

## **Use of digital tools for social engagement in remote learning during the COVID-19 pandemic: a case study of a South African university**

**Sisanda Nkoala, Zinzi Magoda, Blessing Makwambeni, Vusi Mshayisa & Virimai Mugobo**  
**Cape Peninsula University of Technology, South Africa**

### **ABSTRACT**

Digital tools have evolved into a way of life, and as a result, they have become a growing area of interest for academics who research teaching and learning. Scholars increasingly agree that because digital tools affect human-to-human connection, a greater emphasis on understanding their function in engagement from an interdisciplinary viewpoint is required. However, there does not appear to have been much research on how these tools facilitate social engagement, especially in teaching and learning. This mixed methods study employs a case-study design and explores how digital tools help or hinder social engagement in teaching and learning at a South African-based tertiary institution. A questionnaire consisting of open and closed questions was used to collect data from 88 students from four academic departments at a University of Technology (UoT): Media, Retail and Business Management, Entrepreneurship, and Food Science. Based on the concept of social engagement and the uses and gratifications theory, this interdisciplinary project examines how different fields employ digital tools for social engagement. Some of the findings are that of the communication technologies considered, WhatsApp (97%), video conferencing via Blackboard Collaborate (96.6%) and blackboard course content (95.5%) were the top three ranked tools. Further, WhatsApp was the preferred digital tool for communication with lecturers and peers, while Blackboard was the preferred platform for accessing course materials such as readings and videos. Other than video conferencing platforms such as Zoom, Blackboard Collaborate and YouTube, students use digital tools for engagement with peers. For example, around a quarter of students who used Blackboard Discussion Forums reported engaging with each other. From the qualitative reflections, the study found that students were communicating more with their lecturers through digital tools. Despite having access to lecture recordings, there was still a sense that the educational experience was not as engaging as students wanted it to be because of the lack of in-person engagement.

**Keywords:** *digital tools; engagement; higher education; COVID-19 pandemic; remote learning*

### **INTRODUCTION**

With the rapid digital revolution, the development of digital tools and their impact on various sectors – including education, health and community development – has been a topic of considerable research (Greener & Wakefield, 2015; Gasser *et al.*, 2020; Mitchell *et al.*, 2016). The advent of the COVID-19 pandemic in 2020 further pivoted the use of digital tools for teaching and learning in higher education (Lazar *et al.*, 2020). Chief among these changes was the wide-scale adoption of a remote teaching and learning modality, which saw in-person activities such as classroom-based teaching and laboratory work cease almost overnight, as teaching and learning moved online to prevent the spread of the virus. This was mediated through digital tools (Dudar *et al.*, 2021; Kooli, 2021; Baburajan, 2021).

Digital tools are tools characterised by electronic and computerised technologies. They can be programs, applications or other software available on a digital device. In recent years, scholars

have examined the readiness of institutions to employ these digital tools for remote learning (Zalite & Zvirbule, 2020) and how these tools are being used for education (Apostol, 2020); however, their relevance to academics is not new, as they have been a topic of interest since the 1970s when computers became more affordable. According to Moreillon (2015), digital tools provide opportunities to promote interaction and engagement between learning and facilitators and students and between learners.

Some research on digital tools has already been undertaken. For example, Lo Presti et al. (2019) conducted a study on using digital tools for engagement in healthcare systems using a sustainable approach. Kooli and Muftah (2022) examined the use of artificial intelligence in healthcare, considering a comprehensive review of its ethical concerns. Kim et al. (2016) conducted a study on how the use of social media and smartphones influences the social engagement activities of college students. Mulyana et al. (2021) undertook a study investigating information communication technologies and social media as marketing communication platforms for facilitating engagement in the digital era. Detyana and Dommett (2021) conducted a feasibility study on using digital tools for lecturer engagement.

When the COVID-19 pandemic hit, it encountered a South African tertiary education sector that, until 2014, did not allow 25 out of the 26 public universities to use remote teaching (Czerniewicz *et al.*, 2020). This is not to say that universities did not engage in online teaching, only how it was initially envisaged. Online learning was part of a blended-learning approach, with some components of education facilitated by face-to-face interactions and others mediated by e-learning technologies. The primary technologies were web-based learner management systems, such as Blackboard, Moodle and Vula, where lecturers could upload resources and students could hand in assessments. Even though these technologies have features that enable peer-to-peer interaction, such as discussion forums and Wikis, and features where synchronous lectures could be held, they were primarily content repositories (Mbodila & Leendertz, 2020). Higher education institutions also used social media platforms such as WhatsApp, Facebook and YouTube to create and share content with students. However, when the pandemic hit, the sector had not yet adopted video conferencing software like Zoom, Google Meet, and Blackboard Collaborate to hold virtual synchronous classes and practicals. Instead, classes and practicals were predominantly conducted in person (Mbodila & Leendertz, 2020).

The role that digital tools can play in improving interaction and engagement in teaching and learning has long been recognised (Norris & Coutas, 2014), and much research has emerged in the last two years on how these tools can be used for teaching and learning. Nevertheless, a gap in the research concerns the application of these tools in the context of education, with a focus on teaching and learning activities, with due consideration for the socialisation elements facilitated by these tools. Our argument in this paper is that since universities are not just places where students acquire discipline-specific knowledge, but they are also environments wherein they are introduced to social structures, education is an integral part of how people are socialised. We adopt White's (1977) view of education as a social process that shapes individuals and societies with other social forces such as family and religion. As the world grapples with the proliferation of digital tools for teaching and learning, how tools shape social engagement in education requires more attention.

This study, therefore, aimed to investigate the use of digital tools for engagement in remote learning during the COVID-19 pandemic at a South African university. In addition, the study sought to specifically establish University of Technology (UoT) student experiences on using digital tools for engagement in remote learning during the COVID-19 pandemic. The study was motivated by the desire to answer the following questions:

1. Which digital tools are used for social engagement in remote learning during the COVID-19 pandemic by UoT students?

2. How are digital tools used for social engagement in remote learning during the COVID-19 pandemic by UoT students?
3. What is the nature of social engagement in remote learning during the COVID-19 pandemic by UoT students facilitated through these digital tools?

## LITERATURE REVIEW

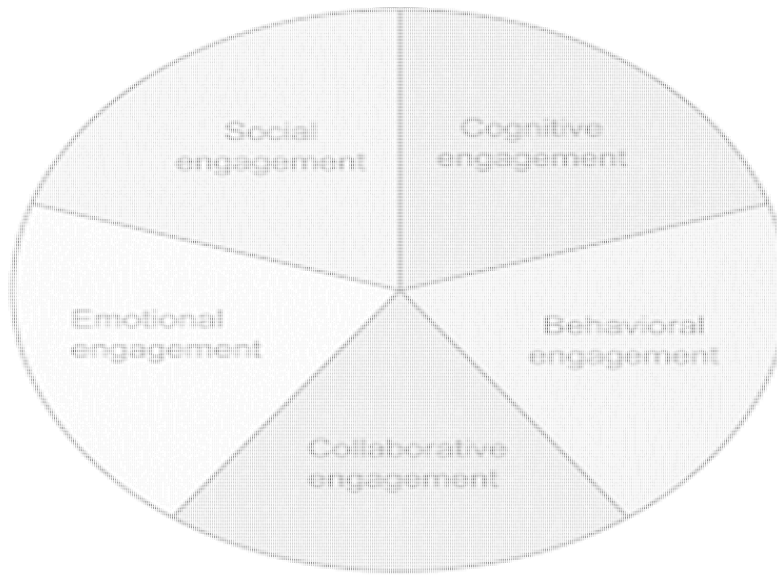
### Conceptualising social engagement

Social engagement, referring to one's degree of participation in a community or society, is related to participation in collective activities which reinforce social capital and social norms (Putnam, 2020). It has its roots in the health sciences, where it concerns vulnerable groups, such as the elderly (Utomo *et al.*, 2019), people with disabilities (Iacovone, 2021) and children (Delano & Snell, 2006). It considers initiatives to entice people to participate actively in a community, excluding paid activities of family obligations. While social engagement is an elusive concept to define (Van Den Wijngaard, 2015), often linked to civic engagement and social capital, at its core is the notion of creating a sense of belonging where people have a sense of belonging (Egerton, 2002).

The term has been defined by Avison, McLeod and Pescosolido (2007, p. 333) as "the extent to which an individual participates in a broad range of social roles and relationships". Diallo *et al.*, (2015, p. 87) define social engagement as "the participation of an individual in an exchange in relation to social concerns, consisting in giving or receiving something from those with whom he/she interacts without external constraint", while Van Den Wijngaard (2015, p 706) views it as "an attitude of responsibility, rather than a specific act or knowledge, which will take the form of applying one or more capabilities to the benefit of the collective, beyond individual gain". Drawing on these, our study defines *social engagement* as the participation of an individual in exchanges and interactions for the purposes of being socialised into meaningful participation without external constraints in a given context.

Key elements of social engagement include activity, the interaction between at least two people and social exchange, where one receives or gives something (Putnam, 2020). These are the activities that students engage in as part of teaching and learning, but not necessarily for teaching and learning ends. Teaching and learning are a means to an end, where the end is the social engagement that results in the student being socialised into higher education. It is different from student engagement when students make a psychological investment in learning and emphasise an individual's engagement with learning rather than interactions with staff or other students, even though such interaction has been identified as another critical influencer of engagement.

In fields like health sciences, where the notion is used, high social engagement has been identified with improved happiness, health, and well-being. Thus, to marry the studies that have examined how students learn through digital tools, we will explore how these tools give students a sense that they are participating meaningfully in the experience of higher education and that they are learning how to manoeuvre within the social structures in this context.



**Figure 1:** Online engagement framework overview (Redmond et al., 2018, p. 189)

### Use of digital tools in teaching and learning

Moreillon (2015) contends that using digital tools for teaching and learning increases students' engagement with course content while facilitating learning with and from one another and the learning facilitator. Digital tools such as learning management systems (LMS) and social media platforms have interactive discussion and engagement features that provide learners with space to engage in shared meaning-making through collective discussions (Gee, 1990) while also ushering learners into a community of practice (Wenger, 1998). Several studies have examined how learning management systems encourage engagement and interaction online (Nikou & Economides, 2018) and enhance relationships with peers and teachers (Alrasheedi, Capretz & Raza, 2015; Atmacasoy & Aksu, 2018). Many researchers have studied how individual and shared meaning related to course content is achieved via LMS-threaded discussions (Gilbert & Moore, 1998; Swan, 2001; Yukawa, 2010). Some have studied the importance of discussion group size (Kim, 2013) or being sensitive to how tools encourage or discourage interaction and balance individuals and the group (Koole & Parchoma, 2012). Recent studies suggest that online anonymous group discussions generate better collaborative results than face-to-face classroom discussions (Kim, Hong, Bonk, & Lim, 2011; Jong, Lai, Hsia, & Lin, 2012). Fulton, Botticelli and Bradley (2011) determined that online discussions contain socioemotional components in which discussants exchange empathetic messages and engage in self-disclosure. Rice & Gattiker (2001) found that online communication effectively synthesises learning.

Although digital tools can facilitate engagement in teaching and learning, it is not merely a case that technology plus students equals engagement. Technology can also promote disengagement and hinder rather than help learning (Howard, Ma, & Yang, 2016; Popenici, 2013). Therefore, calls have been made for a greater understanding of the role of educational technology in affecting engagement to strengthen teaching practice and improve student outcomes (Castañeda & Selwyn, 2018; Krause & Coates, 2008; Laird & Kuh, 2005). A literature review on digital tools in teaching and learning shows minimal scholarship examining how digital tools facilitate social engagement among learners. Research in this area focuses on how digital tools enable and enhance learners' engagement with content.

### Remote learning during COVID-19

The World Health Organization (WHO) declared a coronavirus pandemic on February 11, 2020, initially discovered in Wuhan, China: coronavirus illness 2019 (COVID-19). Since then, it has been found in every country. It has had extraordinary effects on public health, the economy and education (World Health Organization, 2020; Kooli, lock Son & Beloufa, 2022). In the face of the COVID-19 outbreak, governments and educational institutions worldwide had to declare many legislative initiatives to continue teaching while simultaneously keeping the virus at bay (Ali, 2020; Kooli, 2022). However, the process was not simple since there was ambiguity and disagreement about what to teach, how to educate, the teacher and student burden, the teaching environment, and the repercussions of educational equality (Zhang, Wang, Yang & Wang, 2020). During the COVID-19 pandemic, large-scale national attempts to use technology to promote remote learning, distance education, and online learning began and expanded swiftly in the face of these problems (Ali, 2020; Ali & Kaur, 2020; Mshayisa & Ivala, 2022).

The study's material highlights the issues that hampered student learning when using digital interaction technologies like Blackboard (Murgatrotd, 2020). Issues such as the fragility of online education infrastructure, inexperience, the knowledge gap, and the complicated environment at home are evident limitations (Murgatrotd, 2020). However, despite these limitations, the current situation necessitates action to ensure student education is not jeopardised (Zhang et al., 2020). In addition, Huang, Liu, Tlili, Yang, and Wang (2020) suggest that governments and tertiary institutions continue to promote educational information construction, consider equipping academics and students with standardised home-based teaching and learning equipment, conduct online training for academics, and support academic research into online education, particularly education to assist students with online learning difficulties (Huang et al., 2020; Matsilele & Nkoala, 2022).

Compared to traditional classroom-based training, research suggests that well-designed online learning may give excellent, if not better, student learning results (Protopsaltis & Baum, 2019). But the quality of online education will likely vary significantly (Bueno, 2020). Students are more likely to become disengaged because of challenges and drop out from online learning environments with little student-student, student-instructor and student-content interaction (Protopsaltis & Baum, 2019). Fully online courses with little high-quality interaction also contribute to attainment gaps across socioeconomic groups (Protopsaltis & Baum, 2019).

### Using digital tools for engagement in remote learning during COVID-19

Following many other nations, the South African government enforced lockdown restrictions that confined individuals to their homes and severely restricted access to public institutions such as tertiary institutions. As a result, institutions were forced to close, and students, like the rest of the population, had to devise new ways to attend classes and undertake assessments (Sokhulu, 2021; Mustafa, 2020). In these circumstances, solutions have included embracing digital technologies that facilitate data acquisition and both one-on-one and group communication: text and video communication apps like WhatsApp; cloud-based video conferencing services like Zoom; learning platforms or course management systems (CMS) like Moodle; and online academic research databases like Google (Cranfield et al., 2021).

A study by Mpungose and Khoza (2020) found that digital technologies can promote socialisation experiences generated by a researcher's personal needs. Likewise, Khoza (2012) and Amory (2014) revealed that some digital technologies allow students to socialise or learn informally, building their socialisation experiences. Thus, it can be argued that digital technologies assist in creating socialisation experiences amid academic activities. Similarly, Chung & Ackerman (2015)

found that digital platforms enhanced students' social communication with their lecturers via discussion forums.

## **THEORETICAL FRAMEWORK**

### **Uses and gratifications theory**

Since digital tools are ultimately media platforms that provide an interface between people, the study draws on the uses and gratifications theory to understand what actors in higher education do with these digital tools and how the tools meet their needs in this sector. The theory of uses and gratifications, based on media and communications research, explains the ways, motives and contexts in which people use media technologies in their lives. In recent years, this theory has received attention from technology-enabled education researchers because it can explain the motivations behind adopting particular media platforms for teaching and learning. While the theory has been subjected to critique, Ruggiero (2000, p. 3) argues that "the emergence of computer-mediated communication has revived the significance of uses and gratifications" because, in an era where online learning through digital tools has increasingly emerged (strengthened?) as a way of life in education, this framework can help uncover the aspects of these tools that motivate users to employ them in specific ways.

To this end, the study has used Stafford, Stafford & Schkade's (2004) three dimensions of how and why people use the Internet – content, process and social engagement. In terms of content, Stafford, Stafford & Schkade (2004) argue that the need that gives rise to the user's preference for certain digital tools is finding information or material. The tools that gratify this need are those that elicit the content required. In terms of the process, they insist that the requirement that gives rise to users' preference for one tool over another is the ability to navigate or use the tool with ease, and to this end, the tool that allows for ease of browsing is the one that best gratifies. Finally, in terms of social requirements, users are looking for digital tools that will ensure that they form and deepen social ties, and as such, the tool that most fosters social engagement is the one that will gratify this need to the fullest. We use these three categories to guide our discussion on digital tools in education.

## **METHODOLOGY**

This interdisciplinary study used a mixed-method approach to capitalise on the strengths of both quantitative and qualitative methods. An online questionnaire consisting of open and closed questions was used to collect data from students in four academic departments at a South African tertiary institution in 2021: Media, Retail and Business Management, Entrepreneurship, and Food Science. The mixed-method approach was used concurrently: quantitative data was used to understand the nature of tools used for social engagement. Qualitative data explored the patterns of usage. All quantitative data were analysed using SPSS 27.0 (2005) (SPSS Inc., Chicago, IL, USA). In contrast, the qualitative data was analysed thematically using Braun & Clarke's (2006) semantic thematic analysis approach, driven by Stafford, Stafford & Schkade's (2004) three dimensions of how and why people use the Internet.

Ethical clearance for the study was obtained, and consent from the participants was embedded upon survey completion. The online survey comprised three main parts. The first part included demographic information related to gender, age, study level, department enrollment, and Internet access. The second part consisted of questions measuring the use of digital technologies for engagement. The third part consisted of a 5-point Likert scale (strongly disagree, disagree, neutral, agree, strongly agree). The participants were also given an opportunity to answer three open-ended questions; What are the things you like best about using digital technologies in your courses? What are the things you like least about using digital technologies in your studies? Do you have ideas on

how digital technologies can be used to help you engage better with your lecturers, classmates and coursework?

## RESULTS AND DISCUSSION

In this study, eighty-eight (88) students completed the online survey. Of these, 52 (59%) were female, and 36 (41%) were male. Regarding age distribution, the majority (65.9 %) of the participants were 18-24 years old, followed by those between 23-30 years of age (20.5%). Table 1 shows the demographic distribution of the study participants enrolled in a different course in the institution under study.

**Table 1:** Demographic characteristics and internet access of students in the study

|                                                                  | n  | Per cent (%) |
|------------------------------------------------------------------|----|--------------|
| <b>Gender</b>                                                    |    |              |
| Female                                                           | 52 | 59.1         |
| Male                                                             | 36 | 40.9         |
| <b>Age</b>                                                       |    |              |
| 18 - 24                                                          | 58 | 65.9         |
| 23 - 30 years                                                    | 18 | 20.5         |
| 31 - 40 years                                                    | 10 | 11.4         |
| 40 and above                                                     | 2  | 2.3          |
| <b>Level of study</b>                                            |    |              |
| 1 <sup>st</sup> year                                             | 33 | 37.5         |
| 2 <sup>nd</sup> year                                             | 6  | 6.8          |
| 3 <sup>rd</sup> year                                             | 22 | 25.0         |
| ECP1                                                             | 1  | 1.1          |
| ECP2                                                             | 11 | 12.5         |
| Masters                                                          | 7  | 8.0          |
| PhD                                                              | 3  | 3.4          |
| other                                                            | 5  | 5.7          |
| <b>Department</b>                                                |    |              |
| Food Science and Technology                                      | 39 | 44.3         |
| Media Department                                                 | 13 | 14.8         |
| Entrepreneurship and Business Management                         | 10 | 11.4         |
| Retail Business Management                                       | 26 | 29.5         |
| <b>Access to the Internet</b>                                    |    |              |
| Yes                                                              | 71 | 80.7         |
| Sometimes                                                        | 17 | 19.3         |
| <b>Use of public library or IT centre to access the internet</b> |    |              |
| Yes                                                              | 43 | 48.9         |
| No                                                               | 45 | 54.1         |

Most of the participants were first-year students (37.5%), while 39 (44.3%) and 26 (29.5%) were enrolled at the Department of Food Science and Technology and Retail Business Management,

respectively. In this study, 80.7% of the students positively indicated Internet access, while 19.3% admitted to sometimes having Internet access. This is significant since online social engagement relies heavily on digital devices and access to the Internet. As students in South Africa rely on technology daily, access is essential for academic success and social engagement. Table 2 shows data on the students' access to digital devices and a conducive study environment during COVID-19: 85% of the respondents have access to smartphones in terms of unlimited access to digital devices, followed by 76% to a laptop or desktop. These results align with the study by Aheto & Cronje (2018), who also reported high usage of smartphones and laptops among design students in South Africa.

This high usage of smartphones is attributed to the fact that they can be utilised for various functions such as communicating with parents, lecturers, and peers, capturing images and videos, and taking notes. In addition, students have discovered instructional uses for mobile phones and laptops since they allow for numerous communications. But quite notably, in terms of connectivity to the Internet, only 53.41% and 46.59% of students have unlimited access to Wi-Fi and mobile data, while 30.68 and 50% have limited access, respectively.

The results of this study are in line with the report by Clement (2020) that 65% of South Africa's Internet users access the Internet through mobile phones. The question to be asked is, can effective learning take place through smartphones? While access to smartphones and laptops may be sufficient, many students do not have home Internet access, which means having a laptop or desktop computer and an Internet connection at home. Most of the students rely on the mobile data provided by the university as part of the COVID-19 relief package, even though it is only 10 GB per day and 20 GB per night, which suggests a reason for the high response of limited access. Regarding a conducive study space, 48.86% of the respondents reported having unlimited access. In comparison, 45.45% had limited access to a conducive study environment. Distractions such as high noise levels can influence student engagement and participation in online classes, especially where students must participate in synchronous online classes.

**Table 2:** Student access to digital devices and study space during COVID-19

|                          | n  | Unlimited access (access throughout the day) (%) | Limited access (%) | No access (%) |
|--------------------------|----|--------------------------------------------------|--------------------|---------------|
| Mobile data              | 88 | 46.59                                            | 50.00              | 3.41          |
| Wi-Fi                    | 88 | 53.41                                            | 30.68              | 15.91         |
| Smartphone               | 88 | 85.23                                            | 9.09               | 5.68          |
| Laptop/desktop           | 88 | 76.14                                            | 19.32              | 4.55          |
| Tablet                   | 88 | 3.41                                             | 4.55               | 92.05         |
| Conducive space to study | 88 | 48.86                                            | 45.45              | 5.68          |

*Which digital tool is most used?*

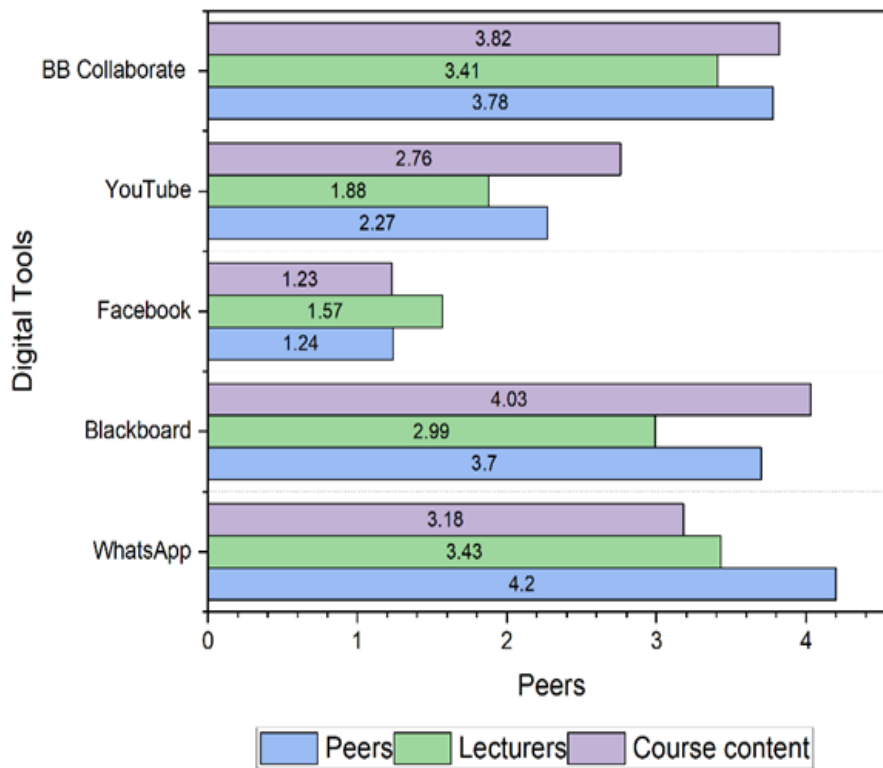
The data in Table 3 shows the use of digital tools ranked by frequency.

**Table 3:** Ranking of digital tools used for engagement with studies

|                              | Cases |          |                              |          |       |          |    |
|------------------------------|-------|----------|------------------------------|----------|-------|----------|----|
|                              | Valid |          | Missing (not using the tool) |          | Total |          |    |
|                              | N     | Per cent | N                            | Per cent | N     | Per cent |    |
| WhatsApp1                    | 86    | 97.7%    | 2                            | 2.3%     | 88    | 100%     | 1  |
| Blackboard course content    | 84    | 95.5%    | 4                            | 4.5%     | 88    | 100%     | 3  |
| Blackboard discussion forums | 60    | 68.2%    | 28                           | 31.8%    | 88    | 100%     | 5  |
| Video conferencing           | 85    | 96.6%    | 3                            | 3.4%     | 88    | 100%     | 2  |
| Telegram1                    | 25    | 28.4%    | 63                           | 71.6%    | 88    | 100%     | 10 |
| TikTok1                      | 31    | 35.2%    | 57                           | 64.8%    | 88    | 100%     | 8  |
| Signal1                      | 27    | 30.7%    | 61                           | 69.3%    | 88    | 100%     | 9  |
| YouTube                      | 68    | 77.3%    | 20                           | 22.7%    | 88    | 100%     | 4  |
| Twitter1                     | 34    | 38.6%    | 54                           | 61.4%    | 88    | 100%     | 7  |
| Facebook1                    | 45    | 51.1%    | 43                           | 48.9%    | 88    | 100%     | 6  |

WhatsApp (97%), video conferencing via Blackboard Collaborate (96.6%) and Blackboard course content (95.5%) were the top three ranked tools. Telegram, TikTok and Twitter had the least usage. Through the lens of the uses and gratification theory, the results of this study suggest that participants were active in selecting the digital tools for engagement. Information seeking or learning through inquiry is dominant and can be seen in the use of these top-ranked tools. This is important to highlight since technology is integral in our lives and is paramount in pandemic teaching and learning.

Figure 2 below is an example of how the uses and gratifications theory can be used to explain students' use of digital tools. Firstly, we observe that no one tool met all student content, process and social engagement needs. Students use different digital tools for varied reasons. For example, the learning management system employed at the institution, Blackboard, was used most for obtaining course content, such as recorded lectures and readings and interaction with lecturers. This finding shows that Blackboard is primarily used to satisfy student content gratification. According to Stafford *et al.*, (2004), content gratification relates to student desire for specific site-related informational content, which in this case relates to subject-specific content. At the same time, WhatsApp was their preferred digital tool for communication with lecturers and peers. This preference to use WhatsApp for communication with peers and lecturers aligns with Abaido and El-Messiry's (2016) study, finding that students in higher education find WhatsApp an easy digital tool to construct and share knowledge, as students use this particular digital tool throughout the day and find it most suitable for browsing through and engaging with their peers and lecturers.



**Figure 2:** Top 5 digital tools used in a UoT during COVID-19; mean values of students' perceptions on (0 = I do not use to application in my studies to 5 = strongly agree)

Similarly, Ujakpa *et al.*, (2018) find that WhatsApp is a valuable digital tool for supporting communication in teaching and learning and intimacy between students as peers and students with their lecturers. This is linked to the ability of students and lecturers to use humorous engagement in the form of jokes, emojis and GIFs on WhatsApp when discussing course content. On the other hand, we observed that WhatsApp was least used for course content, a phenomenon that aligns with the findings of Ujakpa *et al.*, (2018). They attribute this to user inclination to include non-academic content in WhatsApp messages. This practice makes the tool cumbersome as a content repository because one cannot easily locate a particular academic artefact. Sometimes, a student may be unaware that an artefact has been posted because there are countless messages. Thus, WhatsApp primarily meets the students' need for both process gratification and social engagement. Stafford *et al.*, (2004) observed that users of digital tools do not just use them because of the content they provide but also because of the enjoyment of the usage processes of random browsing and site navigation. Our findings show that WhatsApp meets this need and the need for social engagement. The use of WhatsApp for social engagement resonates with the averments of the critics of the uses and gratifications theory, who have argued that scholars must examine how users

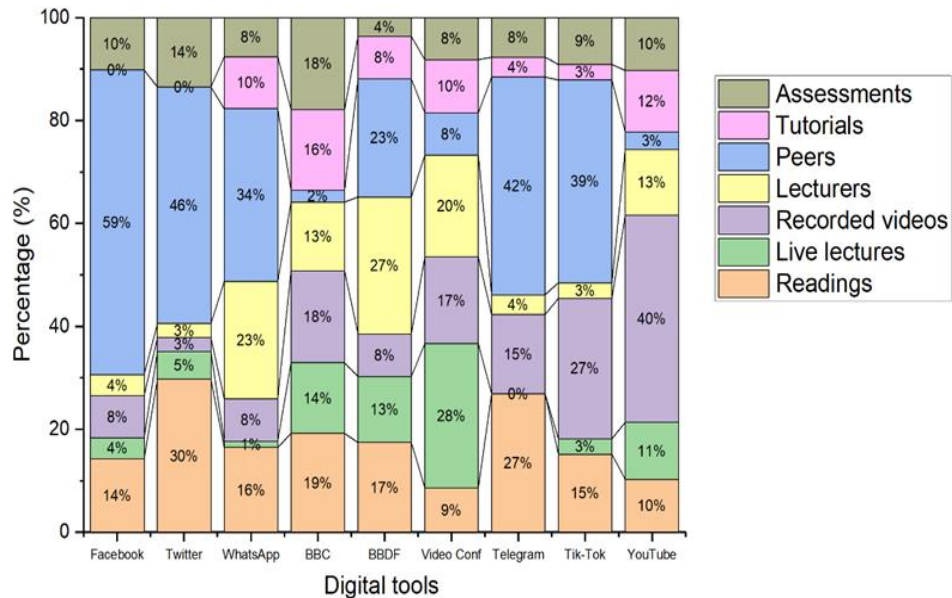
use the Internet and digital tools as a social environment (Stafford *et al.*, 2004). Thus, our findings attest to the existence of additional gratifications that drive the use of digital tools in teaching and learning.

Blackboard is, by far, the most preferred platform for accessing resources. This outcome was expected, given that even before the outbreak of COVID-19 and the move to wholly online teaching and learning, this was the institution's learning management system (LMS). In their paper on the use of Blackboard at CPUT, Ncubukezi and Daramola (2020) noted that this LMS has been employed for over 20 years at the institution, arguing, that Blackboard was mainly used for accessing content, assignment submissions and assessments, registering attendance and as a communication tool. Students use this digital tool because it meets their need for presenting content in a way that is easy to find. Also, during this period, the institution put measures in place to ensure that access to Blackboard would not require data but be free for students, a move that would ensure that connectivity was not a hindrance to students to access content. Students also used Blackboard Collaborate to engage with lecturers, suggesting that a considerable amount of engagement with their educators was in synchronised lectures. Blackboard was the preferred platform because it satisfied the content gratification needs of students during COVID-19. However, it is arguable whether it was the most effective tool for promoting social engagement at the UoT because it is primarily designed for content dissemination (see Chikuni, Makwambeni & Chigona, 2021).

The use of Facebook and YouTube was markedly less than other platforms surveyed above, likely due to several factors, including the costs associated with data needed to use these platforms and lecturers not having relied on these as resources or platforms for sharing content or hosting lectures. In her study on the use of Facebook by University of Cape Town students, a demographic similar to that featured in this study, Bosch (2009, p. 197) found that "compared to other commonly used online tools, Facebook is limited, e.g., for managing groups, Facebook does not offer a wiki, it is not possible to send group notifications, and material cannot easily be deleted or archived". These are some of the features that students require to use a platform for meaningful educational engagement, so these limitations keep Facebook as underutilised as it is. YouTube is even more limited in the type of content and engagement it can facilitate. It requires that lecturers either create and post video content for students to access or share links to existing content for students to consult, similar to sharing a reference to a reading, or that students be given assignments instructing them to post audio-visual content on YouTube as a submission requirement. Based on the above results, the first two are how it is used.

Figure 3 below presents a more detailed breakdown of the teaching and learning activities for which students used different digital tools. In addition to the five tools considered in Figure 2, Figure 3 includes Twitter and video conferencing platforms like Zoom, Google Meet, Telegram and TikTok. The reason for considering additional digital tools is that the intent for Figure 2 was to look at the main tools of engagement, while Figure 3 shows, in greater detail, the nature of the engagement.

This data shows us that besides video conferencing platforms such as Zoom, Blackboard Collaborate and YouTube, students use digital tools for engagement with peers. For example, around a quarter of students who used Blackboard Discussion Forums reported engaging with each other. In contrast, almost two-thirds of those who used Facebook did so to engage with peers. According to Stafford *et al.*, (2004), using Facebook for teaching and learning at UoTs appeared to be consistent with students' need to create a social environment for social engagement to occur. The second most prevalent reason students use digital tools is to access readings and other text-based resources. This finding resonates with using digital tools to satisfy the need for content gratification. Finally, four out of ten students who use YouTube note watching recorded content while attending live lectures as the primary reason students use video conferencing platforms. Thus, YouTube is primarily used to meet content gratification needs of learners as opposed to social engagement needs (see Stafford *et al.*, 2004).



**Figure 3:** Overview of digital tools and uses in a UoT during COVID-19

As part of the survey, students were asked long-form questions to gauge their experience using digital tools. When asked what they most appreciate and found beneficial about these tools, responses were as follows:

*To be able to communicate with lecturers via WhatsApp because they respond quicker than through email.*

*Well, for me, it's the fact that it made my supervisors easily accessible to me. When I did not understand something or wanted clarity on whether I was on the right track with my research, I could always send a WhatsApp text. If it's something that would require both of them, then they would also make use of a WhatsApp voice call and sometimes even WhatsApp voice notes. The voice notes always worked the best for me as a point of reference.*

These responses demonstrate that students prefer digital tools that make communication with their lecturers more efficient. The examples above about why students choose WhatsApp suggest that students prefer quick engagement with lecturers, meaning the speed with which lecturers respond

and the ease with which a student can send a query to a lecturer. A platform like WhatsApp, which is already a part of student communication practices, is ideal for that; consequently, it is the tool most used by students, as demonstrated below.

*Recorded lectures, classes are recorded, making it easy if you miss something or realise later that you don't understand a particular topic, you can always go back and watch again to get the answers you need.*

*The options of recorded sessions; these allow students to go back to the recording and revise what was discussed during the session in case the student missed a crucial point.*

Students also acknowledged that the ability to watch recorded lectures was helpful. There is a long-standing debate in higher education on the value of recorded lectures. Some lecturers believe lecture recordings decrease student attendance and synchronous participation (Chang, 2007). On the other hand, students find lecture recordings useful and, as demonstrated in the quotes above, use them to clarify points and concepts about which they are uncertain (Vajoczki, Watt, Marquis & Holshausen, 2010). However, as O'Callaghan *et al.*, (2017, p. 399) argued, "the positives of lecture recordings outweigh the negatives and its continued use in higher education is recommended". Comments such as the one below by one of the students attest to this.

When asked to reflect on what they did not like about relying on digital tools, Internet access and connectivity were highlighted as two substantial hindrances to engaging through these tools.

*Network and data issues are still a problem because not everyone can access that, and some people may not have smartphones as well as laptops.*

*The connectivity crises. We sometimes struggle to connect with the sessions we normally have. Depleting data before the month ends causes absenteeism in the last sessions of the Month. We miss important sessions.*

These sentiments reveal dissatisfaction with using digital tools in a context where cost and access to the necessary infrastructure hinder the degree to which students can actively participate. As articulated by the uses and gratifications theory, the ease with which people can use digital technology strongly influences whether they will use it. Students also expressed a sense of disconnection from attending lectures online:

*Classes becomes boring; it sometimes feels like the lecturer is teaching from another planet.*

*The lack of human contact and engagement coupled with the unreliability of some networks.*

Wholly online learning is relatively new in South African higher education. It was not until 2014 that 25 of the 26 public higher education institutions (HEIs) were allowed to use remote teaching (Czerniewicz *et al.*, 2020). In this context, then, teaching primarily occurs within the context of a physical classroom. Even though all universities employ blended learning, it was only in 2020, when the COVID-19 pandemic forced institutions to close and halt all forms of in-person instruction, that institutions had to grapple with what it means to teach and learn online. Based on views such as those expressed above, it is evident that students were communicating more with their lecturers through digital tools. Despite having access to recordings of lecturers, because of the lack of in-person engagement, there was a sense that their educational experience was not as engaging as they wanted it to be. Education conceptualised primarily as an endeavour to teach content,

downplays the centrality of social engagement. But student views suggest that elements of socialisation are crucial for students to feel like they are engaged in a meaningful educational experience.

## CONCLUSION

Given that this type of online learning is set to be the 'new normal', studies must further investigate how socialisation elements of higher education can be enhanced through digital tools. As this study finds, these tools certainly have immense value in the delivery of content and in enabling teaching and learning to continue remotely in circumstances where in-person interaction is impossible. However, as this study finds, the engagement aspects of these tools have not been adequately considered. Neither does it appear, from the uses and gratifications theory, that they have been designed to bolster socialisation elements of higher education.

Based on views like those expressed in this study, it appears that students communicated more with their lecturers through digital tools. Despite having access to lecture recordings, because of the lack of in-person engagement, there was still a sense that the educational experience was not as engaging as students wanted it to be. Education conceptualised primarily as an endeavour to teach content can downplay the centrality of social engagement. Student views, though, reinforce that socialisation elements are vital for students to feel that they are engaged in a meaningful educational experience.

## RECOMMENDATIONS FOR FUTURE RESEARCH

This study did not investigate the opinions of course facilitators (lecturers), who are key players in instructional design and who influence student use of pedagogical tools. Future work can explore the impact of course instructors on the use and perceptions of digital tools for social engagement.

Faculty perceptions of social engagement as a topic might also be examined in the future, with disparities between faculty facilitators (lecturers) and student perspectives compared. Undergraduate student opinions of social engagement tactics should be investigated, and strategies that are more significant to undergraduates than postgraduate students could be identified.

## REFERENCES

- Abaido, G. & El-Messiry, H. (2016). Efficiency of WhatsApp as a means of disseminating educational information. *IT & Knowledge Excellence*, vol. 5, no. 2, pp. 1-5.
- Aheto, S.P.K. & Cronje, J. (2018). Digital device ownership and learning environment preferences of students in South Africa and Ghana. *Turkish Online Journal of Distance Education*, vol. 19, no. 3, pp. 93-111.
- Alrasheedi, M., Capretz, L.F. & Raza, A. (2015). A systematic review of the critical factors for success of mobile learning in higher education (university students' perspective). *Journal of Educational Computing Research*, vol. 52, no. 2, pp. 257-276.
- Ali, W. (2020). Online and Remote Learning in Higher Education Institutes: A Necessity in light of COVID-19 Pandemic. *Higher Education Studies*; vol. 10, no. 3, pp. 16-25.
- Ali, W. & Kaur, M. (2020). Mediating educational challenges amidst COVID-19 pandemic. *Asia Pac. J. Contemp. Educ. Commun. Technol*, vol. 6, pp. 40-57.
- Amory, A. (2014). Tool-mediated authentic learning in an educational technology course: a designed-based innovation. *Interactive Learning Environments*, vol. 22, no. 4, pp. 497-513.

- Apostol, A.C. (2020). Students' Perceptions about the Impact of COVID-19 on Learning Process. A Sociological Approach. *Technium Soc. Sci. J.*, vol. 9, p .495.
- Atmacasoy, A. & Aksu, M. (2018). Blended learning at pre-service teacher education in Turkey: A systematic review. *Education and Information Technologies*, vol. 23, no. 6, pp. 2399-2422.
- Avison, W., McLeod, J.D., & Pescosolido, B. (2007). Mental Health, *Social Mirror*. 10.1007/978-0-387-36320-2.
- Baburajan, P.K., (2021). Psychological impact of COVID-19 pandemic among expatriate residents in the UAE. *Avicenna*, 2021 vol. 1, p.3.
- Bosch, T.E. (2009). Using online social networking for teaching and learning: Facebook use at the University of Cape Town. *Communicatio: South African Journal for Communication Theory and Research*, vol. 35, no. 2, pp. 185-200.
- Braun, V. and Clarke, V., (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, vol. 3, no. 2, pp.77-101.
- Bueno, D.C. (2020). The "New Normal" at G-SPACE: Flexible/blended teaching and learning via ERATE.
- Castañeda, L. & Selwyn, N. (2018). More than tools? Making sense of the ongoing digitizations of higher education. *International Journal of Educational Technology in Higher Education*, vol. 15, no. 1, pp. 1-10.
- Chang, S. (2007). December. Academic perceptions of the use of Lectoria: A University of Melbourne example. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007* (pp. 135-144).
- Chikuni, P.R., Makwambeni, B., & Chigona, W. (2021). Dominant discourses informing e-learning policies in Higher Education Institutions in South Africa. *International Journal of Education and Development using Information and Communication Technology*, vol. 17, no. 4, pp. 5-21.
- Chung, C., & Ackerman, D. (2015). Student reactions to classroom management technology: Learning styles and attitudes toward Moodle. *Journal of Education for Business*, vol. 90, no. 4, pp. 217-223.
- Clement, J. (2020). *Digital Population in South Africa as of January 2020*. Available at: <https://www.statista.com/statistics/685134/south-africadigital-population/>
- Coe, R., Weidmann, B., Coleman, R. & Kay, J. (2020). *Impact of school closures on the attainment gap: rapid evidence assessment*. June 2020.
- Cranfield, D.J., Tick, A., Venter, I.M., Blignaut, R.J. & Renaud, K. (2021). Higher education students' perceptions of online learning during COVID-19—A comparative study. *Education Sciences*, vol. 11, no. 8, p. 403.
- Czerniewicz, L., Agherdien, N., Badenhorst, J., Belluigi, D., Chambers, T., Chili, M., De Villiers, M., Felix, A., Gachago, D., Gokhale, C. and Ivala, E. (2020). A wake-up call: Equity, inequality and Covid-19 emergency remote teaching and learning. *Postdigital Science and Education*, vol. 2, no. 3, pp.946-967.
- Delano, M., & Snell, M.E. (2006). The effects of social stories on the social engagement of children with autism. *Journal of positive behavior interventions*, vol. 8, no. 1, pp. 29-42.
- Detyna, M. & Dommett, E. (2021). An investigation into digital tools for lecture engagement: a feasibility study. *Compass: Journal of Learning and Teaching*, vol. 14, no. 1.

- Diallo, M.F., Diop-Sall, F., Leroux, E. & Valette-Florence, P. (2015). Responsible tourist behaviour: The role of social engagement. *Recherche et Applications en Marketing (English Edition)*, vol. 30, no. 3, pp. 85-104.
- Dudar, V.L., Riznyk, V.V., Kotsur, V.V., Pechenizka, S.S. & Kovtun, O.A. (2021). Use of modern technologies and digital tools in the context of distance and mixed learning. *Linguistics and Culture Review*, vol. 5, S2, pp. 733-750.
- Egerton, M. (2002). Higher education and civic engagement. *The British journal of sociology*, vol. 53, no. 4, pp. 603-620.
- Fulton, B., Botticelli, P. & Bradley, J. (2011). DigIn: A hands-on approach to a digital curation curriculum for professional development. *Journal of Education for Library and Information Science*, pp. 95-109.
- Gasser, U., Ienca, M., Scheibner, J., Sleight, J. & Vayena, E. (2020). Digital tools against COVID-19: taxonomy, ethical challenges, and navigation aid. *The Lancet Digital Health*, vol. 2, no. 8, pp. e425-e434.
- Gee, D.B. (1990). *The Impact of Students' Preferred Learning Style Variables in a Distance Education Course: A Case Study*.
- Gilbert, L. & Moore, D.R. (1998). Building interactivity into Web courses: Tools for social and instructional interactions. *Educational Technology*, vol. 38, no. 3, pp. 29-35.
- Greener, S. & Wakefield, C. (2015). Developing confidence in the use of digital tools in teaching. *Electronic Journal of E-Learning*, vol. 13, no. 4, pp. 260-267.
- Howard, S.K., Ma, J. & Yang, J. (2016). Student rules: Exploring patterns of students' computer-efficacy and engagement with digital technologies in learning. *Computers & Education*, vol.101, pp. 29-42.
- Huang, R.H., Liu, D.J., Tlili, A., Yang, J.F. & Wang, H.H. (2020). Handbook on facilitating flexible learning during educational disruption: The Chinese experience in maintaining undisrupted learning in COVID-19 outbreak. *Beijing: Smart Learning Institute of Beijing Normal University*, vol. 46.
- Iacovone, L. (2021). *Social Engagement Experiences of Disabled Students in Higher Education*.
- Jong, B.S., Lai, C.H., Hsia, Y.T. & Lin, T.W. (2012). Effects of anonymity in group discussion on peer interaction and learning achievement. *IEEE Transactions on Education*, vol. 56, no. 3, pp. 292-299.
- Kim, J. (2013). Influence of group size on students' participation in online discussion forums. *Computers & Education*, vol. 62, pp. 123-129.
- Kim, P., Hong, J.S., Bonk, C. & Lim, G. (2011). Effects of group reflection variations in project-based learning integrated in a Web 2.0 learning space. *Interactive Learning Environments*, vol. 19, no. 4, pp. 333-349.
- Kim, Y., Wang, Y. & Oh, J. (2016). Digital media use and social engagement: How social media and smartphone use influence social activities of college students. *Cyberpsychology, Behavior, and Social Networking*, vol. 19, no. 4, pp. 264-269.
- Khoza, S.B. (2012). Who helps an online facilitator to learn with students in a day? *Mevlana International Journal of Education*, vol. 2, no. 2, pp. 75-84.
- Koole, M.L. & Parchoma, G. (2012). The ethical and practical implications of systems architecture on identity in networked learning: a constructionist perspective. *Interactive Learning Environments*, vol. 20, no. 3, pp. 203-215.

- Kooli, C. (2021). COVID-19: Challenges and opportunities. *Avicenna Editorial*, vol. 1, no. 5.
- Kooli, C. (2022). Perspectives of social policies and programs in the post-Covid-19 era. *Avicenna*, 2022 vol. 1, p.1.
- Kooli, C. and Al Muftah, H. (2022). Artificial intelligence in healthcare: a comprehensive review of its ethical concerns. *Technological Sustainability*.
- Kooli, C., lock Son, M. and Beloufa, I. (2022). Business ethics in the era of COVID 19: How to protect jobs and employment rights through innovation. *Avicenna*, 2022 vol. 2, p.7.
- Krause, K.L. & Coates, H. (2008). Students' engagement in first-year university. *Assessment & Evaluation in Higher Education*, vol. 33, no. 5, pp. 493-505.
- Laird, T.F.N. & Kuh, G.D. (2005). Student experiences with information technology and their relationship to other aspects of student engagement. *Research in Higher education*, vol. 46, no. 2, pp. 211-233.
- Lazar, I.M., Panisoara, G. & Panisoara, I.O. (2020). Digital technology adoption scale in the blended learning context in higher education: Development, validation and testing of a specific tool. *PloS one*, vol. 15, no. 7, p.e 0235957.
- Lo Presti, L., Testa, M., Marino, V. & Singer, P. (2019). Engagement in healthcare systems: Adopting digital tools for a sustainable approach. *Sustainability*, vol. 11, no. 1, p. 220.
- Matsilele, T. and Nkoala, S. (2022). COVID-19 and the structural inequalities in South Africa's higher education: A case study of Cape Peninsula University of Technology's journalism programme. In *Teaching and Learning with Digital Technologies in Higher Education Institutions in Africa* (pp. 245-257). Routledge.
- Mbodila, M. & Leendertz, V. (2020). Blackboard or WhatsApp: Which space South African rural students access and engage with more? In *EdMedia+ Innovate Learning* (pp. 1377-1386). Association for the Advancement of Computing in Education (AACE).
- Mitchell, C., Chege, F., Maina, L. & Rothman, M. (2016). Beyond engagement in working with children in eight Nairobi slums to address safety, security, and housing: Digital tools for policy and community dialogue. *Global Public Health*, vol. 11, no 5-6, pp. 651-665.
- Moreillon, J. (2015). Increasing interactivity in the online learning environment: Using digital tools to support students in socially constructed meaning-making. *TechTrends*, vol. 59, no. 3, pp. 41-47.
- Mpungose, C.B. & Khoza, S.B. (2020). Postgraduate students' experiences on the use of Moodle and Canvas learning management system. *Technology, Knowledge and Learning*, pp. 1-16.
- Mshayisa, V.V. and Ivala, E.N. (2022). No Student Left Behind: Students' Experiences of a Self-Paced Online Learning Orientation in Undergraduate Studies during COVID-19 Pandemic. *Education Sciences*, vol. 12, no. 6, p.386.
- Mulyana, D., Rahmawati, D., Gidion, H. & Roselina, E. (2021). Unraveling communication between child patients' family members and healthcare staff. *Jurnal Kajian Komunikasi*, vol. 9, no. 1, pp. 1-11.
- Murgatrotd, S. (2020). COVID-19 and online learning, Alberta, Canada. *Journal of Educational Technology*, vol. 9, no. 3, pp. 25-32.
- Mustafa, N. (2020). Scirp. org.: *Impact of the 2019–20 Coronavirus Pandemic on Education. International Journal of Health Preferences Research*, 1–12. References–Scientific Research Publishing.

- Ncubukezi, T. & Daramola, O. (2020). Influence of e-learning via Blackboard on the learning experiences of late bloomers in information technology. In *European Conference on e-learning, Kidmore End*.
- Nikou, S.A. & Economides, A.A. (2018). Mobile-Based micro-Learning and Assessment: Impact on learning performance and motivation of high school students. *Journal of Computer Assisted Learning*, vol. 34, no. 3, pp. 269-278.
- Norris, L. & Coutas, P. (2014). Cinderella's coach or just another pumpkin? Information communication technologies and the continuing marginalisation of languages in Australian schools. *Australian Review of Applied Linguistics*, vol. 37, no. 1, pp. 43-61.
- O'Callaghan, F.V., Neumann, D.L., Jones, L. & Creed, P.A. (2017). The use of lecture recordings in higher education: A review of institutional, student, and lecturer issues. *Education and Information Technologies*, vol. 22, no. 1, pp. 399-415.
- Popenici, S. (2013). Devaluation of Teaching and Learning. *Popenici—a space for critical analysis and discussion on the future of education*. Available at: <http://popenici.com/> (Accessed 28 January 2014).
- Protopsaltis, S. & Baum, S. (2019). Does online education live up to its promise? A look at the evidence and implications for federal policy. *Center for Educational Policy Evaluation*.
- Putnam, R.D. (2020). Bowling Alone: America's Declining Social Capital. *Journal of Democracy* (1995). In *The City Reader* (pp. 142-150). Routledge.
- Redmond, P., Abawi, L.A., Brown, A., Henderson, R. and Heffernan, A. (2018). An online engagement framework for higher education. *Online Learning*, vol. 22, no. 1, pp.183-204.
- Rice, R.E. & Gattiker, U.E. (2001). New media and organizational structuring. *The new handbook of organizational communication: Advances in theory, research, and methods*, pp. 544-581.
- Ruggiero, T.E. (2000). Uses and gratifications theory in the 21st century. *Mass communication & society*, vol. 3, no. 1, pp. 3-37.
- Sokhulu, L.H. (2021). Students' experiences of using digital technologies to address their personal research needs during the COVID-19 lockdown. *African Identities*, vol. 19, no. 4, pp. 436-452.
- Stafford, T.F., Stafford, M.R. & Schkade, L.L. (2004). Determining uses and gratifications for the internet. *Decision sciences*, vol. 35, no. 2, pp. 259-288.
- Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance education*, vol. 22, no. 2, pp. 306-331.
- Ujakpa, M.M., Heukelman, D., Lazarus, V.K., Neiss, P. & Rukanda, G.D. (2018). Using WhatsApp to support communication in teaching and learning. In *2018 IST-Africa Week Conference (IST-Africa)* (pp. Page-1). IEEE.
- Utomo, A., McDonald, P., Utomo, I., Cahyadi, N. & Sparrow, R. (2019). Social engagement and the elderly in rural Indonesia. *Social science & medicine*, vol. 229, pp. 22-31.
- Vajoczki, S., Watt, S., Marquis, N. & Holshausen, K. (2010). Podcasts: Are they an effective tool to enhance student learning? A case study. *Journal of Educational Multimedia and Hypermedia*, vol. 19, no. 3, pp. 349-362.
- Van Den Wijngaard, O., Beusaert, S., Segers, M. & Gijssels, W. (2015). The development and validation of an instrument to measure conditions for social engagement of students in higher education. *Studies in Higher Education*, vol. 40, no. 4, pp. 704-720.

- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge university press. <https://doi.org/10.1017/CBO9780511803932>
- White, G.E. (1977). *Socialisation*. London; New York: Longman.
- World Health Organization (WHO). (2020). Weekly epidemiological update: Coronavirus disease 2019 (COVID-19). WHO. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>
- Yukawa, M. (2010). Adaptive filtering based on projection method. *Lecture Notes, December*, pp. 6-8.
- Zalite, G.G. & Zvirbule, A. (2020). Digital readiness and competitiveness of the EU higher education institutions: The COVID-19 pandemic impact. *Emerging Science Journal*, vol. 4, no. 4, pp. 297-304.
- Zhang, W., Wang, Y., Yang, L. & Wang, C. (2020). Suspending classes without stopping learning: China's education emergency management policy in the COVID-19 outbreak. *Journal of Risk and Financial Management*, vol. 13, no. 3, p. 55.

---

Copyright for articles published in this journal is retained by the authors, with first publication rights granted to the journal. By virtue of their appearance in this open access journal, articles are free to use with proper attribution, in educational and other non-commercial settings.