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عنوان البحث

ثر التكنولوجيا الرقمية على التحصيل التعليمي والتعلمي لطلاب الجامعات في المملكة العربية السعودية

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Abstract

The nature and scope of education have changed as a result of digital technology, and education institutions all over the world have had to adapt by implementing plans and policies for integrating digital technologies. The latter raised concerns about the effectiveness of using digital technology for teaching and learning, particularly with regard to comprehending, modifying, and designing educational programs in line with contemporary technological developments. These problems have emerged recently and have accelerated the use of digital technologies in education. As a result, questions about the performance and usage of these tools by university students as well as their accomplishments have arisen. In particular, a large number of universities, including MIDOCEAN, showed proficiency with digital technology. These and other factors motivated us to conduct this cross-sectional study in order to evaluate the effects of digital technology on Saudi Arabian university students' academic performance. It is necessary to demonstrate how these effects are connected and pinpoint the elements that can promote an efficient and successful change in college environments because the integration of digital technologies is a complicated and ongoing process that affects many actors within the university ecosystem. The study's findings were arranged following statistical analysis for both significance and descriptive tests. based on the data provided regarding the effects of digital technology on learning and the variables influencing academic performance at universities. The results imply that digital technology in higher education has an effect on students' performance as well as a number of other relevant factors. Moreover, a number of variables influence how digital technologies effect education. These elements are interrelated and essential to the process of digital transformation. The study's findings provide insight into how digital technology may help universities undergo a digital transition and what needs to be taken into account for students to make meaningful and lasting change.

Chapter 1

Introduction

Introduction

The development and spread of computer technology, which is still going strong today, set off the digital technology revolution in the latter half of the 20th century. Many things that were thought to be impossible in the past can now be completed in a matter of minutes or seconds. The education sector has been impacted by the swift expansion of information and communication technology, which has an impact on all professions. Learning and teaching procedures are already changing as a result of the introduction of digital technology into the educational system. Digital technology adoption in higher education institutions has been affected by social and pedagogical factors such improved communication, cost-effectiveness, increased collaboration and cooperation, and information access. Trainers and students alike can now select programs that are flexible, affordable, goal-oriented, and customized to fit their needs (Alabdulkareem, 2015).

Depending on the situation, there are numerous ways to define technology. Technology, it is said, is a term that refers to a body of knowledge that is utilized to produce tools, develop skills, and choose materials for use by humans. Utilizing methods, instruments, supplies, and energy sources to improve quality of life and productivity is known as technology (Basahel and Yamin, 2017).

In this context, education, in its broadest sense, refers to a method of learning wherein a group of people's information, abilities, and habits are transmitted from one generation to the next through instruction, training, and study. In this way, the twenty-first century might be described as a technological era. As a result, technology influences many aspects of our daily lives. It is seen to be essential to the expansion of an economy. In general, a low-tech economy would find it difficult to thrive in the high-tech world of today. The effects of

technology are clear to perceive and evident in many spheres of life, including education (Basahel et al, 2016).

The more technology is used in the classroom, the more students will understand the material and acquire abilities in analytical reasoning, problem solving, information evaluation, and creative thinking. There is a severe lack of knowledge about how technology use affects academic performance in Saudi Arabia. Instead, research done in the Kingdom of Saudi Arabia has revealed that students are accustomed to a somewhat more conventional style of instruction (Hakami et al, 2023). On the other hand, widespread usage of technology would foster a positive learning environment. This method would enable students pursue a true grasp of the fundamental ideas, topics, and applications of any given field of study. It would replace the traditional approach to education, which has not valued students' quest of understanding (Handayani, 2015). Technology use would encourage students to participate actively in their education in a setting intended to help them acquire relevant content. This might lead to improvements in learning outcomes that are progressive and positive over time (Alqarni, 2015).

The assumption that the use of instructional technology improves student motivation and involvement in the classroom overall has received substantial support from research. To be more precise, technology stimulates pupils' emotions and behaviors. Whether technology is used in the classroom or after school, it gives kids more chances to communicate with teachers, work together with classmates, and participate in the educational process. Examples of specific technology that have been demonstrated to increase student involvement include digital games, blogs, wikis, social networking sites, and web conferencing software (Kunasekaran et al, 2015).

Students are able to participate in higher-order thinking, improve communication, take part in group discussions and problem-solving exercises, critically reflect on the material, and develop their digital abilities when many technology applications are used. Research has examined the variations in academic performance between students who received instruction using technological enhancements, such as podcasts and lecture recordings, and those who did not (Lea et al, 2021). The findings showed that pupils who studied academic material in a classroom with technology enhancements performed better than those who did not. In all objectively assessed tests, including papers, midterm/final exam scores, and individual tasks, the intervention group performed better. According to other studies, integrating technology into the classroom increases students' motivation to comprehend and finish assignments (Viorica-Torii and Carmen 2013).

This study focuses on the value of digital tools and technology in education and how well Saudi Arabian university students succeed in their coursework (Yamin, 2015).

Education technology is often used and comprehended indirectly through the lens of the restricted description, which is the mix of visual and auditory aids employed in instructional activities. This does not always help to improve how learners practice what they are learning. Even if teachers use these contemporary tools to educate efficiently, students' impacts are still relatively modest, which does not guarantee that they will perform well while engaging in high-level learning (Yamin and Matar 2016).

Even the way that education is conducted reflects this theoretical meaning. As a result, within the existing framework, educational institutions face a dual problem that explains how much advanced technological innovation might enhance students' educational experiences and the need to assess changes in pedagogical approaches. Studies reveal that installing state-of-the-art technology in colleges and universities does not ensure that

students' learning habits will improve. Instead, because the learner experience is similar to previous generations' despite these physical adjustments, digital technology makes people more productive (Yamin and Al Harbi 2016).

Significance of the study

A significant player in both the Middle East and North Africa (MENA) and the Gulf Cooperation Council (GCC) is the Kingdom of Saudi Arabia (KSA). Furthermore, the Kingdom of Saudi Arabia continues to be the world's top exporter of crude oil to other countries. You may find out more about the Kingdom of Saudi Arabia, its people, their way of life, and its culture here. Saudi Arabia has made significant investments in the educational sector. The Saudi Education Ministry has not reached all of its goals, despite the facility's quick expansion and significant monetary contribution (Al-Faleh 2012)

The KSA's second development plan has resulted in a significant expansion of the country's educational and training infrastructure. However, there are problems with facility placement and delivery. Furthermore, the facilities' upkeep and design are expensive and poorly incorporated into the educational framework (Yamin and Al Harbi 2016).

There are now a number of initiatives in the nation to improve educational technology, but they have only had patchy results. The current actions that need be taken to adopt education technology are defined in detail in the third National Development Plan. According to the strategy, the current state of affairs must demonstrate specific opportunities for growth in qualitative programs, particularly in the implementation of major development projects such educational technology centers and multipurpose lecture halls.

The government of the Kingdom of Saudi Arabia has consistently prioritized the implementation of educational technology. The need of introducing new facilities for teaching and learning has been emphasized in both the second and third national plans. The emphasis of the fourth national plans is on improved outcomes and higher-quality education. Digital technology was introduced through a number of avenues into the Saudi Arabian educational system (Yamin and Al Harbi 2016).

Study problem

One of the most important adjustments mandated by the Saudi educational reform is the introduction of digital technology. One of the eight key abilities that companies are requesting in the job market is digital knowledge. In this instance, integrating digital technology into the curriculum must provide high-quality instruction and help students develop their abilities and learning preferences. Students who use digital technology efficiently achieve higher academic results and gain computing abilities that will benefit them in their future pursuits (Al-Hariri and Al-Hattami 2017). It has been suggested that students' everyday routines in basic scientific and clinical activities should embrace and even promote the use of digital technologies. The main factor facilitating the acceptance and use of digital technology in the educational sector is the internet. In this instance, e-learning has taken the lead in educational trends and provides an alternative to traditional teaching methods. According to studies, kids learn more efficiently when they are exposed to both words and images together than when they only hear words. With the help of digital technology, pupils can develop into autonomous thinkers, skilled workers, and researchers. Aside from that, the report will look at the difficulties facing digital learning in the nation's colleges and institutions (Alghamdi, 2017).

Objectives of the study

Thus, this research study seeks

- To identify the exact correlation between digital technology and student's performance.
- The study also aims at investigating students' attitudes towards digital technology.
- The challenges that affect digital learning.
- Prospects of digital learning.
- The attitude of students towards digital learning.
- The effect of digital learning on students' performance.

Research questions

In this research we shall deal with the following questions.

- Do students at KSA Community Colleges have a positive attitude towards digital technology?
- What are the challenges faced in digital learning in KSA Community Colleges?
- What are the effects of digital learning on student's performance?
- What are the prospects of digital technology in KSA education system?

Hypothesis of the research study

The research hypotheses were

- Students have positive attitudes towards digital technology.
- Digital technology has a significant impact on student performance and ICT skills.

Chapter 2

Literature review

Literature review

The impact of digital technology on Saudi students was the subject of a study presented by Alaboudi, and Alharbi, (2020), who came to the conclusion that a large percentage of students had a good attitude toward using digital technology apps. They stated that the use of digital technology has improved their performance as a whole and that they can now plan and utilize technology to its fullest potential for learning. The study also found that students are encouraged to be self-reliant when using digital technology. These results are consistent with those of Al-Fahad in (2017), who found that using digital technology to organize and direct learning can be beneficial. It was also found that insufficient digital technology equipment and facilities, including laptops, projectors, fax machines, displays, and compact disks, are available in universities and technical institutes.

An investigation on the efficiency of mobile learning with King Saud University B.A. and M.D. students was carried out by Al-Fahad in 2007. The outcome suggests that by boosting their teaching and learning, it might be an additional strategy for raising the retention of B.A. and M.D. students. The ability to use this technology at any time and any place to enhance communication and improve students' open and distance learning experiences is by far its greatest benefit. The Saudi Arabian government has formally announced the use of distance learning and, in order to accomplish this goal going forward, has started initiatives to establish six infrastructures for higher education and distance learning. E-learning and distance education are two of the most innovative and promising experiments in the Arab world. The national center for e-learning, a division of the ministries of higher education, has developed an e-learning management system that is in line with the demands of Saudi Arabian university education. It has also created a system for managing academic and administrative skills, created electronic curriculum content, and

created digital and print forms for various university courses. Additionally, it has created an educational portal for e-learning and distance learning, as well as an awareness program for electronic education.

The use of modern technology in education has countless prospects, yet perceptions of its proper application are still far behind expectations. Due to this, Saudi Arabia has not been able to profit as much as it could have at all operational levels; yet, current usage levels are encouraging, and improvements and a better future seem possible (Al-Fahad, 200)..

Using Blackboard technology as a component of the learning platform, Hakami et al., 2023 employed TAM to evaluate the learning outcome among the students. Their study revealed factors that affect online learning based on Blackboard in both positive and bad ways. Understanding online learning while employing blackboard technology are essential for closing the learning gaps between lecturers and students. For instance, self-efficacy, perceived convenience, computer fear, and technological complexity don't really affect online learning. On the other hand, prior research indicates that perceived utility and perceived simplicity of use significantly influence Blackboard learning. Additionally, a number of research have focused on and shown that student acceptance and ease of use of online technology led to an improvement in learning rates.

Research by Lea et al. (2021) demonstrates that there is a relationship between a learner's personality and the methods used in the classroom. This association should be viewed as both a beginning point and a component that forms the foundation for developing instructional activities in the future that will ultimately enhance students' performance. The modern healthcare system's shifting demands on physicians provide a strong incentive for the adoption of these ideas. However, the idea of using digital

technology at colleges and universities is not one that is commonly practiced in Saudi Arabia .

The predominance of the conventional knowledge transfer system in Arab educational institutions, according to Handayani (2015), demonstrates a clear information technology divide between the Arab world and the developed world. Since technology has become an integral part of higher education, Saudi educational institutions must upgrade their technology to keep up with the rapid advancement of this field. The school system is becoming more responsive and flexible thanks to the internet and smartphone apps.

The use of digital technology improves learners' abilities and boosts their comprehension of content in areas including analytical reasoning, creative thinking, problem-solving, and information analysis, according to Al-Hariri and Al-Hattami (2017). Information about how the use of technology affects student performance is scarce and lacking in the Kingdom of Saudi Arabia. Research conducted around the nation shows that kids are accustomed to traditional teaching methods and have not adopted current technology. However, integrating digital technology into the educational system would provide a conducive learning atmosphere. This method would most likely replace the traditional approach to education, which has not demonstrated to learners any understanding, with a deep-meaning method that helps students seek a true comprehension of the main ideas, topics, and applications in any field of study. People believe that technology has a good impact on their thought processes. The methods that technology allows for the processing, interpretation, and acquisition of information do, in fact, educate humans. Numerous studies have examined the ways in which technology affects our brains and how its use affects our behavior and cognitive processes .

Yamin M. (2015) claims that modern KSA instructors employ digital technologies in their lessons. For example, they commonly use PowerPoint presentations as a teaching model. Next, the presentations or the course materials are uploaded to the blackboard or the internet platform. Online courses, which are a source of information and papers as well as a forum for interactive conversation, are made possible by digital technology. Furthermore, recordings of instruments have become a common feature of laboratory instruction, which enhances the learning experience and makes it more interactive than more conventional teaching approaches.

While the literature review analysis revealed diverse effects of digital technology use on education, multiple authors emphasized the significance of other factors beyond technology that influence this impact. For instance, researcher recommended that in order to precisely define the precise relationship between computer applications and learning, future research should thoroughly examine the elements that lead to favorable results. Furthermore, others recommended that educators, school administrators, and school officials look into the possibilities of tablets in teaching and learning more thoroughly given the inconclusive results of some of the studies they reviewed regarding their effect on students' learning outcomes. According to a number of other researchers, the school context, curriculum, professional development, teaching methods, and learner characteristics all have a significant impact on how well ICTs impact students' learning (Tang et al., 2022).

Digital proficiencies

Lack of student proficiency with digital tools was one of the most prevalent issues raised in studies that used them in the classroom. Fu (2013) discovered that one of the main obstacles to the efficient use of ICT in the classroom is students' lack of technical abilities. According to Tamim et al. (2015), students had difficulties when utilizing tablets and other

smart mobile devices, which were linked to the devices' distracting qualities and technical problems or knowledge required for their use. This underscored the necessity of professional development for teachers. According to Higgins et al. (2012), in order for students to completely benefit from education, they must receive skills training about the use of digital technology.

Conversely, studies presented by Delgado et al. (2015) demonstrated a high positive correlation between students' computer use and teachers' computer proficiency. The efficient use of technology in the classroom may be hampered by teachers' lack of ICT proficiency and familiarity (Delgado et al., 2015).

It is important to remember that how instructors are introduced to ICTs has an impact on how digital technologies are used in the classroom. According to earlier research, teachers may choose to employ "safe" technologies those that their own teachers used and were familiar with instead of digital ones if they have poor digital skills (Balanskat, 2006). (Condie & Munro, 2007). In this sense, teachers may be encouraged to incorporate different technologies into their lessons by receiving training in digital skills and being exposed to new digital tools (Condie & Munro, 2007). In addition to digital competency, teachers' use of technology in the classroom has been demonstrated to be impacted by technical support provided by the school system (Delgado et al., 2015). discovered that although instructors utilize ICT extensively, 75% of them said that in order to implement more creative teaching practices, they needed more institutional support and a change in the attitudes of educational actors. Support can lessen time and effort as well as cognitive limitations, which may result in teachers integrating ICT into their lectures with less frequency (Escueta et al., 2017).

Personal traits, methods of training, and professional growth of teachers

The effects of digital technology on education are influenced by the personal traits and professional growth of educators. Instructors' degrees of ICT engagement are significantly influenced by their lack of confidence, resistance to change, and negative attitudes against utilizing new technology in the classroom. According to the same author, the aforementioned obstacles to ICT integration can be removed by offering technical help, motivational support (such as awards and enough time for preparation), and training on how technologies might improve teaching and learning. According to Archer et al. (2014), teachers' comfort levels with technology use are a significant predictor of their ability to integrate it into the classroom. Until teachers feel comfortable using ICTs, they should receive the necessary training and continuous support. Research by Hillmayr et al. (2020) showed that providing instructors with ICT training has a significant impact on students' learning.

According to data from the Teaching and Learning International Survey (TALIS) (OECD, 2021), only 39% of teachers in the European Union said they are well or very well prepared to use digital technologies for teaching, despite the fact that schools are open to new ideas and have the capacity to implement them. Research by Li and Ma (2010) and Hardman (2019) demonstrated that the impact of technology on students' academic performance is contingent upon the pedagogical strategies employed by educators. According to Schmid et al. (2014), the greatest conditions for learning were found when students were using technology to assist their cognitive needs while participating in active, meaningful activities. In their comparison of two distinct tablet pedagogical uses, Tamim et al. (2015) discovered a substantial moderate effect when the devices were used in student-centered

contexts and approaches as opposed to teacher-led settings. Similarly, Garzón and Acevedo (2019) and Garzón et al. (2020) reported that the presence of various variables (e.g., pedagogical approach, learning environment, and duration of the intervention) which could influence AR interventions could be responsible for the positive outcomes from the integration of AR applications. Furthermore, Garzón et al. (2020) proposed that the pedagogical techniques and resources teachers employed to supplement their lectures were essential to the successful integration of augmented reality on students' learning gains. The effectiveness of a technology-enhanced intervention depends on the technology itself, its features, and the pedagogical approaches teachers decide to use, according to Garzón and Acevedo (2019). For example, their findings showed that, of the various techniques (such as inquiry-based learning, contextual learning, or project-based learning), the collaborative learning strategy had the greatest effect on students' learning gains. Ran et al. (2022) discovered that, in comparison to the other methods, the use of technology to create communicative and collaborative spaces had the biggest moderator effects.

According to Hattie (2008), educating teachers to use computers as a teaching and learning tool is linked to the effective use of computers. Zheng et al. (2016) pointed out that continuous professional development is essential to guaranteeing the success of technology implementation initiatives, in addition to the tactics teachers use in the classroom. According to Sung et al. (2016), studies on the use of mobile devices to enhance learning frequently note that one of the biggest barriers to putting successful mobile learning programs in place in schools is teachers' lack of preparedness. According to Friedel et al. (2013), giving instructors assistance and training enhanced the treatments' beneficial effects on students' learning gains. According to Trucano (2005), using digital tools to improve instructors' current pedagogical philosophies has positive effects. According to research by Higgins et al. (2012), the kinds of technology utilized and how they are used may have an

impact on how well children learn. According to the authors, a key element of successful instructional approaches is teacher professional development and training that emphasizes the pedagogical use of technology to enhance teaching and learning (Higgins et al., 2012). According to Archer et al. (2014), research that described ICT interventions in which instructors got assistance and training had moderately beneficial effects on students' learning outcomes; these benefits were considerably greater than those of studies that referenced training and support infrequently or not at all. According to Fu (2013), there are several important obstacles to the integration of ICT in education, including a lack of in-service training, pedagogy support, technical and financial support, a lack of teachers' motivation and encouragement to incorporate ICT into their teaching, and a lack of teachers' knowledge and skills regarding the technical and instructional aspects of ICT use in the classroom.

Management and leadership in schools

According to Pihir et al. (2018), management and leadership are crucial pillars of the digital transformation process. According to Zheng et al. (2016), one of the elements that favorably influences the effective adoption of technology integration in classrooms is leadership. The digital transformation of education institutions requires strong leadership, strategic planning, and methodical integration of digital technologies (Redep, 2021). In order to ensure that ICT advancements are incorporated into school operations and the experiences of faculty and students, management and leadership are crucial in developing policies that are put into action (Condie & Munro, 2007). According to Conrads et al. (2017), providing an overall vision for the use of digital technologies in education, guidance for parents and students, logistical assistance, and teacher training are all necessary components of policy support and leadership. ICT integration is unlikely to be

sustained or become ingrained in the culture of the school unless there is a commitment across the board, with accountability for achievement at critical times (Condie & Munro, 2007). In order to do this, principals must embrace a whole-institution approach, encourage it, and create a robust network of support for one another that facilitates the school's technological maturity (European Commission, 2019). In this regard, school culture is crucial in influencing school actors' attitudes and convictions toward the effective use of technology. Condie and Munro (2007) stressed how crucial the principal's passion and efforts are as a source of motivation for the faculty, staff, and students to foster an innovative culture and create long-lasting digital transformation. In particular, school administrators must foster an environment where staff members are free to experiment and take chances while utilizing technology (Elkordy & Lovinelli, 2020.)

To accomplish the aforementioned goals, leaders must cultivate their abilities in learning and leading, promote professional development, and provide support networks and frameworks (European Commission, 2019). It can be difficult to integrate digital technology into educational systems, and leadership assistance is required to make it happen. The introduction of new methodologies and procedures in strategic planning for the integration of digital technologies can facilitate the introduction of such guidelines (Redep, 2021). Despite the critical nature of leadership roles, leaders have not received enough appropriate training to yet. More specifically, according to the European Commission (2019, p. 16), barely one-third of the European education systems have national strategies in place that specifically mention training school administrators.

Infrastructure, government assistance, and connectivity

Infrastructure development, digital content availability, and resource selection are necessary for the successful integration of digital technologies across educational levels

(Voogt et al., 2013). In particular, both the amount and quality of educational activities in the school are increased by having a high-quality internet connection. Research demonstrates that ICT improves and formalizes manager and teacher cooperation as well as cooperative planning, which benefits instructional strategies. Furthermore, teachers are more likely to incorporate technology into the curriculum to improve their teaching methods if they have access to ICT resources, such as hardware and software. Others discovered, for instance, that the implementation of one-on-one laptop programs improved teaching and learning. This outcome would not have been possible without the infrastructure and technical assistance given to teachers. According to Delgado et al. (2015), two major obstacles to ICT integration are inadequate technical support and restricted access to technology (inadequate PCs, peripherals, and software). The term "access to infrastructure" describes more than just the presence of technology in a classroom; it also describes the placement of the appropriate kind and quantity of technology in areas where educators and students may access it. One of the main components of the ICT whole-school strategy is effective technical support. One of the biggest obstacles preventing instructors from utilizing ICT is a lack of technical support in the classroom and whole-school resources (such as printers that don't print, computers that don't work, and working on outdated systems). Furthermore, teachers may be dissuaded from utilizing ICTs by subpar technology, inadequate hardware maintenance, and inappropriate educational software.

Finally, the creation and quality control of digital learning resources is a significant component influencing digital transformation. Support textbooks and associated materials, as well as resources that concentrate on certain subjects or curricular components, might be examples of these resources. Schools must have policies on the use of digital learning tools, and these can be accomplished in a number of ways. For instance, some nations are funding

web portals that serve as repositories, allowing educators to exchange or produce original resources. They might also provide e-learning options or other services related to digital education. In some instances, specialized project agencies have also been established to create digital materials.

Digital data management and administration

Organizational changes at the level of internal workflows, communication amongst the many stakeholders, and capacity for collaboration are all part of the school digital transformation. Evidence supporting the automation of administrative procedures in schools and a decrease in the burden of administrators was shown by Vuorikari et al. (2020). There is proof that digital data influences the generation of information about schools and has the ability to change the way education is delivered. In particular, Sellar (2015) noted that the need for "information about student outcomes, teacher quality, school performance, and adult skills, associated with policy efforts to increase human capital and productivity practices" is driving the development of data infrastructure in education.

Students' familial support and socioeconomic status

Empirical evidence indicates that parents' supportive involvement in the school and attitude toward learning can have a significant impact on their children's academic performance. Digital technologies have been employed recently to improve communication between the family and the school (Escu et al., 2017). Regarding students' use of computers during the epidemic, data from a Eurostat poll was presented by the European Commission (2020). The information demonstrated that younger students need more parental help and direction, and that families with parents who were less educated and/or did not use technology well faced more difficulties.

Accordingly, learners' socioeconomic status and the sociocultural context in which they live have an impact on their academic performance (Punie et al., 2006). According to Trucano's research, children who had access to computers at home reported higher levels of confidence and more regular use of the devices at school than those who did not. Accordingly, socioeconomic status has an impact on household computer access (OCB, 2018), which in turn has an impact on ICT experience, which is crucial for academic success. Moreover, parents from various socioeconomic situations can be less able or unable to assist their kids in their educational journey.

The socioeconomic background of schools and emergency circumstances

The digital transformation of a school is strongly tied to its socioeconomic setting. For instance, it's possible that schools in underprivileged, rural, or disadvantaged locations lack the digital infrastructure and capacity needed to adjust to the usage of digital technologies during emergencies like the COVID-19 pandemic. There is a connectivity gap between rural and urban areas in a number of nations, according to data gathered from school principals.

Considering the results of the aforementioned research, we can draw the conclusion that a variety of players have an impact on how digital technologies affect education, affecting many facets of the school ecosystem. Based on the conclusions from the literature analysis, Figure 1 presents an overview of the variables influencing how digital technologies affect school stakeholders.

Theoretical Premises of Study

The phrase "theoretical premises" refers to certain hypotheses that, rather than being a straightforward concept or educated estimate, are assumptions that do not necessarily exist

in the true sense. It is developed using reasoning, prior knowledge, and personal experience.

Theoretical Premises of Study were

- Students have positive attitudes towards digital technology.
- Digital technology has a significant impact on student performance and ICT skills.

Chapter 3

Methodologies

Research methodologies

To accomplish the goal of the study and respond to our questions formulated in the last section, a questionnaire was formulated. This questionnaire was administered for that year (2024) to detected number of the study sample students of Midocean University during their lecturers with the help of the digital technology facilities employed in these institutions. The questionnaire consisted of relative sections that treat the study goals

To make work of the participant much easier, the questionnaire adopted multiple choice questions on a five scale namely, (Strongly agree, agree, disagree, and strongly disagree).

Validity and reliability of the study

The research questionnaire would be presented to lecturers from college where they could propose changes. The Cronbach's Alpha would be applied to test the dependability of the study questionnaire. If the resultant figure of the Cronbach's Alpha is between 0.6 and 0.8, then it is considered as an acceptable figure. However, the reliability of the study can be termed as poor if the figure is less than 0.6. If the figure is greater or equal to 0.8, then it is considered good.

Study sample size

The research study sample is randomly selected from Midocean Colleges. The study participants included students pursuing different courses. The questionnaires distributed, would be returned representing responses. Fully completed questionnaire would be

subjected for the analysis indicating a response of the research study employed two approaches to analyze the data, that is descriptive technique and correlation analysis.

Fields of Study

The discipline, field of study, or area of training related to a specific course or program of study is referred to as such.

Social sciences

Any academic field or scientific discipline that examines human behavior in its social and cultural contexts is considered a social science. Sociology, psychology, political science, economics, and cultural (or social) anthropology are typically included in the social sciences.

Chapter 4

Results

Descriptive analysis

Demographic information

Based on the results that we obtained from the analysis of the basic information among studied students we noted that there are participants from different universities as Mid-ocean (17%) followed by Saudi king university (13%) then king Abd-elazziz University (12%) and the other universities were shared with the rest of the sample as shown in figure (1).

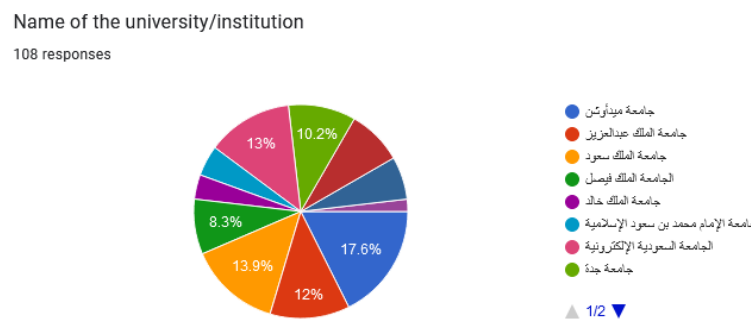


Figure (1) the participant's universities in the study

2- Nationality

As shown in figure (2) the Saudi participants were (68.5%) while the other nationalities were (31.5%).

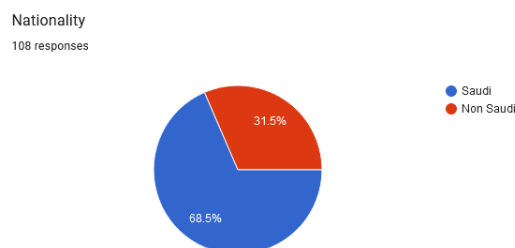


Figure (2) nationality of the study participants

3- Gender of the participants

As shown in figure (3) we noted that the females were 59.5% and males were 49.1% in the present study.

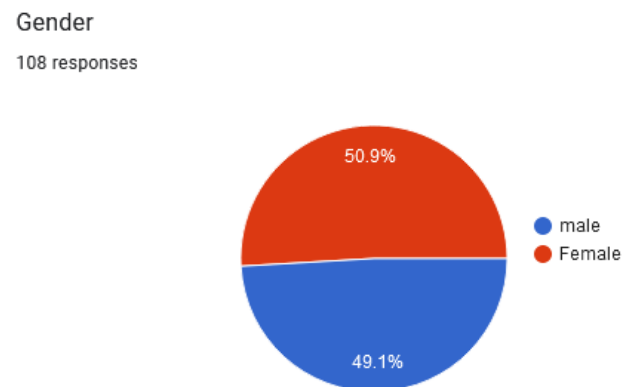


Figure (3) participant's gender

4- Age of participants

We noted that the participants were 38% represent the age range of 25-30 while 31.5% were representing the age range of 21-25years old. Age range 31-35 years old were (18.5%) the other age ranges were represented by the rest of the participants.

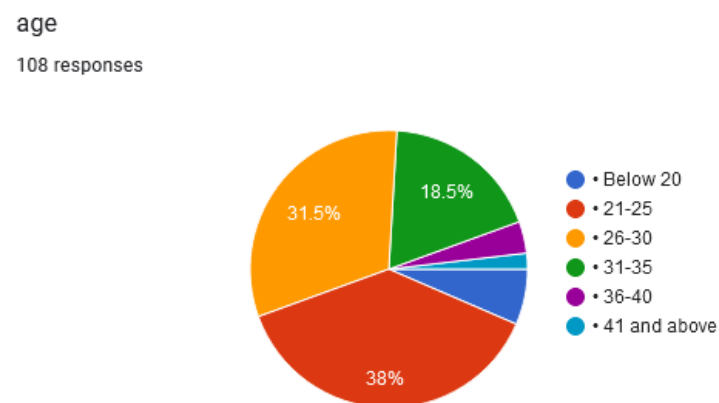


Figure (4) Age ranges of the study participants

5- Study levels

50.9% of the study participants were undergraduates while 35.2% were 35.2% and the others was 13.9% as shown in figure (5)

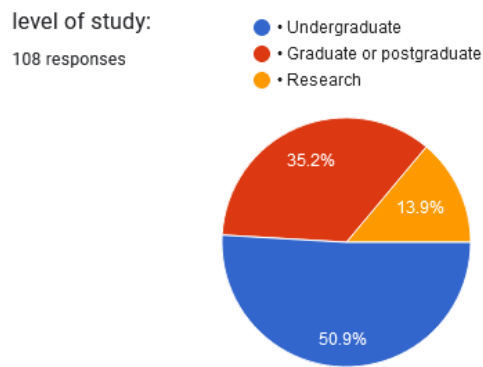


Figure (5) Study levels of the participants

6- Academic levels

From figure (6) it is very clear that the second level was represented by 34.3% while third level was represented by 33.3% and the fourth year was 17.6% and the first year was 14.6%.

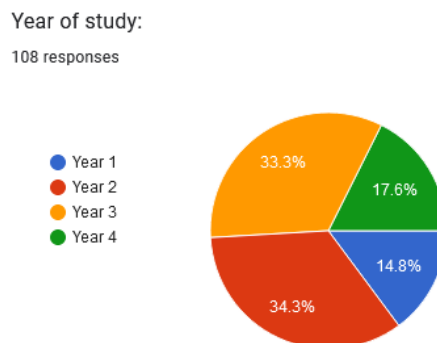


Figure (6) academic levels

7- The study academic disciplines

The following figure (7) represents the academic disciplines of the study participants where all disciplines were closely similar to each other (21.3, 19.4, 17.6, and 13.9 were health and medical, engineering, social sciences, respectively).

faculty discipline

108 responses

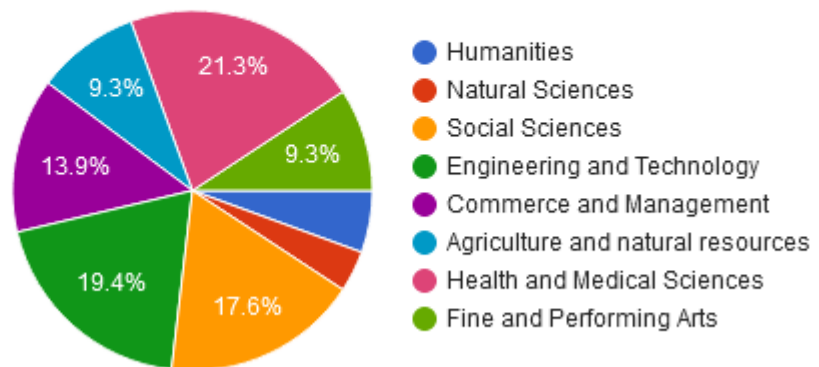


Figure (7) the faculty disciplines of the participants

Student's use of technology

The following table represents the mean, SD, sample variance and the significance level of the Student's use of technology items in the current study where the Available Classroom facilities (e.g. computers, projection systems, lecture capture systems, Computer labs (for practical and Internet access, Network bandwidth/speed of Internet, Wi-Fi access, online or virtual technologies (e.g. network or cloud-based file storage system, Web portals, Access to software (e.g. MATLAB, GIS applications, statistical software, qualitative data analysis, graphics software, textual or image analysis program, Plagiarism detection software, Institutional repository for sharing of research , e-Journals, e-Books and Citation databases, When I entered college, I was adequately prepared to use the technology needed in my courses were all significant variables that represent a very good and excellent use of technology among students participating in this study.

Table (1) Mean, variances and the significance level of the student use of technology

Question	Mean	Standard Deviation	Variance	P value
Available Classroom facilities (e.g. computers, projection systems, lecture capture systems,	4.23	1.07	1.15	0.000
Computer labs (for practical and Internet access	4.43	0.87	0.75	0.005
Network bandwidth/speed of Internet, Wi-Fi access, online or virtual technologies (e.g. network or cloud-based file storage system, Web portals	4.46	0.79	0.62	0.012
Access to software (e.g. MATLAB, GIS applications, statistical software, qualitative data analysis, graphics software, textual or image analysis program	4.43	0.87	0.75	0.000
Download and use of free and open source software for teaching and learning, Support for maintenance and repair of ICTs, Access to data storage and Data visualization software	4.51	0.80	0.64	0.034
Plagiarism detection software, Institutional repository for sharing of research , e-Journals, e-Books and Citation databases	4.53	0.84	0.70	0.021
I get more actively involved in courses that use technology	4.14	1.26	1.58	0.000
I am more likely to skip classes when materials from course lectures are available online.	2.26	1.56	2.44	0.078
When I entered college, I was adequately prepared to use the technology needed in my courses.	4.40	0.96	0.91	0.0014

Available Classroom facilities (e.g. computers, projection systems, lecture capture systems,

108 responses

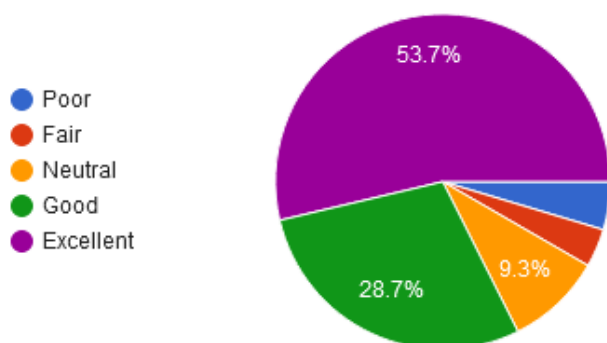


Figure (8) available facilities

The facilities availability in the studied population refer to that 53.7% evaluate this item as excellent while 28.7% were evaluated as good and the other rating were neutral and fair.

The computers lab and the internet access were represented by 63% as excellent and 21.3% as good as shown in figure (9)

Computer labs (for practical and Internet access

108 responses

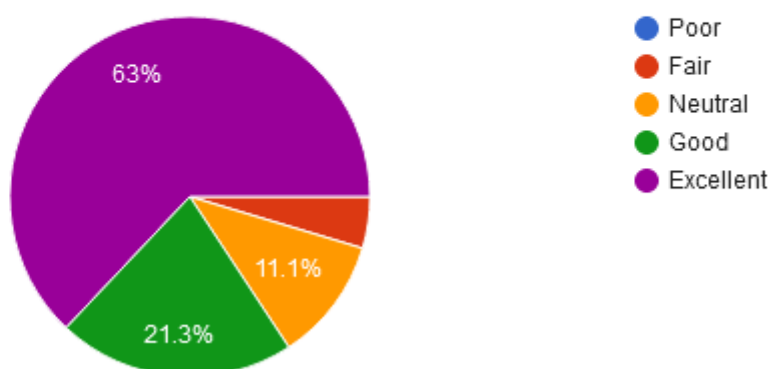


Figure (9) computer and internet access

Network bandwidth/speed of Internet, Wi-Fi access, online or virtual technologies (e.g. network or cloud-based file storage system, Web portals)

108 responses

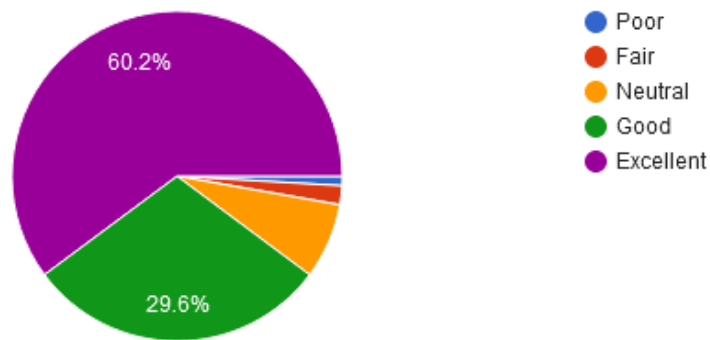


Figure (10) network and net speed

As shown in the figure (10) the network and the net speed were evaluated by 60.2% as excellent and 29.6% as good.

Access to software (e.g. MATLAB, GIS applications, statistical software, qualitative data analysis, graphics software, textual or image analysis program)

108 responses

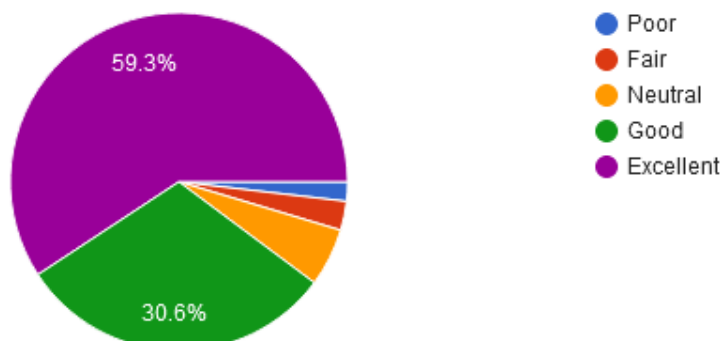


Figure (11) showed the available software for the students

The available software that represented in the different disciplines was represented in the figure (11) also the excellent and the good rate were giving to the present software's

Download and the use of the net for the search as shown in figure (12) clearly said that 64.8 and 36.9% were excellent and good rate respectively.

Download and use of free and open source software for teaching and learning, Support for maintenance and repair of ICTs, Access to data storage and Data visualization software

108 responses

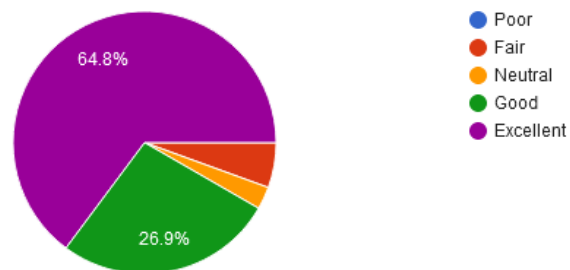


Figure (12) download contents and use open sources

In figure (13) the plagiarism checker use among students was excellent and good rating by 67.6 and 24.1% respectively.

Plagiarism detection software, Institutional repository for sharing of research , e-Journals, e-Books and Citation databases

108 responses

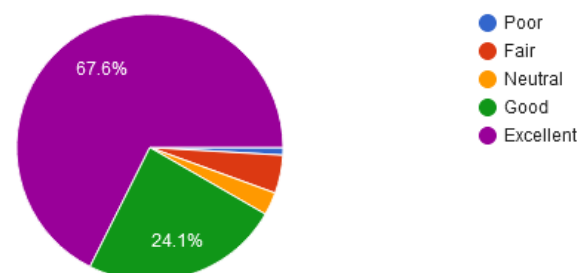


Figure (13) plagiarism checkers

I get more actively involved in courses that use technology

108 responses

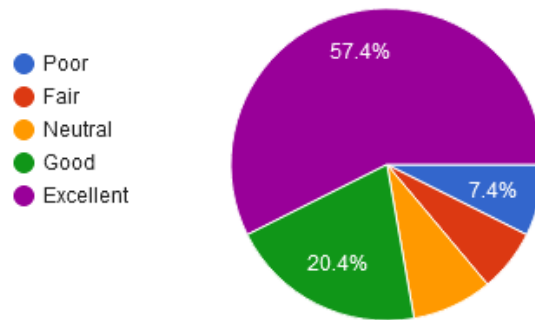


Figure (14) involvement in the courses actively

Figure (14) clearly showed the involvement in the course activities that was rated by the study participants as follow: 50% poor and 17.65 as fair and 17.6 as excellent while the good and the neutrals were less rating

I am more likely to skip classes when materials from course lectures are available online.

108 responses

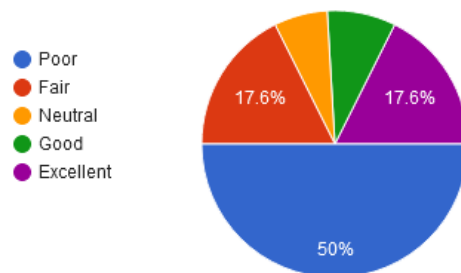


Figure (15) skip classes when available online

The study showed that 505 of students skip their classes when they were available on line thus mean the availability inline was the positive side of the online courses among students

When I entered college, I was adequately prepared to use the technology needed in my courses.

108 responses

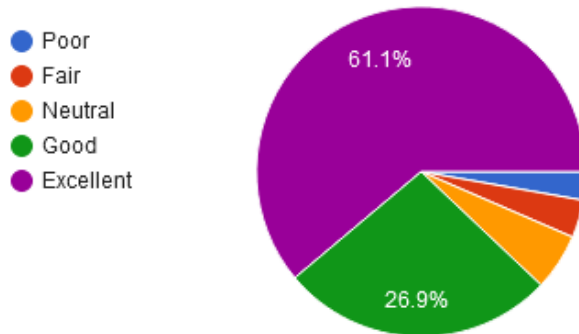


Figure (16) adequate capabilities to use the technology

Adequate capabilities to use the technology was rated as more than 60% as excellent and 26.9% as good and the other rating was neutral, fair and poor rating. As shown in figure (16).

Student's performance

Student performance was tested and the study participations was represented in table (2) mean and significance test were clearly directed in the table

It is clear that "It will help me get better results in my subjects. It will help me understand the subject material more deeply" It motivates me to explore many topics I may not have seen before" It will improve my IT/information management skills in general." Technology makes me feel connected to what's going on at the college/university and SMART board's availability were all significant factors that showed us the good performance and the correlation between the student use of technology and their performance

Table (2) Student's performance items

Question	Mean	Standard Deviation	Variance	P value
It will help me get better results in my subjects. It will help me understand the subject material more deeply.	4.48	0.86	0.74	0.0000
It makes completing work in my subjects more convenient.	4.56	0.76	0.58	0.0832
It motivates me to explore many topics I may not have seen before.	4.46	0.87	0.76	0.000
It will improve my IT/information management skills in general.	4.43	0.90	0.81	0.0214
It will improve my career or employment prospects in the long term	4.55	0.89	0.79	0.047
Technology makes me feel connected to what's going on at the college/university.	4.47	0.84	0.70	0.000
SMART board's availability.	4.44	0.91	0.83	0.000

It will help me get better results in my subjects. It will help me understand the subject material more deeply.

108 responses

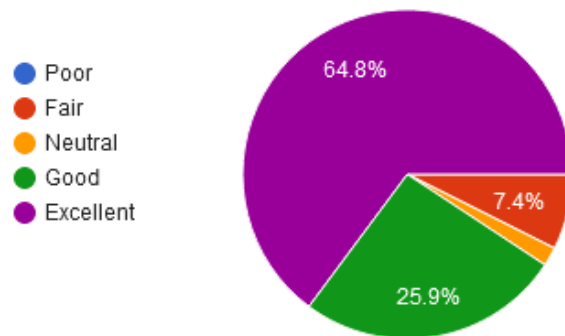


Figure (17) get better results

It makes completing work in my subjects more convenient.

108 responses

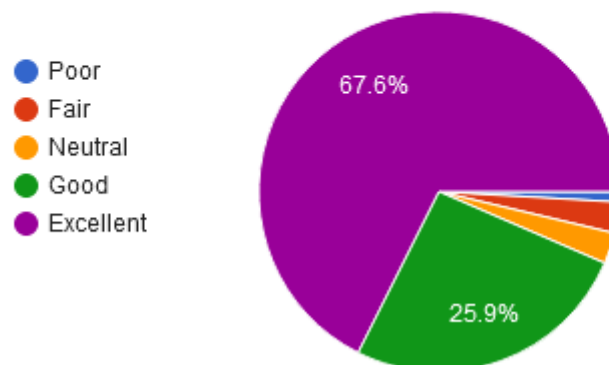


Figure (18) complete work more convenient

It motivates me to explore many topics I may not have seen before.

108 responses

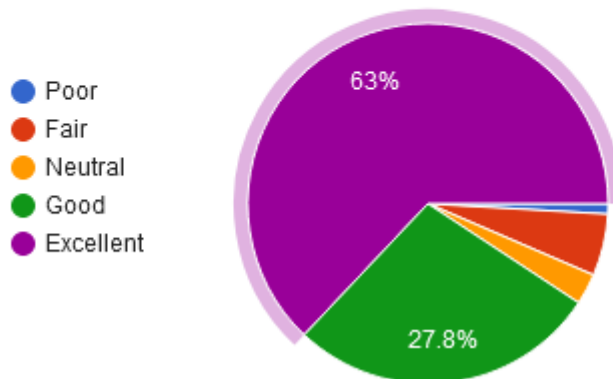


Figure (19) motivation to explore many topics

It will improve my IT/information management skills in general.

108 responses

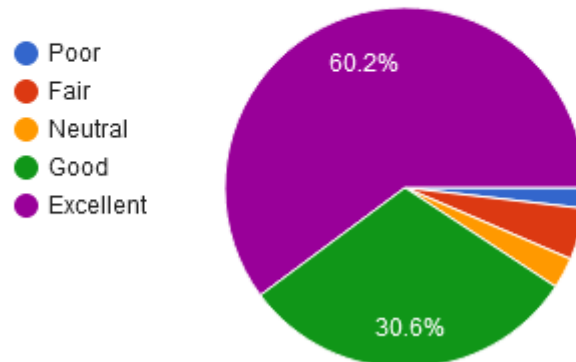


Figure (20) improve the It skills

It will improve my career or employment prospects in the long term

108 responses

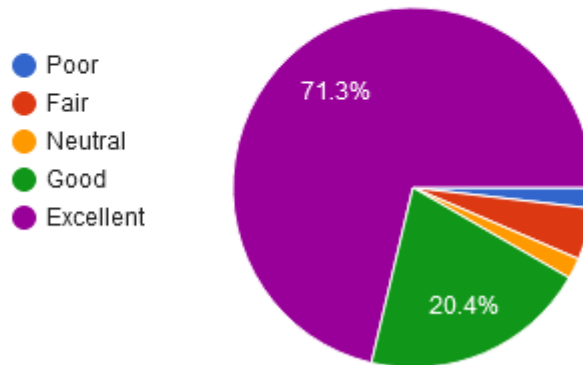


Figure (21) Improve career in long term

Technology makes me feel connected to what's going on at the college/university.

108 responses

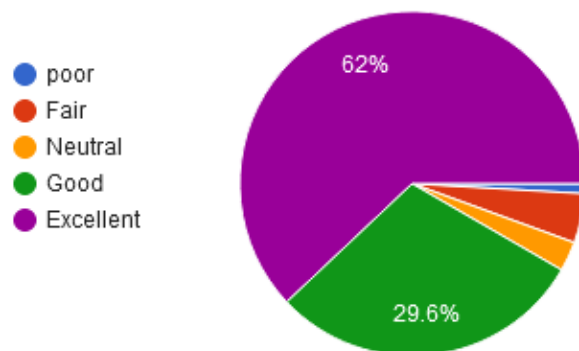


Figure (22) Techno9logy make me feel connected

SMART boards availability.

108 responses

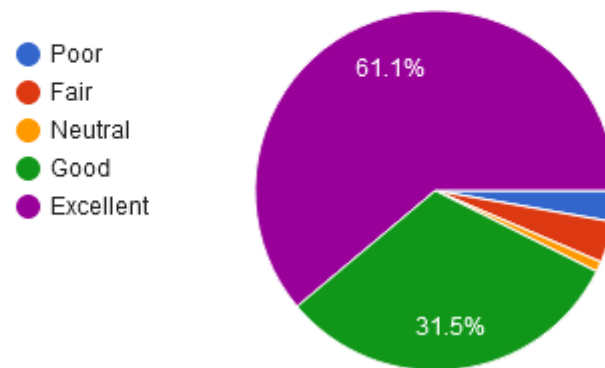


Figure (23) Smart board availability

Discussion and recommendations

The review evaluates the impact of computerized and new innovation on the scholarly accomplishments of study by cross-checking the effect of technology on learning and educators demonstrating measure. The understudies responded by emphasizing the significant impact of the advanced framework on their academic performance due to the ease of access to resources and information. That greater portion favors the results, as seen in the accompanying image.

By observing the collected data and the wide range of responses from the participants, the study confirmed that technology impact the type of education, overburden and demotivate people, but also simplify social media data, which enhances academic achievement. However, because they prioritize education and learning over customary concerns, the verification is unsatisfactory.

The purpose of this exploration is to determine the impact of online and technological learning environments on college-level education by drawing conclusions from the research and findings. In order to guide the investigation, the author distributed a questionnaire to members, giving them the opportunity to respond with a bound edge to several choices and to rank the suggested items as great, good, neutral, fair, or poor. Therefore, the goal of the university study, which included 108 students, was to understand how technology and training are related. Due to growing apathy, the qualitative review's assessment of the respondent's range and mean revealed that online technology has altered the educational and instructional framework, which is unpopular with understudies. Conversely, those surveyed stated that although technology fosters academic success, students seem to require less validation of their learning. In light of that configuration, the investigation revealed how cutting-edge technology directly affects college students' learning and performance.

However, there are restrictions to the investigation in terms of test size, population, and differentiating evidence of the essential elements needed to determine how advanced innovation affects academic performance.

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Appendix

University of MIDOCEAN

RESEARCH ON

Impact of digital technology on education and learning achievements of university students in Saudi

QUESTIONNAIRE BOOKLET

Master Candidate

.....

Dear Respondent, I am a Master's candidate (Management) at the University of MIDOCEAN. Currently, I am conducting a study titled "Impact of digital technology on education and learning achievements of university students in Saudi". I would like to request your cooperation to answer this questionnaire. Any information obtained will be kept confidential and only used for academic purposes. Your cooperation is highly appreciated. Thank you in advance for agreeing to participate in this study. If you have any questions, please do not hesitate to contact my honorable supervisor, Associate Professor Dr....., or myself..... (Master Candidate).

Supervisor

Associate Professor

Faculty of

@gmail.com

Phone :

Master Candidate

Faculty of

University Name

.....@gmail.com

Phone:

Section A:

Demographic information

Name of the university/institution :

Nationality : Saudi ☐ Non Saudi ☐

Gender: ☐ Female ☐ Male

Age group:

- Below 20 ☐
- 21-25 ☐
- 26-30 ☐
- 31-35 ☐
- 36-40 ☐
- 41 and above ☐

Your level of study:

- Undergraduate
- Graduate or postgraduate
- Research

Year of study:

- Year 1
- Year 2
- Year 3
- Year4

Faculty discipline:

- ☐ Humanities
- ☐ Natural Sciences
- ☐ Social Sciences
- ☐ Engineering and Technology

- ☐ Commerce and Management
- ☐ Agriculture and natural resources
- ☐ Health and Medical Sciences
- ☐ Fine and Performing Arts

Section B: Please indicate your degree of agreement or disagreement with the following statements, so please sign (✓) for the choice that reflects your opinion by choosing one of the five alternatives.

- Poor
- Fair
- Neutral
- Good
- Excellent

Section 1: Student digital learning facilities availability						
No	items	Poor	Fair	Neutral	Good	Excellent
Item 1	Classroom facilities (e.g. computers, projection systems, lecture capture systems, SMART boards.					
Item 2	Computer labs (for practical and Internet accessEmail services (institutional)					
Item 3	Learning Management System (e.g. Moodle, E Portfolio Network bandwidth/speed of Internet, Wi-Fi access, online or virtual technologies (e.g. network or cloud-based file storage system, Web portals					

Item 4	Access to software (e.g. MATLAB, GIS applications, statistical software, qualitative data analysis, graphics software, textual or image analysis program					
Item 5	Download and use of free and open source software for teaching and learning, Support for maintenance and repair of ICTs, Access to data storage and Data visualization software					
Item 6	Citation/reference management software					
Item 7	Plagiarism detection software, Institutional repository for sharing of research , e-Journals, e-Books and Citation databases Bibliographic databases e-Newspapers					
Section 2: Student's use of technology						
Item 8	I get more actively involved in courses that use technology.					
Item 9	I am more likely to skip classes when materials from course lectures are available online.					
Item 10	When I entered college, I was adequately prepared to use the technology needed in my courses.					
Item 11	Technology makes me feel connected to what's going on at the college/university.					
Item 12	Technology makes me feel connected to other students.					
Item 13	Technology makes me feel connected to teachers.					
Item 14	Technology interferes with my ability to concentrate and think deeply about subjects I					

	care about.					
Item 15	I am concerned that technology advances may increasingly invade my privacy.					
Item 16	I am concerned about cyber security (password protection and hacking).					
Item 17	In-class use of mobile devices is distracting to me.					
Item 18	In-class use of mobile devices is distracting to my teacher.					
Item 19	Use of tablets/laptops in class improves my engagement with the content and class.					
Item 20	Multitasking with my technology devices sometimes prevents me from concentrating on or doing the work that is most important.					
Student's performance						
Item 21	It will help me get better results in my subjects. It will help me understand the subject material more deeply.					
Item 22	It makes completing work in my subjects more convenient.					
Item 23	It motivates me to explore many topics I may not have seen before.					
Item 24	It allows me to collaborate with others easily, both on and outside of the campus.					
Item 25	It will improve my IT/information management skills in general.					

Item 26	It will improve my career or employment prospects in the long term					

Gratitude: We appreciate you for sparing your time to fill out the survey. Your involvement means a lot to us and we highly value it. The information you shared is significant to our analysis and will enable us to make improvements in our bank's performance. Once again, we are very grateful for your contribution.

Sincerely

Master Candidate University Name

Cell #

الملخص

لقد تغيرت طبيعة التعليم ونطاقه نتيجة للتكنولوجيا الرقمية، وكان على المؤسسات التعليمية في جميع أنحاء العالم التكيف من خلال تنفيذ خطط وسياسات لدمج التقنيات الرقمية. وأثار الأخير مخاوف بشأن مدى فعالية استخدام التكنولوجيا الرقمية في التعليم والتعلم، خاصة فيما يتعلق بفهم وتعديل وتصميم البرامج التعليمية بما يتماشى مع التطورات التكنولوجية المعاصرة. وقد ظهرت هذه المشكلات مؤخرًا وساهمت في تسريع استخدام التقنيات الرقمية في التعليم. ونتيجة لذلك، فقد ظهرت تساؤلات حول أداء واستخدام هذه الأدوات من قبل طلاب الجامعة وكذلك حول إنجازاتهم. وعلى وجه الخصوص، أظهر عدد كبير من الجامعات، بما في ذلك جامعة MIDOCEAN، كفاءتها في التعامل مع التكنولوجيا الرقمية. هذه العوامل وغيرها دفعتنا إلى إجراء هذه الدراسة المقطعية من أجل تقييم آثار التكنولوجيا الرقمية على الأداء الأكاديمي لطلاب الجامعات السعودية. ومن الضروري توضيح كيفية ارتباط هذه التأثيرات وتحديد العناصر التي يمكن أن تعزز التغيير الفعال والنجاح في بيئات الكلية لأن تكامل التقنيات الرقمية هو عملية معقدة ومستمرة تؤثر على العديد من الجهات الفاعلة داخل النظام البيئي للجامعة. وقد تم ترتيب نتائج الدراسة بعد التحليل الإحصائي لكل من اختبارات الدلالة والوصف. بناءً على البيانات المقدمة حول تأثيرات التكنولوجيا الرقمية على التعلم والمتغيرات المؤثرة على الأداء الأكاديمي في الجامعات. وتشير النتائج إلى أن التكنولوجيا الرقمية في التعليم العالي لها تأثير على أداء الطلاب بالإضافة إلى عدد من العوامل الأخرى ذات الصلة. علاوة على ذلك، هناك عدد من المتغيرات التي تؤثر على كيفية تأثير التقنيات الرقمية على التعليم. وهذه العناصر مترابطة وضرورية لعملية التحول الرقمي. توفر نتائج الدراسة نظرة ثاقبة حول كيف يمكن للتكنولوجيا الرقمية أن تساعد الجامعات على الخضوع للتحول الرقمي وما يجب مراعاته حتى يتمكن الطلاب من إحداث تغيير هادف ودائم.

Midocean University

College of Management

Department of Project management



Impact of digital technology on education and learning achievements of university students in Saudi

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Academic year: Second 2024