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Missing		
	N	%	N	%	N	%	N	%	N	%	N	%	Mean
Student Self-efficacy													
I feel confident when using the e-learning program	3	3.4	8	9.1	30	34.1	29	33.0	17	19.3	1	1.1	2.56	Neutral
I enjoy using the e-learning program and its functionalities	5	5.7	7	8.0	23	26.1	34	38.6	17	19.3	2	2.3	2 59	Agree
E-learning has led to an improvement in my learning skills and performance	3	3.4	8	9.1	23	26.1	30	34.1	24	27.3	0	0.0	2.73	Agree
I have a high level of skills when it comes to surfing on the Internet, this makes the use of platform easier for me	1	1.1	4	4.5	13	14.8	35	39.8	33	37.5	2	2.3	3.10	Agree
I have a high level of skills in using internet for online learning	0	0.0	3	3.4	20	22.7	38	43.2	23	26.1	4	4.5	2.96	Agree

received any training from the university for using blackboard. 21.6% neither agree nor disagree with this statement whereas 29.5% agree to having received training. From the respondents who use the e-learning platform, 41.5% never received any training, 36.9% of the respondents who use the e-learning platform have received training, whereas 21.7% of the respondents who use the e-learning platform neither agree nor disagree to having received any form of training. The effective use of the e-learning platform will only be possible if the users know how to use it. Most of the students have not received any training and this can create a major drawback for the success of the system. 45.5% of the respondents agree that the learning process was clear and structured and 36.4% agree that the features of blackboard were easy to use. However, most of the respondents 37.5% are undecided on whether there is ease of navigation and management of the content.

Students' self-efficacy: Self-efficacy was the belief of the student, in their capabilities and to achieve a specific outcome[26]. From Table 8, the majority of respondents could not agree nor disagree with the statement that they feel confident when using the e-learning platform however, 33.0% agreed to feeling confident while using the e-learning platform. 38.6% agreed to that they enjoy using the e-learning program and its functionalities. 34.1% of the respondents agreed that the use of this platform has led to an improvement in their skills and performance. 39.8% agreed to having a high level of skills when it comes to surfing on the internet and therefore making the use of the e-learning platform easier for them. Lastly, 43.2% of the respondents agreed to have a high level of skills for online learning. This shows that students do have a positive attitude and capabilities towards e-learning.

Benefits of E-learning: A survey was carried to establish what the students view as benefits of e-Learning. This was

important for this research in order establish uniformity in the terms of reference. The following benefits came out popular with the students:

- Lifelong learning
- Reduced commute time to campus
- Easy access to information
- Convenience of time and place for learning activities
- Real time communication and interaction amongst students
- Timely feedback from lecturers
- Improved sharing of educational resources
- Improved confidence by students in engaging with peers and lecturers

Challenges of e-learning: The researchers carried out a survey to establish the main challenges that encountered by the users of the e-learning platform at the University of Venda. The following challenges were identified:

- Lack of access to computers
- No access to internet
- Poor understanding of English instructions used by the platform
- Lack of computer literacy
- Unavailability of technical support for users
- Lack of assistance and expertise from lecturers
- Lack of awareness and familiarity with the e-learning platform
- Lack of motivation, finally
- Very few of the respondents indicated to having no challenges at all in using the e-learning platform

E-learning implementation Influence on lecturing staff: Of the lecturing staff investigated, 18.8% of the respondents indicated that the implementation team encouraged their participation in using e-learning, 56.3% indicated that they

Table 9: Influence of e-learning implementation

	Frequency	Percentage	Valid percentage	Cumulative percentage
Encouraged participation	3	18.8	18.8	18.8
Influenced by personal interest	9	56.3	56.3	75.0
Did not realize the implementation	1	6.3	6.3	81.3
Discouraged due to lack of technological resources	2	12.5	12.5	93.8
Not influenced, prefer conventional teaching	1	6.3	6.3	100.0
Total	16	100.0	100.0	

were influenced by personal interest and not the university. 6.3% indicated that they never realized the introduction of e-learning. 12.5% indicated that they were discouraged in utilizing e-learning by the lack of technological resources and 6.3% indicated that they were not convinced by e-learning and would prefer the conventional way of teaching (Table 9). Most of the respondents were influenced by personal interest. This indicates that the university needs to market e-learning more and correctly to academics and students and encourage their participation by providing training and technological resources.

Further analysis identified that, of the lecturing staff who had expert knowledge for teaching a blended course, 80% were self-motivated and influenced by personal interest to implement e-learning. Out of those who had adequate knowledge, 62.8% were also influenced by personal interest rather than the university's promotion of the platform. This shows that, not much is being done to encourage participation of lecturing staff in utilizing the platform.

Benefits of e-learning in teaching process: The direct benefits of using an e-learning platform by lecturers, for teaching and learning activities were established. The following benefits were identified:

- Ease of access to information and simple dissemination of study materials
- Improved communication between the lecturer and student
- Simplified ways of monitoring of student activity through support of both synchronous and asynchronous communication
- Promote student independence
- Improved use of computer technology
- Efficient student record management

This survey shows that lecturing staff have some of their work simplified through the use of e-learning which provides easy way of doing the work.

Challenges of e-learning implementation: The lecturing staff respondents were asked to identify the challenges experienced in terms of e-learning. Most of the respondents 24% indicated "lack of willingness from students to engage in the e-learning platform" as a major challenge. While, 16% of the respondents indicated "lack of technological resources" as a challenge. 14% of the respondents each indicated "lack of computer literacy in students, lack of familiarity, integration and awareness of the platform and lack of technical support and assistance" as a challenge of e-learning. 10% indicated "lack of training" and 8% indicated "lack of computer literacy" as challenges faced.

Lecturing staff's influence on the e-Learning perception at the University of Venda: There was 6.3% of missing cases. From the 93.8% of the respondents, 34.5% indicated that they influence e-learning perception by encouraging students, other lecturers and staff members to support use of the e-learning platform. 27.6% of the respondents indicated their response as increasing awareness of the e-learning platform for students. 13.8% of the respondents indicated that it was difficult to influence positive perception for e-learning. 6.9% respondents indicated that they send students for training. 6.9% respondents indicated that they make sure information sharing was done via the platform and 6.9% of the respondents indicated that they do not take any action. 3.4% respondent indicated that they do a proper consultation with the supporting department for e-learning and contributory to policies. These results showed that most academics try to influence positive perception by encouraging the students and their colleagues to use e-learning and by increasing awareness.

Lecturers teaching approaches' influence on student engagement with e-learning: The results in Table 10 showed the common themes identified on how the lecturer's teaching approach influences students' engagement with e-learning. This was done to investigate changes in lecturers' teaching methods as influenced by the inception of the e-learning platform. 40.0% of the respondents indicated that they influence student engagement with e-learning through the following; development and uploading of learning material online, promoting discussion forums, announcements, online assessments or submissions. 16.0% of the respondents specified that they do not use e-learning. 12.0% encouraged

Table 10: Teaching approach and e-learning engagement

Teaching approaches	Responses		
	N	Percentage	Percentage of cases
Encourage student participation	2	8.0	12.5
Development and uploading of learning material online, promoting discussion forums, announcements, online assessments and submissions etc.	10	40.0	62.5
Supplement the current teaching method and offer a blended course	1	4.0	6.3
Encourage participation for modules with practical component and less need of physical contact between student and lecturer i.e., projects	3	12.0	18.8
Students are self motivated	2	8.0	12.5
Cannot reach out to all students	1	4.0	6.3
E-learning has not found ground to teaching at University of Venda	2	8.0	12 5
Do not use it	4	16.0	25.0
Total	25	1 00.0	156.3

Table 11: Barriers to e-learning implementation

Barriers	Responses		
	N	Percentage	Percentage of teases
Lack of training and support	8	19.0	50.0
Lack of motivation	6	14.3	37.5
Resistance to new technology	7	16.7	43.8
Inadequate IT infrastructure (computers, electrical sockets, internet, computers etc.)	3	7.1	18.8
Long process to be registered to use blackboard by CHETL	7	16.7	43.8
Lack of mutual goals between lecturers and CHETL	2	4.8	12.5
Driven by management rather then technology	1	2.4	6.3
Difficult to implement	7	16.7	43.8
No barriers	1	2.4	6.3
Total	42	100.0	262.5

usage through participation for modules with practical component projects. Of those who use it for practical modules, 8.0% specified that they encourage student participation. Another 8.0% indicated that students are self-motivated, 8.0% indicated doubt the applicability of e-learning in their modules. 4.0% of the respondent acknowledge that e-learning supplements the current teaching method. 4.0% of the respondentsdoubt the possibility of reaching out to all students through e-learning.

Barriers which prevent lecturers from using the e-learning platform: 9.0% of the respondents identified "lack of training and support" as a drawback. 16.7% respondents each identified "resistance to new technology", "long process to be registered to use Blackboard by Committee of Higher Education for Training and Learning (CHETL)" and "difficulty to implement" as barriers. E-learning falls under CHETL at the University of Venda, which is a academic development unit for training[27]. 14.3% of the responded indicated "lack of motivation". 7.1% of the respondents indicated that the cause of this is "inadequate infrastructure" some respondents mentioned lack of computers, others indicated lack of internet connectivity and others indicated other issues such as projectors, electrical sockets etc. not functioning properly in lecture rooms as a barrier. 4.8% of the respondents indicated that there is "lack of mutual goals between lecturers and CHETL." 2.4% of the respondents indicated that the "E-learning program is driven by management rather than technology." Another 2.4% respondents denoted that there were no barriers. All these barriers are limitations which can be overcome by university support. The lecturing staff are drawn back mostly due to lack of training and resistance. However, the other barriers exist because the process for lecturing staff members to make their course available online is too bureaucratic (Table 11). Rather than allowing lectures to register their courses and enroll students online, they have to physically visit the offices of the platform administrators for this to be done.

The following section addresses the research questions whose responses contributed to the main objective of this study.

Usage of e-learning platform: The results show that most of the students and lecturing staff have capacity to use and adopt the LMS. However, the usage of the e-learning system by the students was only 52.27% whilst the remaining prefer

conventional learning over e-learning or blended learning. Despite the university's efforts in providing the relevant infrastructure for the e-learning program, some students still don't utilise the infrastructure. The popular devices for accessing the e-learning platform were desktop computers and laptops rather than the mobile devices (tablets) issued by the university. From the students who use the e-learning platform, the majority use it to access study material and for online tests and submissions. This shows that the platform is being used mainly for general purposes rather than utilizing the interactive features that it provides. This calls for an improvement on usage for the e-learning platform at University of Venda.

Level of promotion and university support: The majority of students and lecturing staff indicated that they require training on how to use the LMS and that, it could have been ideal for the University management to have done a thorough promotion before implementing the use of blackboard. Blackboard is a subscribed platform and therefore, poor levels of usage might result in a loss for the university. Lack of computer literacy and lack of awareness amongst lecturing staff and students is a big challenge. Some students and lecturers are reluctant to use the LMS and prefer to stick to the conventional ways.

E-learning perception: In general, there was positive perception from both students and academics towards e-learning irrespective of their gender, age, level of study and race. However, motivation and support from the university is required to attract more students to the platform.

Benefits and challenges of e-learning: The major benefits that both students and academics identified include sharing of educational resources, the convenience of time and place, increased level of confidence in using e-learning as teaching and learning tool. The major challenges that both lecturers and students identified include limited internet access, limited computer access, lack of technical assistance and support, lack of motivation to engage in the e-learning platform and lack of assistance and expertise from CHETL.

Comparative study between the University of Venda (rural based) and other urban based universities: According to the results, the major reasons why rural based universities lag includes lack of effective IT infrastructure, lack of economic development in the area, lack of university support and training provided as compared to urban based universities.

Poor awareness towards the educational technology solutions and lack of a systematic approach when introducing new technologies is also amongst the drawbacks.

CONCLUSION

The study concludes that the following were the factors which influence e-learning implementation at the University of Venda. These factors are mainly based on students' perceptions, lecturing staff's perceptions and the location of the university.

The factors amongst students and academics which influence the implementation of e-learning include:

- Lack of computer literacy, training and awareness campaigns
- Poor motivation of the product by the implementing team
- Negative perceptions of the program by staff and students

The factors that influence negative e-learning implementation at the University of Venda, from the perspective of the university's technical support staff includes were:

- Poor accessibility to the e-learning platform caused by inadequate ICT infrastructure. This includes availability of adequate computer resources, internet connectivity, electrical components and power supply
- Lack of properly formulated e-learning policy to guide the implementation program. An enabling structure for e-learning under the CHETL is required to work on the policy and support its implementation
- Lack of adequate support by management. Management must appreciate the relevance of e-learning as a tool for supporting teaching and learning at the university. This would result in the proper channeling of resources towards making the program a success

The successful implementation of e-learning at rural based universities is likely to take a new dimension, should all the stockholders be considered. Without such considerations, resources might continue to be wasted without any meaningful benefits being derived from the program. The starting point should be for everyone involved in the program to have a positive perception, to avoid internal sabotaging of the program.

SIGNIFICANCE STATEMENTS

This study identifies factors which influence e-learning implementation at the University of Venda and made recommendations which will improve current techniques, increase adoption and usage and fully maximize the potential of the e-learning platform. It helps in identifying ways to improve technological development in learning. The study provides an insight to academic practitioners and universities who are involved in the planning, developing and implementation of e-learning programs on the factors which contribute to the success of the program and the perceptions of its students and other main participants in developing rural based universities. It provides a proposal on how to successfully implement the e-learning program at the University of Venda. The results contribute to the literature of the factors which influence a successful implementation of e-learning programs in rural based university. There is not much literature published on e-learning in Limpopo province of South Africa therefore, it is a contribution towards knowledge creation in this area.

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