

RESEARCH PAPER

The impact digitalization has on students' behavior on a high-level institution as the University of Namibia

Johannes Ndesihala Shikwambi* and **Nikodemus Angula***

University of Namibia, Windhoek, Namibia

***Correspondence:**Johannes Ndesihala Shikwambi,
jshikambi81@gmail.com
Nikodemus Angula,
chcangula@gmail.com;
angulan@unam.edu.na**Received:** 09 February 2023; **Accepted:** 18 February 2023; **Published:** 02 March 2023

The overall purpose of this research was to characterize and comprehend how digitalization influences student behavior at a prestigious institution such as the University of Namibia. The following research questions/and research objectives were developed to achieve this goal. The following were the study's findings: Around 60% of respondents believed the University of Namibia's digitalization programme has benefited them. This suggests that pupils were enthusiastic about the digitalization of their learning environment. However, 5 (25%) and 4 (20%) of the respondents, respectively, indicated their dissatisfaction with the results. 4 (20%) of the respondents were undecided because they chose to opt out in the middle of the data collection. Only two respondents (10%) agreed that the University of Namibia's digital online platforms facilitated a more collaborative lecture room atmosphere. As a result, pupils in the lecture hall were unsatisfied with digital internet platforms, which they described as inadequate and untrustworthy. With this in mind, it is suggested that the University update, restructure, and improve its digitization in order to improve performance and promote learning among stakeholders.

Keywords: digitalization, digital online platforms, learning management system (Moodle), UNAM portal, University of Namibia

Introduction

Nowadays, every aspect in our lives is inspired by digitalization. Digitalization has an impact on our everyday activities for convenient and easier access in our lives. Despite the fact our lecture rooms are still the same, it would be one-sided to say that digitalization has not impacted our education system and students (1).

The standard and quality of the education system has drastically changed as the world has changed too (2). Universities have introduced new ways of communication from their point of view and students by changing from traditional face to face methods to advanced technologies and improved communication means that lead to the digital system according to Eriksmo and Sundberg (2).

With the digitalization advancing, it is important for students to keep track with the establishment of conceptuality, critical thinking, innovation and creativity and skills that are required to build value in the world with knowledge from human's capacity (Crittenden et al., 2018).

According to the National Planning Commission (3), stated that in spite of Namibia growth in the education system, the country still falls behind in many areas such as quality, infrastructure, and capital-intensive methods in vital industries, which involves the use of machinery and other latest technological advances as compared to human capital.

Those problems are regarded a huge disadvantage from the Namibian point of view when it comes to the standard and quality of the education system in the nation (4). Kgabi (5) indicated those problems in his study that emphasized that up to know the education system of Namibia appears

to be still lack considering the quality and standard of digitalization. Kgabi (5) has raised the issue of the superiority of lecture presentation over lectures since students' academic accomplishment levels remain doubtful and disputed, falling short of Namibia's Vision 2030 aspirations.

According to Simataa (6), Namibia's high failure rates in schools and universities, including the prominent University of Namibia (UNAM), are attributable to the university's quality and standard, which does not satisfy Namibia's Vision 2030 requirement. The standard and quality of the country are not good enough especially when one compares the system of education of Namibia with the Southern African Development Community (SADC) countries.

Therefore, the study focused on how the impact of digitalization influences and affects students' behavior at the University of Namibia.

Problem statement

The one of the problem that is identified for this study is the poor standard and quality in Namibia education system which has been low that is reflected in students' poor performances in the written examinations leading to them failing their final examinations and attending either UNAM Summer/Winter School or automatically dropping-out this is according to the statistics from (The Patriot Balanced and fair website, 2019, p. 112). Kgabi (5), also noted that Namibia has thus embarked on the changing the system of education numerous times, but the results in terms of the standard and quality still remains unchanged.

Thus, the researcher of this study to the initiative of digitalization in education to make true initiative that will motivate effectiveness in both teaching and learning (7). An evaluation of the digitalization in Namibia, the researcher holds to find out the extent to which lectures and students have been combining digitalization in the learning and teaching processes at the University of Namibia. Benedek and Molnár (8) found that majority of subjects are taught on the Moodle Learning Management System but however most of the curriculum is not yet digitalized and the same applies to the entire university. According to significant statistical there is a difference in students' end results on the final examination which showed that full-time students in the face-to-face educational environment outperformed those that took the course on a digital online platform during the course of the year (9). University of Namibia further revealed that students that had online studies had an interaction between age and examination performance over time, as a result older student outperformed their younger counterparts as they gained more from the online environment which lead to the question why. This is according to the research gathered by the University of Namibia (UNAM) and due the confirmed cases of Novel Coronavirus also known as the COVID-19 in Namibia, which

is a family of the new strain coronavirus and was officially announced as a pandemic. That has reportedly grown all over the world with new confirmed cases being recorded by the World Health Organization. Therefore, the University of Namibia has kept a close eye on further developments within Namibia and the world as this pandemic continues to spread. Whereby the University Management has taken several resolutions in light of the Namibian Governments' response following the virus entering our Namibian borders (9).

Stakeholder notice have made interim measures for Information technology assistance and support amidst the COVID-19 outbreak by not allow any walk-in clients, nor provide any face-to-face consultations to any members of staff, students and other stakeholders. This decision was effective among the whole University of Namibia (9). This means that no face to face classes have taken place as both students and staff were not allowed visit any Campus or Center for that purpose and arrangements were made for lecturers to avail content to students through online platforms (9).

Aims and objectives

Therefore, based on the background to the problem to successfully achieve the aims of this study and attempt to answer the following research questions is used to guide this study:

- What are the impacts that digitalization has on students' behavior in the University of Namibia?
- To what extend is the digitalized system of universities safe and secure to students in the University of Namibia?
- What strategies can be employed by the University of Namibia to ensure that it provide quality service to their students and lectures onto a digital online platform?

Hypothesis of the study

H₀: There is no relationship between the impact of digitalization and students' behavior at the university.

H_a: There is relationship between the impact of digitalization and students' behavior at the university.

Methodology

This study employed a case design research approach method which was quantitative in order to allow the researcher to engage with the respondents and find out their views. Furthermore, case studies provided an indepth study on the

problem. It was necessary to consider quantitative in order to answer all the research questions/objectives.

In this study, the data was collected from students using questionnaires that were provided to understand students' perceptive and opinion. To effectively answer research questions and a simple random research was used for this study.

For analysis purposes, the data analysis was analyzed using statistics software SPSS. The study made use of the Web-based questionnaire by making use of online Google Form. The quantitative data collected from the Likert scale questionnaires was interpreted and measured in a statistical measurement way. The respondents' agreement with the topic lied of the descriptive methods that were provided on a 5-point scale (Joshi et al., 2015). Data analysis began by analyzing the statistics through calculating the frequency distributions of the data that the participants related to. Students conveyed their perception of the impact that digitalization at the university on their behavior.

Literature review

The literature review to the study gives the reader a clear establish and insight to the research topic. The researcher has used the literature review to develop information which had been already observed by other authors. Some authors argue that online learning by using digitalization in learning is more convenient than the traditional face-to-face learning scheme. While other authors have decided to combine digital learning with the traditional learning to gain more teaching advantages such as effectiveness and new styles of teaching. As well as the difference between traditional face-to-face teaching and digitalization.

Digital learning

In this modern time when cellphones are popular, the internet blows up even with time and space limitation and they are ever-present learning tools. Online learning and flexible technological tools are fundamental items in the information technology integrated education right now (Lin et al., 2016). Over the last few years, the fast change in the internet and the wireless communication technology has improved and bring to live different types of digital networks, e.g., digital learning on cell phones, voice message and instant messaging (Lin et al., 2016). Lin et al. (2016) furthermore observed that by putting to use the internet for digital materials in a more convenient and popular way it would replace traditional face-to-face learning since everyone is getting matured and each person is holding some sort of mobile device in their hands and also making use of handy, portable PDAs and smart phones at this time.

Yoon et al. (10) found that digital learning (e-Learning) was first proposed by Jay Cross in 1999. It is seen that with many different terminologies for the advance and development of technologies appearing such as Internet based training, web-based training, or online learning, network learning and distance. As a result, Lai et al. (11), found that combining current teaching styles with all the advantages that comes with learning on digital platform could be useful to develop practical teaching strategies and achieve teaching effectiveness.

There are a lot of studies from different researchers that defines digital learning on a domestic and international scale. Through completely comparing their viewpoints of some those researchers, it is clear that digital learning can be divided into four parts (12).

- (1) Digital teaching materials: which emphasized students could be taught by bringing out some digital teaching material contents. This digital teaching material contents is defined as any e-books, digitalized data, or contents that are in a digital form.
- (2) Digital tools: which stressed on learners or students proceeding their learning through digital tools, such as computers, notebook computers, tablet computers, and smart phones.
- (3) Digital delivery: which emphasized that students' activities of learning could be conveyed on the Internet, such as intranet, internet, and broadcasting on satellite.
- (4) Autonomous learning: which focused on engaging students on their own through any digital online or offline platform for learning activities. It gives them a free and self-learning environment called personal autonomous learning that involves students to participate in learning to precede learning activity.

The difference between traditional face-to-face teaching and digitalization

McKiernan (13) draws attention to various differences between traditional face-to-face teaching and digitalization and he further stated that when it comes to convenience and flexibility it is more appropriate to settle for digitalization on a learning scale, whilst face-to-face teaching is more fitted for courses that are done on practical.

According to Lin et al. (2016), stated that in spite of the fact that digital learning could not completely replace traditional teaching, it could gain better teaching effect digitalization could not entirely takeover traditional learning but it could gain better teaching effect and students would fully be glad to improve learn through switching from traditional face-to-face learning to digitalization.

Yien et al. (14) also pointed out the difference between the two methods in terms of in a particle learning environment

and an individual level. Traditional teaching by ways of lecturing in classrooms, was the most used method of teaching practice by lectures to students by giving out lectures to students through interpretation. With it long being the broader and still favorable teaching methods for educators.

Sebastian et al. (15) regarded digitalization as a learning mode the most rapidly developed in past years as well as the learning norm that will be highly accepted in near future because of the new industrial era. They further added that it was introduced as a result of digitalization broking through traditional face-to-face teaching modes with the various strengths it has.

Miyoshi and Tsuboyama-Kasaoka (16) conducted a study and set down few advantages of learning on a digital platform for the comparison with traditional face-to-face learning.

Digital learning allows students to have enough free time on their hands by as they tend to select their own time and location for online learning without any restriction during their learning period with no pressure and obstacles attached, whilst traditional face-to-face learning has time and space restriction because traditional learning is controlled by instructors (17).

The Internet covers rich and diverse resource information networks that students could acquire data simply by searching key words. When a digital learning platform was able to organize relevant resources for the use or connection of learners, network resources would be effectively applied through digital learning, and instructors or learners could acquire richer information beyond teaching materials in the curriculum to enhance the learning effect (18).

In conventional teaching, students were treated similarly regardless of their level for the same instructional schedule and contents. The curriculum design and creation of teaching materials for digital learning, on the other hand, were digital contents from which learners could freely choose different courses and teaching materials based on their level and preferences in order to get a personalized learning outcome (19).

But with certain disadvantages that are tired to digitalization is that according to (19), with regards to traditional face-to-face teaching students could freely choose different modules and courses regardless of their level based on what they prefer and that would enable them to have a good learning outcome in the end for the same contents of digitalization.

According to Broflowski (1), students have a faster and easier access when it comes to learning by using any of the digital online services such as Google or other search engine with just a click of a button, rather than sprinting to the libraries to collect books that could be easily downloaded via the internet, since nowadays almost all books are available on E-books.

Broflowski (1) assert that lectures are only there to guide students in the correct path, as the main focus is self-learning, which is a two-sided way as some students have enough and

enthusiasm to learn on their own, while the lectures could have more free time it to other classroom problems. To some sum all this said, it is definitely a new age of education where digitalization helps students.

Features of the analysis

The analysis of the questionnaire resulted in a number of findings and the findings were split into three topic headlines. The first topic presents the analysis of Students' Biographical Information who took part in the study that makes up. E.g., Students' ages range, year of study and gender. The second topic headline highlights the Students' experiences with the digitalization, lecture rooms and lecture-student interaction on regards to digital online platforms. And finally, the third topic headline presents the Benefit of digitalization on aspects of reliability, adequate and effectiveness that the researcher identified in the literature review and talked about at higher-level institution at the University of Namibia education.

An analysis of students' biographical information

In terms of the biographical information gathered from the students in the questionnaire in the study that was conducted, it stated that there is no significant variation in students' behavioral aspects when it comes to digitalization across students' age, sex and year of study regarding digitalization.

An analysis of students' experiences with the digitalization, lecture rooms and lecture-student interaction on regards to digital online platforms

In terms of students' experiences with the digitalization, lecture rooms and lecture-student interaction on regards to digital online platforms which was conducted from the study, the evidence from the questionnaire showed a high disagreement on the collaborative lecture room environment in regards to creation of digital online platforms created from the University of Namibia. Students were dissatisfied with the lecture room's modern web platforms, which they described as insufficient and unreliable. Respondents found that digital online platforms was not adequately and reliably. Another student stating that they would discover difficult to access their UNAM portal and also complain about the online system constantly losing their exam marks or recording the wrong marks on the system. Even though students have access to digital online platforms it provided that some students play games on the platforms. There was an indication that digital online platforms the collaborative

lecture room environment observed at the University supported that lecture rooms need to use digital online platforms for teaching. From the questionnaire conducted, e.g., the projector. With that it is probably possible to spot out that lectures have no particle skills to operate protectors for learning and presentations, as some lectures do not use such device during their lessons. Though it could be stated that few lecture rooms are not having this device but in instants where they are, they may not be working probably which explains why some lectures do not use this device. This lesson hinders lectures from using digital online platforms and computers at the University (20). The fact that the lectures did not use computers and the devices can by way be seen as an attributing element related to the lack of digitalization and that made the lecture room environment more traditional and less appealing for most students in the corporate world (21).

The lack of digital online platforms has a significant impact on students' learning, as it became a source of concern for respondents across all fields of study, as they explained that their lecture room lacked computers or computer-related devices.

Some of the respondents discussed the need for digital technology to be easy to use. Respondents argued that digitalization in itself does not equate to student learning and that not all respondents opted for the strongly agreed region area, with that it is the job of the University to make sure that it actually improved student learning via digitalization.

Despite the paucity of technology resources and devices, the majority of respondents said they had internet connected phones and used these devices to perform duties such as assignments, homework, projects, and investigations by using online tools such as Wikipedia, online libraries, and dictionaries.

The benefit of digitalization on aspects of reliability, adequate and effectiveness

There was an indication that showed that majority of the students were in agreement that they have benefited from the digitalization at the University. Meaning that students have been benefiting from the digitalization and to a degree that benefits have gone noticed by the respondents.

In response to the question regarding the benefits of digitalization, the information gathered from the questionnaire gave rise to the following:

The common use of computers and digital online platforms are directly used in technology integration at the University. In the university, they serve a variety of objectives, one of which is to serve as communication and information storage tools. According to Simataa (6), despite the fact that the University of Namibia's responders lack adequate computers and personal computers, the University has been able to make use of the computers that they

do have. Respondents in this study indicated that digital online platforms were primarily used for administrative tasks such as typing and printing of examination papers and tests, storing information such as learners' names and grades, printing of school reports for students, and creating timetables, rather than for teaching and learning. Lectures also employ computers and digital internet platforms to create tests, exam papers, and other types of activities, as well as to store data such as assessments, student grades, notes, examination marks, and tests. The respondents believe computers and digital online platforms are crucial in the current world's education, as students will obtain computer skills before they finish their course at the University. Dempsey (22) backs up this claim, stating that "almost every business, regardless of field, now recruits individuals with some degree of computer literacy." In today's world, even creative areas like painting and design rely largely on computer systems.

The lectures of these students more often should spend time, helping students navigate through the digital online platforms, by working with students on certain tasks and explaining the curriculum. The benefit of digitalization to students could be due to the fact that students used it for researches purposes since digitalization has the internet and both lectures and students have accessed the internet. Another benefit is that students use the digitalization to complete assignment or homeworks. And so, forth the lessons and some of the informations that students receive from the lectures or academic professionals are driven and searched from the internet. That makes it easier for them to study ahead. The study discovered that students didn't really find the digital online platforms to be effective as it was revealed that majority of the students found the digital online platform not effective enough to meet their needs.

Sampling procedure

The study design was employed a case design approach for this study. Case study was used to analyze important themes in a descriptive narration that was useful in discovering variables that are relevant to potential explanations in this study (23). With a population of 20 UNAM respondents as were all students from the UNAM main campus were settled for the study and were enrolled on a full time, part-time or distance students. The sample was drawn from a list of population that took into consideration only 15 students from the University of Namibia that were in their 2nd, 3rd and 4th year students (male and female between ages of 19 and 35) for they had experience with the digital online platforms compared to the 1st year students that had recently enrolled and were not quite familiar with the digital online platform at the university. A simple random sampling was used to draw the sample from the population. The reason for using this sampling procedure was to provide the base

from which the other more complex sampling methodologies are derive. By conducting a simple random sample, the researcher was prepared firstly to complete list (sampling frame) of all members of the population of interest. From this list, the sample was drawn that each person has an equal chance of being drawn during each selection round and remove any bias (24).

Data collection methods/procedures

The data collection used for this study was a questionnaire. It is necessary to consider questionnaires in order to answer all the research questions/objectives. The quantitative research was made up of an online research questionnaire. A Web-based questionnaire was tailored in a Likert scale format to gather data information from the participants using the online Google Form. The Likert scale questionnaire was used in this study to measure and collected the data on a 5-scale ranging from (1) "Disagree" to (5) "Agree". They were given to 2nd, 3rd, and 4th students randomly as mentioned above.

Data analysis

The data analysis was analyzed using statistics software SPSS. The study made used of the Web-based questionnaire by making use of online Google Form. The quantitative data collected from the Likert scale questionnaires was interpreted and measured in a statistical measurement way. The respondents' agreement with the topic lied of the descriptive methods that were provided on a 5-point scale (Joshi et al., 2015). Data analysis began by analyzing the statistics through calculating the frequency distributions of the data that the participants related to. Students conveyed their perception of the impact that digitalization at the university on their behavior. As students received an email holding the survey link, clicking on which takes the participant to a web-based survey tool from which the student fills in the question by checking or rating. The data collected from the respondents at the University of Namibia and was inserted and presented into graphs and table to compile using descriptive statistics.

Discussion of results

Figure 1 above revealed that majority of students that took part in this study were between the age group of 22–25 years of age as they accounted for 15 (75%) of the sample whilst those that were below 21 years of age were 4 (20%) and those between 26–30 years of age made up only 1 (5%) of the sample.

Figure 2 above presented the year of study. It indicated that more students are enrolled in their second year of studies compared to all the other years of study. Which was

good for the data analyzed because the second-year students have experience with the digitalization at the university already. As previously stated in the sampling procedure that only the 2nd, 3rd and 4th year students will be taken into consideration as they have a better experience with the digital online platforms compared to the 1st year students. The 1st year students are not quite familiar with the digital online platform at the University due to their current enrollment. The results revealed that students enrolled in their second year of study at the university were 35% which was higher compared to year 3, year 4 and others years being 25, 30 and 10% respectively.

Figure 3 above presented the gender of students. The number of females shown were higher compared to the male students. Which means the majority of students in this study where actually females as they surpassed male students in slight amount. This confirmed that many female students at the University have taken part in the study than male students at the University of Namibia. The findings shown were 55% of the respondents were females while 45% of the respondent were males.

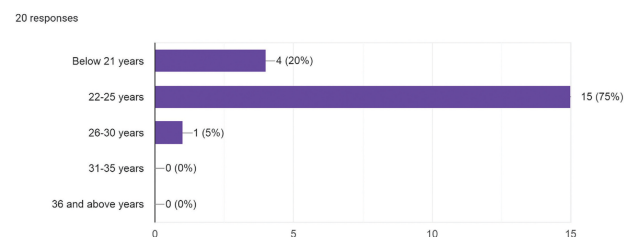


FIGURE 1 | Student age range. Source: Research Results (31).

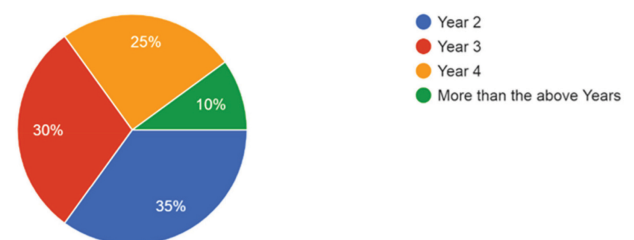


FIGURE 2 | Students' year of study. Source: Research Results.

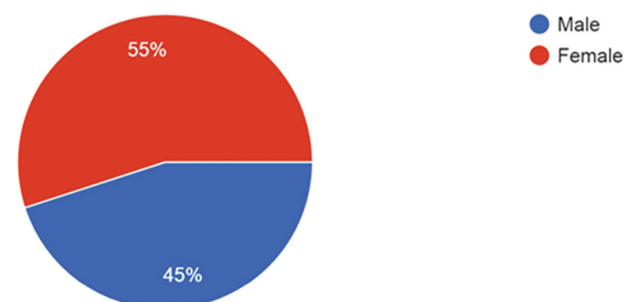


FIGURE 3 | Students' gender representation. Source: Research Results.

Figure 4 above shows that when it comes to the number of students that benefit from the digitalization at the University, more students have benefit from digitalization at the university. As previously discussed, the study measurement and collection of the data was on a scale of 5, ranging from (1) “Disagree” to (5) “Agree.” The results revealed that majority of respondents had benefited from digitalization as showed above on the scale range. It revealed that from the scale ranging of 1 all the way to 4 there was an increase in which the highest percentages were 6 (30%) in the mid-3 and 4 respectively, followed by a decrease of 3 (15%) who strongly agreed at the scale range of 5. The lowest scale range was at scale range 1, with 1 (5%) of the respondents strongly disagreed. And 4 (20%) of the respondents disagreed at the scale range of 2.

Figure 5 above shows the number of students that believe that digitalization at the University helps them organize their learning experience better. This could be either the support system, access or online study materials provided by the university. The results reveal that only 1 (5%) of the respondents strongly disagreed but as we go further up the table there is a slightly increased with 5 (25%), 2 (10%), 9 (45%) and 15 (3%) lastly. The highest was 45% of 9 out of 20 the respondents have agreed that digitalization does help them in their learning.

Figure 6 above shows the number of students that perceived that digitalization increased their productivity in their academic work. The study revealed that 1 (5%) of the respondents strongly disagreed which was the lowest range, 6 (30%) disagreed, 2 (10%) neutral, 7 (35%) agreed and with 4 (20%) of the respondents fully agreeing.

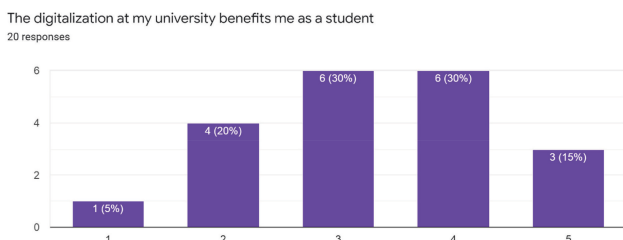


FIGURE 4 | Students’ benefit to the digitalization. Source: Research Results (31).

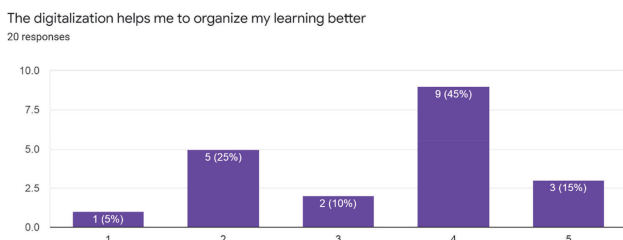


FIGURE 5 | Digitalization in the learning of students. Source: Research Results (31).

Figure 7 above shows how many respondents agreed and disagreed that the digital online platforms created a more collaborative lecture room environment or not. Those from range 1 to 2 of the table revealed that respondents 5 (25%) and 4 (20%) showed their disagreement. In the contrary half into the table from range 3 revealed that the respondents 4 (20%) were neutral as the opted in the middle of the data collection. Furthermore, only 2 (ten percent) of the respondents agreed that the digital online platforms provided a more collaborative lecture room environment.

Figure 8 above showed how the respondents perceived the effectiveness of the digital online platform at the University, in terms of adequate and reliable. The results revealed that the highest range was 7 (35%) which respondents fully disagreed with the effectiveness of digital online platform and the second highest disagreed at 6 (30%). Some respondents have no idea about the effectiveness of digital online platform at the university with 3 (15%) of the respondents opted in the middle range 3, while only 4 (20%) slightly agreed that the digital online platform was adequate and reliable with no respondents fully agreeing at range 5 with 0 (0%) results confirmed.

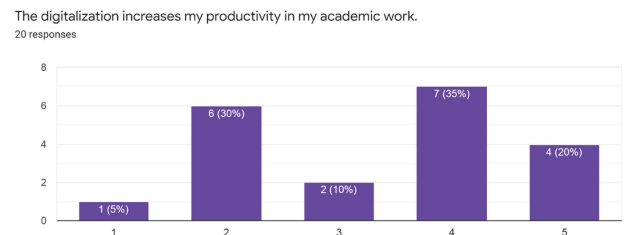


FIGURE 6 | Digitalization increase on productivity. Source: Research Results (31).

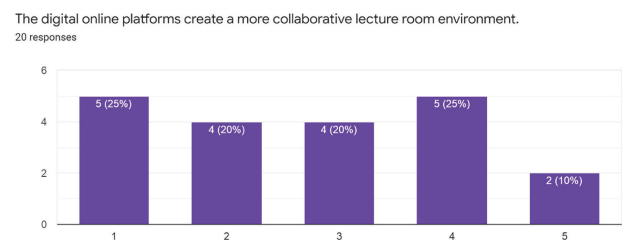


FIGURE 7 | The lecture room environment in regards to digital online platforms. Source: Research Results (31).

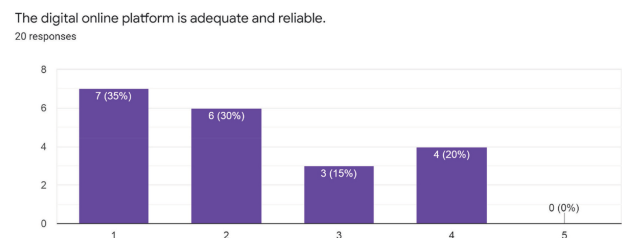


FIGURE 8 | Adequate and reliability of the digital online platforms. Source: Research Results (31).

Conclusion

Based on the findings of the study, all students who took part in the study believed the digital platforms could be improved to enable students to have easier access to the digitalization and digital resources. Additionally, the digitalization could be restructure and improved at the University for Better Performances but that's if they maintain it with the required equipments needed to promote the learning process and understand the student's behavior.

In conclusion with the discussed digitalization based on all of the respondent's responses it can be clear to conclude and ended up discussing how digitalization could impact students' behavior was the ability to learn. As it is a tool that can be used to make it easier to learn new information.

References

- Broflowski J. *What mobile. How does digital technology impact students life: Pros and Cons*. London: Clark White Publications (2019).
- Eriksmo A, Sundberg J. *Digital academia: How higher education is affected by digital technology*. London: Department of Informatics (2016).
- National Planning Commission. *Prosperity, Harmony, Peace and Political Stability: Vision 2030*. Windhoek: NPC (2016).
- Ipinge MS. *Quality in education and access to education in Namibia: Goals of education after years*. (2002). Available online at: <http://www.nied.edu.na/publications/journals/journal13/journal%2013%20Article%208.pdf> (accessed April 29, 2020).
- Kgabi N. Editorial: Basic education and skills acquisition in Namibia. *Prog Multidiscipl Res J*. (2012) 2:1–9.
- Simataa GM. *The integration of computer technology in the Namibian Education system*. Ph.D. thesis. Pretoria: University of South Africa (2015).
- Valdez G. *Technology: A catalyst for teaching and learning in the classroom*. Indianapolis: North Central Regional Educational Laboratory (2005).
- Benedek A, Molnár G. E-teaching and digitalization at BM. *Proceedings of the 19th International Conference on Engineering Education ICEE 2015*. La Vergne (2015).
- University of Namibia. *About UNAM | Statistics*. Windhoek: University of Namibia (2020).
- Yoon J, Kwon S, Shim JE. Present status and issues of school nutrition programs in Korea. *Asia Pac J Clin Nutr*. (2012) 21:128–33.
- Lai YH, Huang FF, Yang HH. The effect of nutrition education system for elementary school students in nutrition knowledge. *J Orient Instit Technol*. (2012) 32:115–23.
- Keane DT. Leading with technology. *Austral Educ Lead*. (2012) 34:44.
- McKiernan G. Configuring the 'future textbook'. *Searcher*. (2011) 19:43–7.
- Yien JM, Hung CM, Hwang GJ, Lin YC. A game-based learning approach to improving students' learning achievements in a nutrition course. *Turkish Online J Educ Technol*. (2011) 10:1–10.
- Sebastian D, Ali S, Ivo B, Jan ML, Helmut K. Determinants of physicians' technology acceptance for e-health in ambulatory care. *Int J Med Inform*. (2012) 81:746–60.
- Miyoshi M, Tsuboyama-Kasaoka N. School-based "Shokuiku" program in Japan: Application to nutrition education in Asian countries. *Asia Pac J Clin Nutr*. (2012) 21:159–62.
- Jude LT, Kajura MA, Birevu MP. Adoption of the SAMR model to assess ICT pedagogical adoption: A case of Makerere University. *Int J e-Educ e-Bus e-Manage e-Learn*. (2014) 4:106–15.
- Im I, Hong S, Kang MS. An international comparison of technology adoption testing the UTAUT model. *Inf Manage*. (2011) 48:1–8.
- Sun JY, Han SH, Huang W. The roles of intrinsic motivators and extrinsic motivators in promoting e-learning in the workplace: A case from South Korea. *Comput Hum Behav*. (2012) 28:942–50.
- Microsoft Encarta. *New microsoft classroom curriculum management platform engages students, Involves parents and increases teacher productivity: Microsoft encarta class server integrates daily curriculum with the digital age*. (2001). Available online at: <http://www.microsoft.com/enus/news/press/2001/jan01/0111ecspr.aspx?mstLocPickShow> (assessed September 21, 2020).
- Ang KH, Wang Q. A case study of engaging primary school students in learning science by using Active Worlds. *Proceedings of the First International LAMS Conference 2006: Designing the Future of Learning*. Cincinnati, OH (2006).
- Dempsey B. *The 7 most universal job skills*. New York, NY: Investopedia (2010).
- Zikmund W, Babin B, Carr JJ, Griffin M. *Business research methods*. 8th ed. New York City, NY: South-Western College Pub (2009).
- Kanupriya C. *Sampling Methods*. (2012). Available online at: <http://www.pitt.edu/~super7/43011-44001>
- Charnigo L, Paula BE. *Facebook us! If you are a registered member of Facebook*. (2005).
- Collart D. *Customer relationship management*. New York, NY: Pricewaterhouse Coopers (2000).
- Kirkwood A. Teaching and learning with technology in higher education: blended and distance education needs "joined-up thinking" rather than technological determinism. *Open Learn*. (2014) 29:206–21.
- Loten A. *The great communicator*. (2006). Available online at: <http://www.inc.com/30under30/zuckerberg.html> (accessed March 25, 2020).
- Malik M. *The impact of service quality on students' satisfaction in higher education institutes of Punjab*. Lahore: University of the Punjab (2010).
- Mulu NK. *Quality and quality assurance in Ethiopian higher education: critical issues and practical implications*, Ph.D. thesis. Enschede: University of Twente (2012).
- Research Results. (2020)