



## EFFECTIVENESS OF TECHNOLOGY IN OPEN DISTANCE LEARNING: A CASE STUDY OF THE UNIVERSITY OF SOUTH AFRICA

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### | Abstract

Technology was gradually embraced by distance education institutions to interact and instruct their diverse student body. To reach students in far-flung locations, the University of South Africa (Unisa) has embraced the Open Distance and E-learning (ODEL) paradigm. The digital gap is a problem as technology advances because it makes it difficult for pupils to access the Internet. The study went over the literature with a particular emphasis on the usefulness of technology in ODeL. To thoroughly examine the case, the study has chosen a qualitative research methodology. To analyze the data acquired from students enrolled in ODeL courses, the study has utilized a community of inquiry structure. The study made use of the interpretative paradigm, which holds that reality is a multi-layered, complicated phenomena that may be interpreted in several ways. The study is comprehensive in character since a qualitative research technique using a case study design method was chosen most appropriate for it. Twelve individuals were chosen by the researchers from two Unisa regional offices in the Eastern Cape Province using a purposive sample technique. The participants were questioned about their opinions and experiences with using technology during semi-structured interviews. Thematic analysis, a method of finding themes within qualitative data, was used to analyze the acquired data. The results showed that students who used technology well were better communicators, had better grades on their assignments, and fared well on tests.

### | Keywords

Transactional distance, open distance and e-learning, connectivism, distance learning, and online learning.

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### 1. Introduction

University of South Africa is one of the leading Open Distance eLearning (ODEL) institutions globally that uses e-learning to teach its students. The researcher is one of the e-tutors supporting the learners enrolled in this ODeL institution and has noticed that students in marginalised rural areas experienced infrastructural challenges when it comes to online learning. Students from rural areas find it difficult to access the internet and find it difficult to travel to study centres where there are computers owing to unemployment and poverty.

Learners studying online need digital devices including computers, laptops, mobile phones, good network coverage and data to continue with their studies. The researcher had noticed that financial constraints make it difficult for poor learners to buy equipment needed for online discussions.

## **2. Literature Review**

The use of technology in teaching and learning is widespread among higher education institutions worldwide, especially distant learning institutes. Perkin et al. (2021:3) assert that if technology is employed more skillfully in distance learning settings, it can enhance students' performance. The transactional distance between online instructors and students in distant learning institutions can be lowered thanks to technology. One of the universities that uses technology for efficient teaching and learning is Unisa. Unisa currently uses the ODeL paradigm for instruction and learning.

The teachers at Unisa communicate with students from both metropolitan and far-flung rural places using contemporary technology. The Moodle learning management system is used to assist students in carrying out a range of tasks, including interacting with other students in a discussion forum, accessing resources from the online library, turning in assignments, and carrying out administrative tasks. Students require technologies like laptops, mobile phones, or iPods to communicate with their teachers online. To access teaching and learning on the learning management system (LMS), the students need data. Recently, in order to improve connectivity, Unisa and the network operator MTN agreed to give each user 30 gigabytes (GB) of data. to all enrolled university students (Lekhetho, 2022:54). This means that students will have enough material to research, complete assignments, and prepare for tests. Students who cannot afford to register may apply for financial aid through the NSFAS, or National Student Financial Aid Scheme. South African nationals are the only recipients of the grant. Less than R350 000 should be the combined annual income of the household. Laptops were also provided to students receiving NSFAS grants for study reasons (Ngubane-Mokiwa & Letseka 2015:129).

According to Noberg, Handel, and Odling (2015:147), a number of technologies have developed over the past ten years that can be applied to education, particularly remote learning. These technologies consist of CD-ROM, audio graphs, computer conferencing, video, and audio. According to Zawacki-Richter et al. (2015:112), students enrolled in distance learning institutions are more likely to have an impact on the advancement and efficacy of educational technology if they do not employ new technologies successfully in teaching and learning. Based on his experience with e-tutoring, Alquarash (2019: 133) agrees with Zawacki-Richter et al. (2015) that effective use of emerging technologies can result in positive outcomes for students.

Information and communication technology (ICT) is widely used, which has significantly changed the landscape of higher education and is now offering an expanding variety of innovative and dynamic avenues for the delivery of education (Schmidt, 2015:3). Technology-driven forms of pedagogy are replacing traditional educational methods in higher education as a result of the continual expansion of adaptable and affordable ICTs (Ngubane-Mokiwa, 2017:113; Hew, 2016:77).

Kennedy (2015:60) claims that organizations that provide distance education have progressed from using a variety of content delivery methods, such as sending out cassettes containing the course material, compact discs, television broadcasting, phone calls, and satellite-based audio and video for video conferencing. As a result of the development of new technology, life is now simpler. For connectivity, students only need a computer, a phone, a tablet, an iPod, access to the Internet, and more recently, Wi-Fi. The most often used technology is a computer with an Internet browser that transmits text, audio, and video communications as a form of communication between online instructors and students as well as between students.

When appropriate technology are employed in educational tasks and there is student-to-student contact, Bond and Daher (2016:301) claim that ODeL is more effective than conventional teaching techniques. This

characteristic of accessibility enables students to continue their education in spite of their work commitments and, in addition to saving them time and money, allows them to learn more.

Universities are increasingly adopting learning tools that let students communicate with one another, Schmidt (2015:13) emphasizes. Due to their ability to participate in learning opportunities away from a face-to-face setting, students are able to communicate and collaborate better and save time as a result. More significantly, students use the e-learning systems for administrative and assignment submissions.

Microsoft Teams is now being used by online instructors from ODeL universities to connect with students in remote locations as well as for postgraduate students' supervision and mentoring.

According to Mafenya (2016:29), Unisa is the largest open distance learning (ODL) institution and the industry's top supplier of options for higher education. Increased efforts in student support are necessary due to Unisa's high student enrollment numbers and commitment to its ODeL policy. The ODeL model that Unisa employs is designed to provide greater assistance to students in outlying rural areas. Students must be online in order to contact with their online tutors and engage in online forums with other students.

Comparatively speaking to teaching in traditional learning environments, teaching online demands various roles, abilities, and competences for online instructors. Collaboration between instructors and learners is necessary while teaching online to support learners. Universities should provide ongoing assistance in a variety of ways to assist the academic staff during an online trip in order to foster cooperation (Kassandrianou, Angelaki, & Mavroidis 2014:26). Additionally, based on his experience as an e-tutor, Albrecht (2018:8) concurs with Kassandrianou, et al. that online instruction necessitates collaboration between e-tutors and students. Before online teaching and learning can take place successfully and efficiently, both online teachers and students need to be trained, with a focus on their interactions.

A peer-based e-tutoring system is recommended by Cox (2015:2) as a means of facilitating online dialogues. Peer-based tutoring encourages the active participation of the learners involved, encourages the students' engagement in the learning content, and builds the confidence of the student who is acting as an e-tutor, according to a study by Cox at Griffith University (Australia) on online learning. Additionally, as e-tutors, students acquired a supportive, collaborative, and informative approach that they continued to use even after their employment with the program was over.

According to Kennedy (2015:50), Hong Kong and other nations use mobile instant messaging (MIM) support systems to facilitate teaching and learning in distance learning institutions. MIM tools like Skype, Telegram, and WhatsApp are utilized to post announcements and involve students in group discussions.

Posting the topic for discussion, followed by monitoring and facilitating debate, is the key responsibility of the online instructor. According to recent research findings, students saw and accepted the use of WhatsApp and Telegram favorably. Overall, the effects of combining technology and instruction for remote learning students produce improved outcomes and strong performance for students. The use of WhatsApp in e-learning is problematic, since students are not focused on the topic of conversation, in contrast to Andrew and Stokes' (2018) disagreement with Kennedy's claims that WhatsApp can yield positive results. Students' propensity for utilizing digital jargon on WhatsApp is one of its drawbacks as a discussion tool. The importance of discussions in a synchronous virtual classroom is highlighted by Bond and Daher (2016: 302). Asynchronous types allow all participants to submit communications to any other participant through the Internet, while synchronous types involve alternate online access between instructors and students or between students. Shifting duties to encourage students to participate more actively in their learning while supporting one another required dialogues. Additionally, students are more focused on the advantages of their education.

For instance, Ooko (2016:11) and Ischebeck (2017:2) claim that while using various technological methods and tools might assist the learning environment, the usage of ODeL technologies is recognized to lead to more effective and efficient practices at the institutions. According to research, successful technology use

in ODeL environments encourages learner centeredness. This suggests that students have greater control over their education, participate in collaborative projects, make discoveries, share knowledge, and resolve issues.

According to Al-Emran, Elsherif, and Shaalan (2016:93), mobile learning has developed into a crucial part of the curriculum for students enrolled in distance education programs. In mobile learning, learning and teaching are conducted via portable devices like cellphones. With the help of the Internet and technological advancement, mobile learning enables students to learn, communicate, and exchange ideas with their e-tutors, as well as among themselves. They go on to say that the use of mobile learning systems depends on students' and online teachers' acceptance of it. Whether or not students and instructors are prepared to employ mobile learning depends in large part on their attitudes toward the technology. Such perspectives will help to pinpoint advantages and disadvantages and will speed up the construction of the technological infrastructure.

Online and mobile education are closely related to one another. Students require modern tools like smartphones, tablets, and PCs in order to learn online. The devices are portable, allowing students to utilize them wherever they choose.

### **3. Methodology**

The study adopted the interpretive paradigm, which holds that reality is multi-layered and complicated and that several interpretations can be made of a single phenomenon. Qualitative research methods will enable us to comprehend how individuals interact and interpret their social surroundings while examining a phenomenon (Babbie & Mouton, 2011:24). The interpretive paradigm, according to Creswell (2018:83), is a learning process in which we construct our understanding of the world (our reality) based on our experiences of interacting with that world and analyzing the deeds and utterances of the others. The researcher will be able to speak with participants in person and learn about their experiences using the Learning Management System, which is the justification for employing this paradigm. The fact that interpretivism is consistent with a qualitative approach is an additional benefit.

#### **3.1 Research design**

Creswell (2018:79) defines research design as the process of carrying out the study. The term "research design" refers to the strategy for choosing the participants, the study location, the method for gathering data, and the analysis process to answer the research question. It also describes who will be studied, when, where, and how (Babbie & Mouton, 2011:15). As a result, the qualitative technique is more suited for this study because it aids in the discovery of fresh ideas and unique viewpoints and includes the researcher as a member of the sample. As a result, case studies of students enrolled in the ODeL setting at the College of Education (CEDU) at Unisa were employed in the study. This is the best study design since it allows the researcher to use any data that is pertinent to the investigation. The interviews will be the main source of the data. Because they are flexible in terms of the data source, case studies and interviews make sense as the logical design for this study. The acquired data were analyzed using thematic analysis and purposeful sampling

#### **3.2 Sample size and data evaluation**

According to the sample criteria given by the researcher, a population is a full set of elements (people) that share certain traits (Babbie, 2016:120). For this study, 12 participants from the Eastern Cape Province's Higher Certificate in ABET program were used. There were four men and eight women. The ten participants all spoke IsiXhosa at home. One person spoke Sesotho, and the other spoke English. Grade 12 was the highest degree of education they had. The remaining participants were students from the East London

Unisa Regional Center, where the majority of students come from urban areas like Port Elizabeth and East London, respectively.

Six participants are students from the Mthatha Study Center, where more students come from rural areas. The researcher was able to compare the usefulness of technology for rural and urban learners using the data from these two centers.

Data analysis is the process of looking over, purifying, and altering data with the aim of finding relevant information, guiding judgments, and assisting in decision-making (Creswell, 2021:45). Thematic analysis, which involves finding themes within qualitative data, was used to analyze the collected data (Creswell, 2018:76). Thematic analysis emphasizes the investigation of themes found in raw qualitative data by organizing the data set, according to Scharp and Sanders (2018:117).

## **4. Results and Discussion**

The responses of the 12 participants are fully discussed, and the results are summarized. This ties in with the points raised in the prior chapters' literature assessment and theoretical framework. In-depth study has also been performed, connecting the results with what academics have said about the effectiveness of the LMS in distance learning. The presenting of findings is what comes next.

### ***4.1. Encounters connecting with other students on a platform online***

The students were able to work together in virtual platforms during talks thanks to new technologies. Students are able to share ideas and pick up useful knowledge. When asked about the advantages of the LMS, Participant 1 gave the following answer:

"I gain a lot from communicating with pupils online. But occasionally you discover that some pupils are misinforming us, and our module lecturer and online tutors assist us by elaborating on specific study unit themes. When we are putting together coursework and getting ready for final exams, other students are more helpful.

It is obvious that the online platform acts as a communication tool for e-tutors and students to work together.

Participant 2 emphasized the value of using social media platforms like Facebook, Telegram, and WhatsApp. The first two social media sites function similarly. For instance, WhatsApp is a social network program for instant messaging that facilitates group communication between users via phone and video calls and live chats. When questioned further about the advantages of using technology like social media, the participant responded as follows:

"In Telegram, I converse with other pupils. Telegram operates similarly to WhatsApp. I copied the Facebook page and looked for a group doing the same course as mine. I do gain a lot from the Telegram group because we exchange a lot of knowledge related to our studies, despite the fact that occasionally group members give false information. There are no rigid regulations. I think these social media platforms have the potential to be useful educational technologies and produce positive outcomes if they are used correctly and efficiently.

Participants 3 and 4 emphasized that they benefited from using social media platforms like Instagram since they held similar opinions to the second participant. As an illustration, Participant 3 said:

"Any group member may speak in their native tongue. Both the first and second groups are on WhatsApp. The first group is on Instagram. I have the Facebook links for the two organizations. There were Unisa students pursuing the Higher Certificate in ABET in both groups.

However, Participant 4 claimed that

"I have two groups—one on WhatsApp and the other on Telegram. We share information about our findings with the group members, and they also provide clarification on issues we don't fully understand. I have never conversed with other students in the Unisa Online discussion forum, but I am accustomed to reading their remarks.

One of the obvious things, as mentioned very clearly by Participant 3, is that social media groups give people greater autonomy, allowing them to express themselves in their mother tongues, especially because the majority of the participants I interviewed spoke African languages. Nevertheless, they were able to communicate in English during our interview sessions.

Participant 5 gained new perspective during the online conversations in addition to gaining from the productive engagement with the other students and e-tutors. She said the following:

"I enjoy the activities that the e-tutors post in the discussion forum. I typically respond to them and review the e-tutors' input to determine whether I am on the correct route. According to me, the participant above is on the right course. Students can participate in virtual discussions in group forums in addition to writing responses to activities in the LMS to prepare for assignments and exams. They will have a better understanding of the subject material by responding to the activities presented by the e-tutors.

Even though Participant 6 profited from using technology, she argued that she offered little information, citing the fact that she would rather go to the regional office where Internet access is free because typing on a mobile phone wastes too much time and uses more data. In her words,

"I engage with other students on the myUnisa online platform, but I don't contribute much because using a cellphone to type information takes time. However, I made sure to make a significant donation when I went to the regional center because there is free Wi-Fi there.

Contrary to what the other participants claimed, Participant 7 stated that he or she used to study alone: "I do not have any group, I used to study on my own." When pressed further, she clarified that while group conversations tend to focus more on verbal communication, she preferred to write down and practice the material she was learning because doing so helped her perform well and achieve higher grades on assignments and tests. She learns best on her own, thus she prefers this method. However, she profited from using modern technologies like Wi-Fi because it allows for connectivity when turning in assignments, and she just despises online debates.

In terms of the advantages of using technology, Participants 8, 10, 11, and 12 had relatively comparable experiences. For instance, when prompted, Participant 12 stated:

#### ***4.2 Enable them to communicate with other students and e-tutors.***

According to the researcher, students greatly benefit from participating in online discussions, which is why they enjoy connecting with other students and e-tutors. E-tutors help to explain complex topics during online discussions, such as numerous study unit themes. Online learners support one another as they study for assignments and give one other encouragement as they get ready for final exams.

#### ***4.3. Utilization of technology experiences***

Ten participants typed their assignments, sent emails, submitted their work online, and downloaded the research materials using computers and mobile devices. The abilities that participants learned while taking computer application technology in Grade 12 assisted them when they enrolled in the ODeL university. In their experiments, participants used Web 2 technologies like Facebook, WhatsApp, and Telegram. The results support claims made by a number of authors (Erlinda, 2018; Arora & Lihitkar, Chadna, 2017) that many students are familiar with Web 2 technologies like WhatsApp because they routinely use it to talk

with their friends. I believe that having good typing abilities will aid pupils when utilizing computers like laptops and desktops to send messages.

#### **4.4. Interactions with other people on an online platform**

The study discovered that participants' active involvement in online platforms improved their ability to think critically, aided in decision-making, assisted in problem-solving, and helped them comprehend the content more fully. Students took pleasure in sharing and exchanging ideas. Students achieved high marks on coursework and final exams via consistent and active participation. Language abilities of students also advanced. Learnard and Snyman (2019:3), Gillet-Swan (2017:2), Kumar and Rath (2018:10), and Gillet-Swan (2017:2) all claim that students who actively participate in an online platform perform better in their university studies. I believe that in order to get the best results, online teachers should encourage their students to contribute meaningfully to the online environment. Additionally, according to Garrison (2021:14), children are able to collaborate, actively participate, and form cohesive groups. This is what Garrison (2019:43) called the social presence.

#### **4.5. Technology facilitates efficiency**

The researcher discovered that the participants' use of technology made typing their academic assignments easier. As a result, when compared to handwritten work, their work is clean. Students were able to work a part-time job and study at home simultaneously. Online learning was more economical than full-time university attendance. Students only paid tuition fees, so they were unable to afford the costs of private and dorm rooms. Online libraries made it possible for students to prepare coursework using a variety of sources without having to purchase pricey required texts. The evaluated literature, which includes works by Qwabe and Khumalo (2020:89), Graham and Jones (2016:21), and Todd, Ravi and McCray (2019:9), supports the idea that technology has made it easier for students to obtain more information quickly and has promoted collaboration. I concur with the authors' claims, thus it makes sense that students would use technology to get information like study aids.

#### **4.6. Using a learning management system: Attitudes**

In their studies, eleven participants showed favorable opinions toward the usage of technology. The newly adopted Moodle platform, according to the students, allowed them to even prepare their work offline, lessening the strain of an expensive data source. The administrative tool allowed students to change their personal data. Costly digital resources and disruptions like load shedding were mentioned as the LMS's drawbacks by the students.

The study's findings concur with those of Bashir and Olajide (2020), who found that students can use LMS to interact with one another in discussion forums. On the other hand, Ooko (2016:19) contends that using LMS costs more money. I disagree with Bashir and Olajide's opinions and wholeheartedly support Ooko since using technology requires a lot of pricey data.

#### **4.7. Online tutors are useful**

Seven participants expressed an unfavorable attitude regarding e-tutors, whereas only eight participants displayed a good attitude. Participants who expressed positive opinions gave the following reasons: e-tutors gave them more information on the subject's content; they guided them when they were preparing for assignments and exams; they assisted them in making plans for the course; and they helped them become familiar with the study units in the study guide. The study's findings are consistent with those of Zvavahera and Masimba (2017:79), Ngara and Makuvara (2017:342), and Mncwabe (2020:3) in that online



tutoring support enables students to succeed in their coursework. The researcher makes the case that the LMS's e-tutors' supervision improves student performance.

Participants who expressed negative opinions claimed that because e-tutors are so rigid, they prefer to communicate with other students on social media, where there is more freedom. The coordinators of the online platform should encourage students who hold unfavorable opinions to collaborate with the e-tutors.

## 5. Conclusion

Based on the research findings, the researcher came on the conclusion that the university should create a live learning LMS with live contact between the students and the e-tutors in order to make optimal use of e-LMS. The pupils that don't participate in the forums can also be identified using this. The individuals that are physically there will sign the online registration form, just like they would on Microsoft Teams. The e-tutor will be able to show the conversation topic's slides as a result. Students who are shy may also have the opportunity to post in the chat box to express their worries or pose inquiries.

The use of podcasts in all classes, as is done by law students, can play a significant role since it enables students to pronounce words and concepts that they find challenging to understand and impede their progress in online learning. Students can use their earbuds to listen to the podcast recordings whenever and wherever they like.

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