Perceptions of TVET Students Regarding the Integration and Accepting of Learning Management Systems (LMS) for Teaching and Learning: Situation Analysis of TVET College in South Africa

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Abstract
Emerging digital technologies in education are changing the traditional institutions by providing new possibilities for learning online and integrating technology for pedagogical innovation. Higher institutions such as universities and Technical and Vocational Education and Training (TVET) colleges have implemented and adopted the learning management system (LMS) as an innovative alternative digital technology for online teaching and learning. A quantitative research approach was applied in this study. A questionnaire was used to collect data from the 215 TVET students. The students were randomly selected to share their experiences with regard to the integration and adoption of Learning Management Systems (LMS) for teaching and learning. The collected data were analysed using the SPSS software package. The findings indicated that most of the participants believed that LMS improved their learning performance, it is easy to be used and they will continue using it because it is fun. The recommendations indicated that the TVET college need to develop the lecturers with relevant technological skills and knowledge. The college management must be abreast with the latest technology tools that are applied at other TVET colleges.

Keywords: Perceptions, TVET, LMS, Teaching, Learning

Introduction

Then rapid transformation of technology and the vast demand of the 21st century has put pressure on higher education institutions to drive for the best pedagogical and theoretical approach to train and prepare the students for work (Moate and Cox, 2015). Emerging digital technologies in education are changing the traditional institutions by providing new possibilities for learning online and integrating technology for pedagogical innovation (Pangeni 2020, Chiloane, de Jager & Mokgosi, 2022). Higher institutions such as universities and Technical and Vocational Education and Training (TVET) colleges have implemented and adopted the learning management system (LMS) as an innovative alternative digital technology for online teaching and learning (Chiloane 2021, Pangeni & Karki, 2021).

Learning Management system is defined as a technology software application that backup the documentation, training programmes, e-learning programmes, classroom and online events and the administration (Turnbull, Chugh & Luck, 2019). LMS is pivotal to enlarge the instructional delivery methods, assessments and collaboration among lecturers and students. LMS is an education practice of teaching and learning that is flexible, student-centred and convenient because it can be employed beyond the traditional classroom setting (Davis & Surajballi, 2014). Digital technologies such as LMS provides students with opportunities to learn beyond the classroom environment but provide social constructionist learning situation (Pangeni & Karki, 2021). LMS gives the TVET students the opportunity of using the platform when accessing and submitting assignments, using quiz, group projects online and watching lecture supplemental videos. The technology platform develops the student's learning skills and promotes their academic performance (Correa-Baena, Hippalgaonkar, Van Duren, Jaffer, Chandrasekhar, Stevanovic, Wadia, Guha & Buonassisi, 2018).

Although LMS has been employed for corporate organisational information management, instruction delivery in education, data-base management and for training. Still, its usability and impact has not been recognised in Technical and Vocational Education and Training (TVET) colleges (Drent & Meelissen, 2008). Therefore, this study aims to determine the perceptions of TVET students when integrating and accepting the LMS in their learning. The theoretical framework is deliberated in the following section.

The Technology Acceptance Model (TAM)

The study used the theory of Technology Acceptance Model (TAM) as its base to understanding the perceptions of students when employing and accepting the LMS in their learning. The TAM theory is the adaptation of Theory of Reasoned Action by Fishbein and Ajzen (1975). The theory of technology acceptance model indicates that a user's behavior intention to integrate and use technology is influenced by three elements which are perceived usefulness, perceived ease of use and attitude (Baki, Birgoren & Aktepe, 2018). The TAM theory suggests that the user's behavioral intention to accept an information technology system is influenced by user's attitude towards employing the system and perceived usefulness. Again, perceived ease of use, perceived usefulness are primary factors influencing information technology acceptance behaviours (Wu & Chen, 2016).

According to Guriting and Ndubisi (2006) perceived usefulness is the subjective probability that employing technology would enhance the way the operator finishes the provided task. Davis, Bagozzi and Warshaw (1989); Gahtani, (2001) claimed that perceived ease of use is

the degree to which an individual agrees that employing a certain technique would be priceless. Again, it is argued that attitude has a powerful, direct and positive impact on user's intentions to use the new technology system (Hernandez and Mazzon 2007). In addition, Davis, Bargozzi and Warshaw findings (1992) indicated the importance of the influence of the perceived enjoyment on the behavioural intention. According to the TAM, students' attitudes can motivate the use of LMS. Venkatesh and Bala (2008) proposed the latest work on the Technology Acceptance Model (TAM III).

The greater the perceived usefulness of Learning Management system, the more possible the students' will use it in their learning. Perceived usefulness is also a pivotal variable of attitude in the model (Gurtubay, Chaparro, Bienzobas & Gilete, 2013), the implication of the findings is that perceive usefulness of LMS leads to a positive attitude to use the system. Zeithaml, Parasuraman and Malhotra (2002) stated that the extend at which a method used is simple to grasp then could be considered as perceive ease of use. Perceived ease of use has a positive impact on the students' perceived usefulness of the LMS system. Some previous studies suggest that perceived enjoyment is an intrinsic part that stimulates individuals to be involved in a system that incite them (Hussain & Mkpojiogu, 2016). Therefore, in the context of this research paper it suggests that besides the results anticipated when integrating the LMS the students would uncover their pleasure and excitement.

Other studies argued that the users' attitude has a direct positive impact on the users' actual intention to use the system (Hernandez & Mazzon 2007). Teo (2010) supported that attitude determines the degree at which the users weigh the possibility of encountering pleasure and satisfaction when using the system. In this paper, the students' attitude would be positively impacted when they have fun using the LMS. Jogiyanto (2007) discovered that individuals who are curios in a particular system will behave in certain way. Therefore, their intention will influence the use technology tools. The implication in the context of this study is that when the students are eager to learn how to use the LMS, they will have the intention to integrate technology (LMS) to enhance their learning.

Research Objective

The aim of the study is to determine the perceptions of TVET students when integrating and adopting the LMS in their learning in one TVET college in South Africa. The study proposed the following hypothesis questions:

H1: Perceived usefulness positively influence users' attitude

H2. Perceived ease of use positively influence users' attitude

H3: Perceived enjoyment positively influence attitude

H4: Attitude positively influence intention to use

H5: Intention to use positively influence users' actual system usage

Methodology

The study used the quantitative approach that provided the researcher with the chance to collect numeric data from a huge number of individuals employing the questionnaire instruments with pre-set questions and responses (Creswell & Guetterman, 2019).

Population and Sampling

The population is a group of individual or proceedings with the same features that can provide assistance to the researcher in the study (Cohen, Manion & Morris,2018). The population of the study comprised of all TVET students studying at 52 TVET colleges in South Africa. A sample is a smaller group of the entire population that assists the researcher to obtain knowledge and data that epitomise the total population in the study (Bailey, 1994). The study sample comprised of 214 TVET students who were randomly sampled. The probability simple random sampling was employed because it draws randomly from the broader population and each individual has the opportunity of being chosen from the population. The probability of each individual being selected is not negatively impacted by the selection of other individuals (Fisher, 1966).

The study utilised the questionnaire to collect data and the instrument comprised of two parts. The first section concentrates on the demographics such as the year of study, faculty and technology experience. The second section focussed on the constructs to test the theoretical model. A five-point Likert scale was adopted as a measurement with 22 items adapted and improved from previous studies (Davis et al., 1989). Each item was measured using: (1=Strongly disagree, 2= Disagree, 3= Neutral, 4=Strongly agree, 5=Agree).

Ethical clearance and permission to perform the research in a particular TVET college were attained from the Research Ethics Committee (REC) from the University, Department of Higher Education and the specific. TVET Colleges before the study was initiated. The participants completed the forms and their anonymity was kept confidential and private. The participants were informed that they have a choice of not participating in the research. (Creswell & Guetterman 2019).

Results and Discussion

Descriptive statistics

Table 1 presents the participants year of study, faculty and technology experience. Most of the students that participated were the 1st years (50.5%), then 2nd year (25.2), 3rd year (19.2), 4th year (3.3%) and 5th year (1.9%). Students from the faculty of Engineering (49.5%), Hospitality (28.0%), Commerce & Management Faculty (8.4%), Building and Construction Faculty (6.5%), Services (4.2%) and Faculty of ICT (3.3%). Students that were technologically experienced (68.7%), lack of technology experience (29.0%) and (2.3%) were neutral.

Year of study				
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
1st year	108	50.5	50.5	50.5
2nd year	54	25.2	25.2	75.7
3rd year	41	19.2	19.2	94.9
4th year	7	3.3	3.3	98.1
5th year	4	1.9	1.9	100.0
Total	214	100.0	100.0	
Faculty				
Building & Construction	14	6.5	6.5	6.5
Commerce & Mng	18	8.4	8.4	15.0
Engineering	106	49.5	49.5	64.5
Hospitality	60	28.0	28.0	92.5
ICT	7	3.3	3.3	95.8
Services	9	4.2	4.2	100.0
Total	214	100.0	100.0	
Technology experience				
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Unknown	5	2.3	2.3	2.3
No	62	29.0	29.0	31.3
Yes	147	68.7	68.7	100.0
Total	214	100.0	100.0	

Table 1 Descriptive statistics

Regression statistics

The results showed that there is strong evidence that a significant difference of most of the participants agreed that they believe LMS improves their learning performance because the p value of the mean =3,24 and p value less than 0.05 ($p<0.05$). There was no strong evidence that a significant difference between participants were uncertain that using LMS enhances their learning effectives because the p value of the mean=3.23 and p value higher than >0.5($p>0.05$). The results indicated a strong evidence that most of the participants agreed that using LMS easily translated the learning material into specific knowledge since the p value of the mean = 3.23 and the p value is less than 0.05 ($p<0.05$). There was no strong

evidence that a significant difference of most of the participants were neutral that learning to use LMS was easy because the p value of the mean= 3.02, p value is greater than 0.05 (>0.05), it is easy to become proficient in using LMS because the p value of the mean=3.07, p value is greater than 0.05, LMS interaction is clear and understandable as the p value of the mean=3.06, p value is greater than 0.05 (>0.05). Lastly, students were uncertain that it can be easy for an individual to become skilful at using the LMS as the p value of the mean=3.14, p value greater than 0.05 (>0.05).

The findings demonstrated that there is a strong evidence that there is a significant difference that most of the participants agreed that using LMS is a good idea because the p value of the mean=3.54, p value is less than 0.05 (p<0.05), participants feel comfortable when using the system' functions and services as the p value of the mean=3.24, p value is less than 0.05. A strong evidence that a significant difference of students' participants believed that using online assessment is advisable because the p value of the mean=3.29, p value is less than 0.05. However, there is no strong evidence that participants agreed that they are satisfied in using the Learning Management System.

It was established in the study's outcomes that there is no strong evidence that there is significant difference that other participants agreed that participants perceive enjoyable when using the LMS because the p value mean=3.14, p value is higher than 0.05 (p>0.05) and no strong evidence that there is significant difference that students find it pleasurable when using LMS since the p value mean=3.32, p value is higher than 0.05 (p>0.05). Despite the uncertainty of students, it was mentioned that there is a strong evidence that there is significant difference that some of students found LSM to be interesting when used because the p value of the mean=3.32, p value is higher than 0.05. Also, fun to use LMS for their learning content because the p value of the mean=3.17, p value is higher than 0.05.

There is strong evidence that there is a significant difference that most of the students wished to continue using LMS in the near future. Since the p value of the mean= 3.37, p value is less than 0.05. Students intend to use the LMS in the future and be active users of the system because the p value of the mean=3.41, p value is less than 0.05. Other students mentioned that they will frequently use the LMS in the future as the p value of the mean=3.39, p value is less than 0.05. The findings also stated that participants will use LMS on a regular basis in the future as the p value of the mean=3.39, p value is less than 0.05. Participants stated strongly to recommend the use of LMS to others, as the online platform was found helpful in their learning at all times because the p value of the mean=3.46, p value is less than 0.05 (p>0.05).

Correlation Coefficient- Bivariate analysis: Relationship between variables

Perceived usefulness and Perceived ease of use

The study findings pointed out a significant positive relationship between Perceived usefulness (PU) and Perceived ease of use (PEU): "Learning to use LMS is easy" and perceived usefulness/I believe LMS improve my learning performance (chi-square=136.821, df=24, p=0.000). A significant positive relationship between "It is easy to become proficient when using LMS" and "I believe LMS improve my learning" (chi-square=141.801, df=24, p=0.000). Another significant positive relationship between "The interaction with LMS is clear and understandable" and "I believe LMS improve my learning" (chi-square=140.894, df=24, p=0.000) was presented by the findings. There was a significant positive relationship

between “It is easy for me to become skillful when using the LMS” and “I believe LMS improve my learning” (chi-square=154.100, df=36, p=0.000).

Perceived usefulness and Attitude

There was a significant positive relationship between perceived usefulness(PU) and attitude(AT) because of the following items measurements: “I believe using LMS is a good idea” and “I believe LMS improve my learning” (chi-square=108.095, df=24, p=0.000). The two variables “I feel comfortable in using the functions and services provided by the LMS” and “I believe LMS improve my learning” showed a significant positive relationship (chi-square=171.849, df=24, p=0.000). The results indicated a significant positive relationship between “I believe using online assessment is advisable” and “I believe LMS improve my learning (chi-square=87.107, df=24, p=0.000). An illustration of a positive relationship between “I am satisfied in using LMS” and “I believe LMS improve my learning (chi-square=134.962, df=24, p=0.000) was indicated by the results.

Perceived usefulness and Perceived enjoyment

The results indicated a significant positive relationship between Perceived usefulness (PU) and perceived enjoyment (PE): “I like using LMS” and “I believe LMS improve my learning” (chi-square=162.077, df=24, p=0.000). Also, it was uncovered that a positive association between “It is pleasurable to use LMS” and “I believe LMS improve my learning” (chi-square=149.362, df=24, p=0.000). There was a significant positive association between “I have fun with using LMS” and “I believe LMS improve my learning” (chi-square=118.158, df=24, p=0.000). A significant positive relationship between “I find using LMS to be interesting” and “I believe LMS improve my learning” (chi-square=137.665, df=24, p=0.000).

Perceived usefulness and Continuance Intention

A significant positive relationship Perceived usefulness(PU) and Continuance Intention(CI)**:** “I will continue using LMS increasingly in the future” and “I believe LMS improve my learning” (chi-square=141.389, df=24, p=0.000). Another results showed a significant positive association between “My intentions are to use LMS in the future, at least as active as today” and “I believe LMS improve my learning” (chi-square=116.303, df=24, p=0.000). There is a significant positive association between “I will frequently use LMS in the future” and “I believe LMS improve my learning” (chi-square=126.303, df=24, p=0.000). The findings mentioned that there is a significant association between “I will use the LMS on a regular basis in the future” and “I believe LMS improve my learning” (chi-square=127.000, df=30, p=0.000). Lastly, it was indicated that a significant positive relationship between “I will strongly recommend others to use it” and “I believe LMS improve my learning” (chi-square=120, df=24, p=0.000).

Discussions

According to the findings most of the students perceived that the more they use LMS for their studies, the more it will be useful because it improves their learning performance, technology skills, learning effectiveness and interpret their learning material into specific knowledge. Literature findings revealed that LMS is an effective teaching and learning tools that improves the learning environment and the students’ academic performance (Taat &

Francis,2020; Eden et al.,2021). However, some of the students were not certain that using LMS can be useful to their learning by improving their performance and enhancing their learning effectiveness. This finding is supported by the literature of Eden et.al., (2021) by indicating that using the LMS it is not useful and no LMS skills obtained when using the system.

Most of the students are uncertain that when using LMS for learning it is easy, clear and understandable, maybe they are lacking the technology skills and experience to use the technology tools/systems during their studies. Eden et.al., (2021) and Abbad, Morris and Nahlik (2009) stated that when continually using the LMS it becomes easy to use and gain the relevant technology skills that are required when integrating it with the learning.

The perceived attitude hypothesis is confirmed by the results that positive attitude influences the use of LMS. When students use the system is continuously, it becomes ease to integrate it for learning. The system turns out to be useful because it can also be used for online assessments. The literature findings of Eden et.al., (2021) mentioned that using LMS encouraged the students in their learning, academic performance, improved their research skills. Students have a positive attitude towards the use of LMS because they find the system to ease to use and useful in their learning. Although, there are students that are not satisfied in using the LMS because of being neutral in their responses.

Lectures need to provide support and encouragement during the lesson so that students can see the importance of using the online system. The finding is supported by Taat and Francis (2020) who mentioned that it is imperative lecturers are developed to use the LMS because the system improves their professional practices. At the end, lecturers will be able to deliver their lesson through the platform, provide the necessary support their students which will positively impact their attitude towards the use of LMS when learning.

There are students who are technologically challenged because they were not exposed to technology use due to lack or shortage of resources at the TVET colleges and their previous schools. Since, they find it difficult to use the LMS they ended up being demotivated. They cannot experience the ease of use, the usefulness of this technology system and they are not looking forward to continue using the Learning Management system in the future. Students who are not exposed to technology in their learning they tend to resist change and prefer their traditional mode of learning (Hondonga, Chinengundu & Maphosa, 2021).

As, mentioned before in the study that most of the TVET lecturers are challenged with regard to usage of technology tools in their teaching. TVET lecturers are lacking the technology skills, and it is difficult for them to provide the support needed so that their students are able to use the LMS for their learning. Ghavifekr and Rosdy (2015); Chiloane (2021) in their study findings observed that TVET lecturers lack Information Communication and Technology (ICT) skills for the instructional delivery. As such, it is a barrier to integrate LMS in their teaching and to provide support to their students especially those that were not exposed to technology in secondary school. Hondonga et al., (2021) supported the study finding and indicated that TVET lecturers lack the technology training that can assist them to acquire relevant technology skills to use technology tools such as LMS for teaching and learning.

Nevertheless, there are other students who are technological savvy finding it easier, pleasurable, satisfying, fun when utilising the Learning Management System. Such students

learn quickly and know how to use the system functions and service with ease. These students are the ones who provide support to their peers. The study finding was confirmed by Oguguo, Nannim, Agah, Ugwuanyi, Ene and Nzeadibe (2021) and Abbad, Morris and Nahlik (2009) who echoed that constant utilisation of LMS assist both the lecturers and students to recall, simplify the content taught, obtain relevant technology skills and knowledge on how to use the system and improving the students' academic performance.

Fearnley and Amora (2020) findings indicated that PE had a positive and significant impact on PU. Their findings agreed with this study finding that revealed a significant and positive relationship between Perceived usefulness (PU) and Perceived ease of use (PEU).

There was a significant positive relationship between perceived usefulness(PU) and attitude(AT). Most students indicated that they are positively motivated to use LMS for their learning as it is useful in their learning. They can write the online assessments and get their feedback instantly from their lecturers. The results indicated a significant positive relationship between Perceived usefulness (PU) and perceived enjoyment (PE). However, the findings of Hondonga et al., (2021) stated that most of the students are demotivated and cannot enjoy the use of LMS due to lack of support to use the college LMS and lack of technology tools at home so that they can be able to access the system for learning.

A significant positive relationship Perceived usefulness(PU) and Continuance Intention(CI) was revealed by the findings**.** Most of the students echoed that they will continue using LMS in the near future, they will frequently use the system in the future, on a regular basis and recommend it to others. Since, they have discovered the advantage of using the online platform, such as accessing the uploaded assignments, being assessed online, accessing the announcement very quickly from the system and alternating the face2face classes with the online teaching and learning. Students who are confident to use technology are able to experience the usefulness of the system and intend to continue using learning system (Abbad, Morris & Nahlik, 2009).

It is an indication that LMS improves teaching and learning by making the learning content simpler for both students and lectures. For an example, lectures are able to upload the module content, notes and quizzes so that students can read before the lesson. The implication is that the more the students use LMS it will be easier to use the system and useful to their studies. At the end, students will have a positive attitude to continually use the system in their learning environment. The recommendations are that management of the college needs to develop their lecturers with relevant technological skills and knowledge. College management needs to be abreast with the changing technology that is being used at higher institutions globally. Enough support needs to be provided to their students so that they can be able to acquire technology skills so as to integrate LMS in their learning.

Conclusion

It was concluded that most of the students perceive the integration of LMS as pivotal because it enhances their learning in various ways. LMS support the teaching and learning of TVET courses and improves the student's technology skills. Most of the students find the system to be easier, pleasurable, satisfying, fun when integrating it in their learning content. However, some of the students are neutral and disagreeing towards the use of the learning system. Due to lecturers that are unable to support and teach them how to integrate LMS in the learning. Lecturers lack the relevant technology training to acquire skills on how to use LMS.

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