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doi: 10.20527/jbk.v20i2.20595

RESEARCH ARTICLE

OPEN ACCES

Perceptions of Higher Education Students in South Africa towards Online Teaching and Learning during COVID-19 Pandemic

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Abstract:

This study evaluates how students view online teaching and learning during COVID-Pandemic. A cross-sectional descriptive survey of University of Technology (UT) students at the Ga-Rankuwa Campus was conducted. Data were gathered from 295 students using a self-administered questionnaire and analysed using descriptive statistics. Prior to the pandemic, 25.1% of the students used online learning platforms for at least six hours; however, during the pandemic, 53.6% of the students did so ($p<0.001$). Students said that learning online was interesting (54.9%) and fun (55.1%) and allowed them to ask questions (59.4%). About 62% found teachers to be well prepared for the lessons. Over half (56.5%) of the pupils thought they were ready for their careers. Benefits of online learning included not having to travel, saving money, allowing students to learn at their own pace, and increased comfort; drawbacks included the need for an internet connection, a lack of gadgets, and interruptions from family. Students find online learning to be convenient, efficient, entertaining, and engaging. The absence of electronics, erratic Internet connections, and family distractions were experienced.

Keywords: COVID-19 Pandemic; Online teaching-learning; Perception; South Africa.

Introduction

In Wuhan, Hubei province, China, the first case of coronavirus disease (COVID-19) was reported in December 2019.[1] Globally, the number of COVID-19 cases increased in numerous nations.[2] Consequently, the COVID-19 epidemic was deemed a global pandemic by the World Health Organization (WHO) on March 11, 2020.[3] Several public health actions were implemented by countries worldwide, including South Africa, to curb the virus's transmission. These treatments included social distancing, face mask wear, self-isolation, and country lockdowns. All daycare centres, public and private schools, and universities were closed on March 18, 2020. All the country's higher education institutions were impacted by these closures. The educational institutions reopened on June 28, 2021; but, because of the COVID-19 outbreak, many of them were unprepared, and as a result, they were forced to use online teaching and learning to make sure that students could continue their education even when they were off campus.

Numerous research has been done on the advantages and disadvantages of online instruction. While some of these studies[4–9] found online teaching and learning to be ineffective, especially when conducted in a typical setting,[10] others[11,12] found it to be ineffective. Many authors have acknowledged the success of online teaching and learning; yet there are several obstacles associated with it, such as poor internet connectivity. lecturers' ineffective methods, their inability to create and sustain meaningful and productive interactions with students[10] and their worry.[13–15]

Prior to the outbreak, few South African universities had made use of online teaching and learning platforms.[16] However, those that were falling behind were forced to switch from traditional classroom settings to online ones to contain the virus's spread.[16,17] Notwithstanding the obstacles to online teaching and learning platforms that lecturers and students encountered during the COVID-19 outbreak, Tshwane University of Technology (TUT) was forced to switch to an online learning environment.[13–15,18–25] Prior to the epidemic, however, research on how university students felt about online instruction and learning was a major focus. However, there is a dearth of data regarding how South African university students, especially those at University of Technology (UT), felt about online instruction and learning during the epidemic. Considering this, this study evaluates how students perceived the benefits and drawbacks of online instruction during the COVID-19 epidemic.

Research Method

Study design.

This study is a component of a cross-sectional descriptive online survey conducted among University of Technology (UT) Ga-Rankuwa Campus students. Determining the degree of felt stress, coping mechanisms, and effects of online instruction during the COVID-19 pandemic was the main objective of the study. The information was gathered between October and November of 2023.

Study setting

Three Technikons—Technicon Northern Gauteng, Technikon North-West, and Technikon Pretoria—have merged to form UT. The university is a non-profit public higher education institution that was established in 2003. Its main campus is in Pretoria-West, in the Gauteng Province of South Africa. In addition to the city of Pretoria, it also maintains campuses in the townships of Soshanguve and Ga-Rankuwa, the towns of Witbank and Nelspruit in the province of Mpumalanga, and the city of Polokwane in the province of Limpopo. The SA Department of Higher Education and Training has formally accredited and recognized UT as a coeducational higher education institution. These campuses provide a wide range of programs and courses leading to legally recognized higher education degrees, including doctorate, master's, and bachelor's

degrees. Along with other academic and non-academic facilities and services, it provides students with administrative services, a library, online courses, and possibilities for distant learning. UT's entrepreneurial-focused education provides students with limitless opportunities to become job creators and entrepreneurs. This is accomplished by fostering prosperity by encouraging innovation and creative thinking. This study will be conducted among UT students at the Ga-Rankuwa Campus. The campus has 2762 students for the academic year 2023 (Table 1).

Table 1. Number of students per department

Departments	Number of students
Department of Accounting	570
Department of Auditing	572
Department of Economics	474
Department of Finance and Investment	653
Department of Public Sector Finance	493

Population

The study population was made up of 18-years and older first- to fourth-year undergraduate and graduate students enrolled at UT's Ga-Rankuwa Campus. The first and second years were not yet registered with the university, thus the third- and fourth-year undergraduate students were chosen because they had prior experience with online instruction during the COVID-19 pandemic.

Sample Size and Sampling Technique

A total sample size of 290 was determined using an online Roasoft sample size calculator with a 95% confidence interval, a 5% margin of error, and a 25%–30% response rate of online study based on the 2762 students enrolled at UT Ga-Rankuwa Campus for the academic year 2022.[26]

Data Collection

The five sections of the self-administered questionnaire were created based on previously published research.[27–29] Age, gender, marital status, ethnicity, degree level, and other sociodemographic data were included in the first segment. The second component assessed the students' experiences with online instruction. Students' opinions of online instruction are evaluated in the third section. The 10-item survey used a five-point Likert scale to gauge students' opinions toward online instruction: 1 represents severely disagree, 2 disagree, 3 is neutral (neither agree nor disagree), 4 represents agree, and 5 represents highly agree. The standardized PSS-10, a self-report instruments that gauge's people's felt stress, is included in the tool's fourth component.[30] The last tool includes a standardized Brief COPE inventory a 28-item questionnaire that measures coping strategies.[31]

For analysis, Google Forms' collected data was exported to SPSS 28.0 for Windows (SPSS Inc., Chicago, USA). Frequencies and percentages for categorical variables, followed by averages and standard deviations for continuous variables, are examples of descriptive statistics for the sample. A Pearson correlation coefficient was used to evaluate the relationship between the degree of study and the students' perception of online learning. Less than 0.05 was the threshold for statistical significance.

Results

In all, 295 students took part in the research. Their ages ranged from 18 to 34 years old, with a mean age of 21.4±2.5. Most of the students—89%—were under 25 years old. Undergraduate students dominated postgraduate students (96.9% vs. 3.1%), and the proportion of female respondents was higher than that of male respondents (66.8% vs. 33.2%). Most of the participants were

African and single. The detailed description of the study participants is shown in Table 2.

Table 2. Demographic Information

	No	%
Age		
<20	67	22.7
20-24	196	66.4
25-29	24	8.1
30+	5	1.7
Unspecified	3	1.0
Gender		
Male	98	33.2
Female	197	66.8
Marital status		
Married	5	1.7
Unmarried	290	98.3
Ethnicity		
African	291	98.6
Coloured/Indian	4	1.4
Level of study		
Undergraduate	286	96.9
Postgraduate	9	3.1

The different types and time spent on online teaching platform is presented in Table 3. Prior to the pandemic, most of the students said they used a face-to-face class by lecturers (72.9%), classes by tutors (36.6%), online question banks (20.0%), pre-recorded lectures (22.7%) and (27.1%) video tutorials.

Students were asked to approximate the number of hours spent on online teaching platforms before and during the pandemic. Prior to the pandemic, 25.1% of the students said they spent 6 or more hours using online teaching platforms as compared to 53.6% during the pandemic and this was statistically significantly different ($p<0.001$).

Table 3. Different types and time spent on online teaching platforms before and during COVID-19

	No	%
Online teaching platform used before pandemic		
Live classes by lecturers	215	72.9
Live classes by tutors	108	36.6
Online question banks	59	20.0
Pre-recorded lectures	67	22.7
Video tutorials	80	27.1
Number of hours spent on online platforms before COVID-19		
<6	189	64.1
≥6	74	25.1
Unspecified	32	10.8
Number of hours spent on online platforms during COVID-19		
<6	84	28.5
≥6	158	53.6
Unspecified	53	18.0

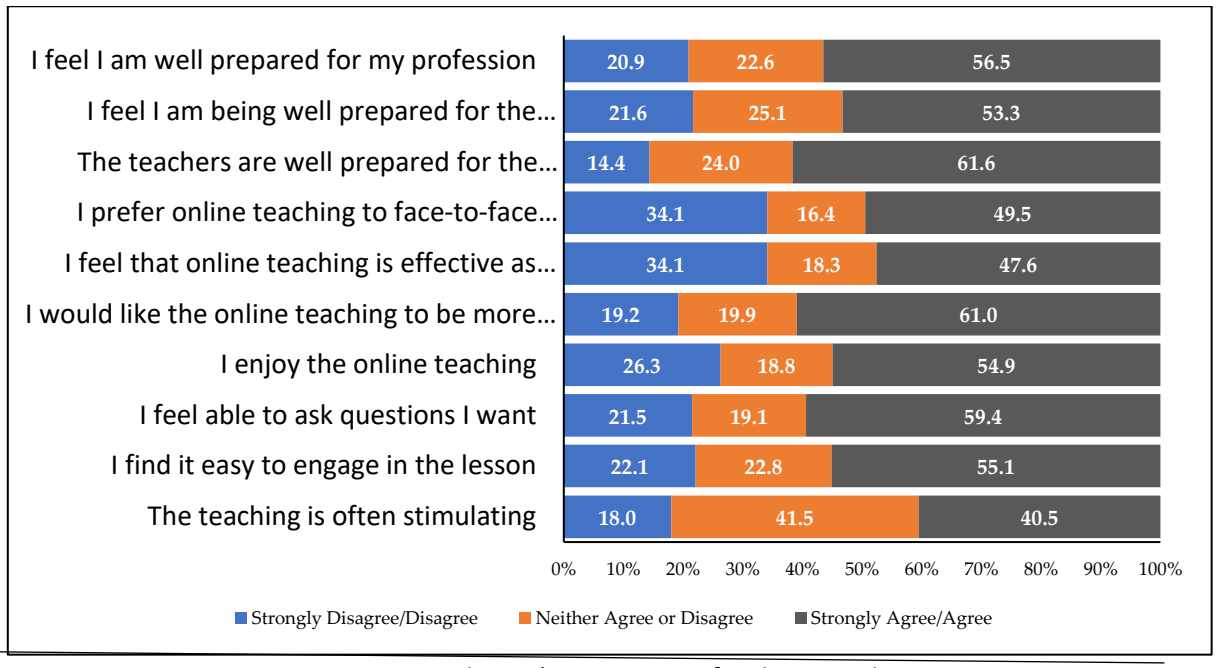

Figure. 1 Students 'perception of online teaching

Less than half of students view online learning to be exciting (40.5%), as effective as in-person learning (47.5%), and prefer it (49.5%), as Figure 1 illustrates. More than over half of the students thought that learning online was interesting (55.1%), fun (54.9%), and allowed them to ask questions (59.4%). Nonetheless, the majority (61.0%) desire greater interaction in their online education. Although 53.3% of the students stated they were well-prepared for the lessons, 62% of the students thought the professors were well-prepared. Of the pupils, over half (56.5%) thought they were ready for their careers.

Table 4. Advantages of and barriers to online teaching

	No	%
Advantages of online teaching		
No travel	209	70.8
Cost savings	184	62.4
Ability to learn at own pace	177	60.0
More comfortable	157	53.2
Ability to ask questions	134	45.4
Flexibility	132	44.7
Interactive	87	29.5
Barriers to online teaching		
Internet connection	260	88.1
Lack of devices	160	54.2
Family distraction	149	50.5
Timing of tutorials	134	45.4
Lack of space	97	32.9
Anxiety	75	25.4

Participants in the study were also questioned about the benefits and drawbacks of remote learning. The freedom to learn at one's own speed, financial savings, lack of travel, and increased comfort seem to be the key benefits of online learning that students highlighted (Table 4). Students most frequently cited lack of technology, family distractions, and internet connectivity as obstacles.

Discussion

Considering the COVID-19 epidemic, this study evaluated university students' perceptions of online instruction and learning. COVID-19 expanded quickly over the world, putting pressure on many universities to implement online learning platforms to stop the virus's spread. More than two-thirds (73%) of the participants in this study stated that, prior to the COVID-19 epidemic, face-to-face instruction, online question banks, recorded lectures, and video tutorials were the main methods used for teaching and learning. Consistent with earlier research among UK medical students, we saw a notable rise in the amount of time spent on online learning environments during the pandemic.[13] In the present study, the participants were predominantly females as compared to males, which is in line with studies conducted among Saudi Arabian,[23] Indian,[21] United Kingdom,[13] and Polish[32] medical students. Most studies on students' perception on online teaching and learning were carried out among undergraduates[21,23,32] and postgraduate[23] medical students. In our study, we included both undergraduate and postgraduate students, but it was difficult to make a comparison between the two groups due to few postgraduate participants.

The results of this study showed that 49.5% of the students preferred in-person instruction over online instruction, and less than half of the students (47.6%) thought that online instruction was just as effective as in-person instruction. Despite this, students felt that learning online was interesting (54.9%), fun (55.1%), and allowed them to ask questions (59.4%). In line with previous research, students would prefer more interaction in their online classes (61.0%).[13] Our study found that there are several benefits to online teaching and learning, such as lower travel expenses and the opportunity for students to learn at their own pace. Additionally, comfort is a benefit of online teaching and learning that this study reports, allowing some students to ask and receive anonymous questions. This finding is approximately like a national cross-sectional study conducted on medical students in the United Kingdom.[13]

The primary barrier to online teaching and learning, as determined by the study, is unstable internet connectivity. These findings are consistent with those of previous studies conducted.[13,14,19–22]Our study also showed that a significant deficiency in equipment was one of the main causes of the disadvantages associated with online teaching and learning. According to other studies,[23–25] the deficiency of working technology was the reason why online teaching and learning was inconvenient. As previously mentioned, mental health problems, such as anxiety, have also been found to be a barrier to online teaching and learning.[13–15,33] Lack of in-person interactions with friends and coworkers may be the cause of this.[13,34] Our findings are in accordance with other studies' findings that using online learning tools at home is a problem for students due to family distraction.[13,18,21,35] Students from large families may be at a disadvantage because of this. Furthermore, our research showed that space constraints and the scheduling of tutorials and lectures were challenges for online teaching and learning. This result is in line with several studies.[13,14] that found that, as it is a relatively new phenomena in developing nations,[36] the absence of a proper study space at home is a barrier to online learning.

Study Limitations

There are various restrictions on this study. Because this study was limited to a single college and used a relatively small sample size, it's possible that the findings cannot be applied to the student body on other campuses. Furthermore, it was challenging to compare this study to others because there were not many male participants or postgraduate students.

Conclusion

In summary, our research indicates that while students find online instruction to be interesting and engaging, it is less effective and preferred than in-person instruction. However, students do benefit from the ability to learn at their own pace, save money on travel expenses, and ask questions. Unreliable internet access and a shortage of urgently needed devices constituted the two main obstacles to online teaching and learning. Furthermore, it should be highlighted that various students encounter different obstacles at home, particularly those from disadvantaged backgrounds and large families. Family distractions were also found to be impediments to online education. Thus, minimizing sources of interruption can be achieved by making and adhering to a well-organized daily routine, practicing effective time management, and wearing headphones when sitting in a quiet place.

Co-Author Contribution

The supervisors affirmed that there is no conflict of interest in this article. Malebye Wilson Plaatjie Ramotshwane caried out the fieldwork and overlook the writeup of the whole article, prepared the literature review, wrote the research methodology, and did the data analysis. Dr Ntuli Thembelihle and Prof. Seeletse Solly Machonisa, supervisor and co-supervisor respectfully, commented on the article and approved it. This article is part of a doctoral dissertation.

References

1. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. N Engl J Med. 2020 Mar;382(13):1199–207.
2. Bogoch I, Watts A, Thomas-Bachli A, Huber C, Kraemer M, Khan K. Potential for global spread of a novel coronavirus from China. J Travel Med. 2020;27.
3. Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. Acta Biomed. 2020 Mar;91(1):157–60.
4. Zheng M, Bender D, Lyon C. Online learning during COVID-19 produced equivalent or better student course performance as compared with pre-pandemic: empirical evidence from a

school-wide comparative study. BMC Med Educ. 2021;21.
5. Lalduhawma LP, Thangmawia, Hussain J. Effectiveness of Online Learning during the COVID -19 Pandemic in Mizoram. J Educ e-Learning Res. 2022;9(3):175–83.
6. Khalil R, Mansour AE, Fadda WA, Almisnid K, Aldamegh M, Al-Nafeesah A, et al. The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: a qualitative study exploring medical students' perspectives. BMC Med Educ. 2020 Aug;20(1):285.
7. Almaghaslah D, Ghazwani M, Alsayari A, Khaled A. Pharmacy students' perceptions towards online learning in a Saudi Pharmacy School. Saudi Pharm J SPJ Off Publ Saudi Pharm Soc. 2018 Jul;26(5):617–21.
8. Agarwal S, Kaushik JS. Student's Perception of Online Learning during COVID Pandemic. Vol. 87, Indian journal of pediatrics. India; 2020. p. 554.
9. Panda D, Gamal M, Zafar A, Grace D, Parambi D, Senapati AK, et al. A study on the effectiveness of online teaching in pharmacy education from teacher and student perspectives during the COVID-19 pandemic. Vol. 20, Pharmacy Education. 2021.
10. Nhatuve D. Effectiveness of Online Learning during the Covid-19 Pandemic: A Case of One University in Zimbabwe. EAST AFRICAN J Educ Soc Sci. 2021;2:56–61.
11. Fauzi I, Khusuma I. Teachers' Elementary School in Online Learning of COVID-19 Pandemic Conditions. J Iqra' Kaji Ilmu Pendidik. 2020;5:58–70.
12. Awal M. Measuring The Effectiveness Of Online Classes During The COVID-19 Pandemic: Case Study Of A Government College In Bangladesh. J Manag Bus Educ. 2023;6:43–57.
13. Dost S, Hossain A, Shehab M, Abdelwahed A, Al-Nusair L. Perceptions of medical students towards online teaching during the COVID-19 pandemic: a national cross-sectional survey of 2721 UK medical students. BMJ Open. 2020 Nov;10(11):e042378.
14. Dergham P, Saudagar FNI, Jones-Nazar CC, Hashim SA, Saleh K, Mohammedhussain AA, et al. Medical Students' Perceptions Towards Online Teaching During the Covid-19 Pandemic: A Cross-Sectional Study from Saudi Arabia. Adv Med Educ Pract. 2023;14:407–19.
15. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, et al. The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Res. 2020 May;287:112934.
16. Badaru K, Adu E. Platformisation of Education: An Analysis of South African Universities' Learning Management Systems. Res Soc Sci Technol. 2022;7.
17. Mpungose C. Emergent transition from face-to-face to online learning in a South African University in the context of the Coronavirus pandemic. Humanit Soc Sci Commun. 2020;7.
18. Barrot JS, Llenares II, Del Rosario LS. Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. Educ Inf Technol. 2021;26(6):7321–38.
19. Dyrek N, Wikarek A, Niemiec M, Owczarek AJ, Olszanecka-Glinianowicz M, Kocełak P. The perception of e-learning during the SARS-CoV-2 pandemic by students of medical universities in Poland - a survey-based study. BMC Med Educ. 2022 Jul;22(1):529.
20. Eslamian G, Khoshnoodifar M, Malek S. Students' perception of e-learning during the Covid-19 pandemic: a survey study of Iranian nutrition science students. BMC Med Educ. 2023;23.
21. Saurabh MK, Patel T, Bhabhor P, Patel P, Kumar S. Students' Perception on Online Teaching and Learning during

COVID-19 Pandemic in Medical Education. Vol. 16, Maedica. Romania; 2021. p. 439–44.
22. Hlatshwayo M. Online Learning during the South African Covid-19 Lockdown: University Students Left to Their Own Devices. Educ as Chang. 2022;26(5):1–23.
23. Aziz Ansari K, Farooqi FA, Qadir Khan S, Alhareky M, C Trinidad MA, Abidi T, et al. Perception on Online Teaching and Learning Among Health Sciences Students in Higher Education Institutions during the COVID-19 Lockdown - Ways to Improve Teaching and Learning in Saudi Colleges and Universities. F1000Research. 2021;10:177.
24. Jose J, Juan KLM, Tabiliran J, Yapo F, Gatchalian J, Baluyot MK, et al. Struggle Is Real: The Experiences and Challenges Faced by Filipino Tertiary Students on Lack of Gadgets Amidst the Online Learning. 2023;7:174–81.
25. Segbenya M, Bervell B, Minadzi VM, Somuah BA. Modelling the perspectives of distance education students towards online learning during COVID-19 pandemic. Vol. 9, Smart Learning Environments. 2022.
26. Menon V, Muraleedharan A. Internet-based surveys: relevance, methodological considerations and troubleshooting strategies. Gen psychiatry. 2020;33(5):e100264.
27. Sue Roff Sean McAleer RMHMA-QAUAHDGG, Primparyon P. Development and validation of the Dundee Ready Education Environment Measure (DREEM). Med Teach [Internet]. 1997;19(4):295–9. Available from: https://doi.org/10.3109/01421599709034208
28. Abbasi S, Ayoob T, Malik A, Memon SI. Perceptions of students regarding E-learning during Covid-19 at a private medical college. Pakistan J Med Sci. 2020 May;36(COVID19-S4):S57–61.
29. Maqbool S, Farhan M, Abu Safian H, Zulqarnain I, Asif H, Noor Z, et al. Student's perception of E-learning during COVID-19 pandemic and its positive and negative learning outcomes among medical students: A country-wise study conducted in Pakistan and Iran. Ann Med Surg. 2022 Oct;82:104713.
30. Cohen S, Williamson G. Psychological stress in a probability sample of the United States. In: Spacapan S, Oskamp S, editors. The social psychology of health: Claremont symposium on applied social psychology. Newbury Park, CA: Sage; 1988. p. 31–67.
31. Carver CS. You want to measure coping but your protocol's too long: consider the brief COPE. Int J Behav Med. 1997;4(1):92–100.
32. Bączek M, Zagańczyk-Bączek M, Szpringer M, Jaroszyński A, Wożakowska-Kapłon B. Students' perception of online learning during the COVID-19 pandemic: A survey study of Polish medical students. Medicine (Baltimore). 2021 Feb;100(7):e24821.
33. Son C, Hegde S, Smith A, Wang X, Sasangohar F. Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. J Med Internet Res. 2020 Sep;22(9):e21279.
34. Nehir S, Gungor Tavsanli N. Mental State of Students During the Pandemic and Affecting Factors: A Cross-Sectional Study. Inquiry. 2021;58:469580211056389.
35. Van D, THI H. Student Barriers To Prospects Of Online Learning In Vietnam In The Context Of COVID-19 Pandemic. Turkish Online J Distance Educ. 2021;110–26.
36. Aljaraideh Y, Al Bataineh K. Jordanian Students' Barriers of Utilizing Online Learning: A Survey Study. Int Educ Stud. 2019;12:99.