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# Learning and institutional support for youth in higher education institutions during the COVID-19 pandemic in South Africa

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**Introduction:** As higher education institutions (HEIs) moved from in-person to online learning during the COVID-19 pandemic, various challenges were presented. Using a large online survey conducted during the pandemic, this paper investigates the impact of COVID-19 on learning and institutional support offered to students in HEIs in South Africa.

**Methods:** The study utilized a closed-ended questionnaire on a data-free online platform. The study sample included South African youth aged 18–35 years who were enrolled for some type of educational training or in higher education institutions (including private colleges). Data was benchmarked to the 2019 estimates of the youth population in educational institutions. Descriptive statistics are presented.

**Results:** Among the 7011 student participants, the main challenges experienced during lockdown were loss of study time (57.9%), insufficient money for essential personal items for studying (55.8%), loss of social contact (42.2%) and insufficient money for food (40.1%). Overall, 47.0% of students reported having free access to the internet, 49.5% used personal internet or paid for internet access and 3.5% indicated having no access to internet. The majority rated their institution's eLearning portal as good or excellent, and 23.4% thought their eLearning portal was of poor quality. Significantly fewer (38.1%) technical and vocational education and training (TVET) college students indicated that their institution provided the capacity to conduct virtual learning compared to those enrolled at other types of institutions. Almost two thirds of students (66.2%) from TVET colleges experienced difficulty in communicating with their institutions. Half of the students (49.9%) reported that they had a suitable place to study during lockdown, while 78.6% had regular access to electricity during lockdown. Significantly more TVET and University of Technology students received transport to return home and fee refunds.

**Conclusion:** While it was encouraging that most HEIs had capacity for online learning and made provision of internet access for students, it was concerning that students who are enrolled at TVET colleges faced more learning challenges during the lockdown. This highlights the inequality in learning support at different types of institutions, and that effective support from HEIs to students during the COVID-19 pandemic was not fully implemented.

## KEYWORDS

youth, learning, COVID-19, higher education institutions, PSET, students, South Africa

## Introduction

To curb infections with COVID-19 many countries including South Africa implemented lock-down to restrict movement in the beginning of 2020. This included closure of many institutions including schools and institutions of higher education. Previous studies on other epidemic outbreaks showed that closing schools and higher education institutions (HEIs) during an epidemic could reduce transmission (Cauchemez et al., 2008). Consequently, most governments around the world temporarily closed educational institutions to contain the spread of the COVID-19 pandemic (Takács et al., 2023). Many families with young people around the world felt the severe short and often long-term disruption of their learning journey. Home schooling was not only a massive shock to parents' productivity, but also to children's social lives and learning (Calear et al., 2022). Teaching moved online on an untested and unprecedented scale. Student assessments also moved online, with a lot of trial and error and uncertainty for everyone. Importantly, these interruptions did not just become a short-term issue, but also had long-term consequences for the affected cohorts and are likely to increase inequalities (Burgess and Sievertsen, 2020). In one study evidence shows that students who switched to online learning reported lower average grade points compared to those who participated in on-campus education and that this had a negative implication for securing bursaries and scholarship for the students whose grades were lower (Takács et al., 2023).

As of April 2020, the COVID-19 pandemic had caused approximately 1.57 billion students to drop out of primary to tertiary level schools (UNESCO, 2020). Many vulnerable young people had limited access to alternate forms of education and information and technology, as well as how to mitigate exposure to COVID-19 (UNFPA, 2020). In South Africa the COVID-19 pandemic resulted in a state of disaster, that was declared on 15th March 2020. Approximately 2 weeks thereafter a nationwide lockdown was declared on the 27th of March 2020 which was effective for 21 days, and then later extended till August for some sectors and further relaxations of restrictions in September 2020. Only essential services including food production, distribution and sales; pharmacies and medical facilities were given permission to remain open during lockdown (Statistics South Africa, 2020). Contact teaching for HEIs was therefore suspended and most of the 2020 academic year was disrupted, and as educators and learners grappled with encountering the pandemic for the first time, they had to embrace the use of virtual tools as the only medium for learning. The lives of post school education and training (PSET) youth, who aimed to follow a career path or acquire or improve their skills, was disrupted such that youth encountered financial difficulties, loss of scholarships and internships, campus and home displacements, and limited or no digital resource access, amongst others (Chaturvedi et al., 2021; du Plessis et al., 2022).

The internationally adapted PSET system encompasses further education and training colleges, that focus on vocational education and training, private education providers at college and universities, skills development sector, and the regulatory and quality assurance sector (National Planning Commission, 2012). The primary goal of the PSET sector is to provide young people who want to change careers or upgrade their skills with quality learning to be able to do so (Department of Higher Education and Training, 2023). As the COVID-19 pandemic disrupted the daily lives of people, there was the

greater question of whether higher education institutions (HEIs) had operational plans and preparedness to deal with such sudden threats of the pandemic (Dikid et al., 2020). According to Rashid and Yadav (2020), there were no best practices nor models for HEIs to copy or follow.

As HEIs moved away from face-to-face teaching, learning and assessment processes, virtual learning became a challenge due to the non-existence of virtual laboratories for practical work. Ahmed and Opoku (2022) conducted a study among college students and instructors in College of Engineering at a Higher Education Institution in the UAE to examine the challenges faced by students and academics and coping mechanism during the COVID-19 period. They found that there were a number of pedagogical, technological and psychological challenges among these students and instructors due to the sudden migration online, which were likely to play a role in the impediment of the students' learning cycle, as a result of the lack of preparedness in response to the state of emergency created by COVID-19. Some countries in Africa also reported difficulties faced in adapting to the new way of teaching and learning. Helping students access laptops or tablets and data for the internet was one of the challenges that most institutions had to overcome before they could start teaching virtual classes. According to Jaka (2021), HEIs that had information and communications technology (ICTs) integrated into the teaching curriculum were more likely to adopt with ease into virtual teaching and learning, while others suffered with adopting online learning, novel virtual assessment methods, adjusting to new workloads, having to find alternative methods of communicating with educators, not having electronic devices to access online work, minimal to no internet access and high data costs. This also led to anxiety, stress and affected the psychological well-being of students (Barrot et al., 2021) as they also faced other socio-economic issues such as access to and money for food due to COVID-19.

Students were also affected by ineffective learning management systems, where support for digital resources, access to the internet, and access to institutional services were limiting or non-existent (Barrot et al., 2021). In Rwanda, students in HEIs also reported learning inequalities, poor or non-access to the internet, lack of digital skills, unavailability of face-to-face clarification of concepts/information taught, highlighting the digital divide between urban and rural areas (Twesige et al., 2021). A study conducted in South Africa, Botswana and Zambia indicated that while teaching is possible virtually, practical sessions were limited or difficult to explain elaborately. Due to the digital divides between rural and urban areas, students in rural areas were negatively affected by the rapid online learning sessions. Those that relied on living on campus residences or close to campus were forced to return home, where a conducive study space was not available due to overcrowding in the household. This also highlighted students being far from campus and unable to access learning, health, and other services (Mphahlele et al., 2021).

Therefore, it was important to identify what learning challenges youth in HEIs in South Africa faced during the COVID-19 pandemic and what institutional support systems were in place to encounter these challenges. When the study commenced (18 June – 18 September 2020), the lockdown alert level was 3, indicating that there was moderate health system readiness. From 18 August to 20 September 2020, the alert level changed to level 2, that was indicative of the health system readiness being higher (South African Government, 2020). This was a delicate period for PSET youth where

virtual distance learning was still being experienced. The Human Sciences Research Council thus conducted this urgent and important study, focusing on young people who were either in some form of educational training or enrolled in a tertiary institution in South Africa. Therefore, this paper aims to explore the impact of COVID-19 on learning and institutional support for young people in HEIs in South Africa, including socio-economic experiences such as inadequate money for food. Faced with impoverished conditions due to socio-economic inequalities, both prior to and during the pandemic, there was likely not sufficient or extra money in the household to accommodate costs associated with online learning, as well as food.

## Materials and methods

### Study design and sampling

An online survey method was utilized for the study, to select a sample that included higher education institutions in all 9 provinces in South Africa. Campuses were clustered according to locality which were urban, rural and township. Study sample included South African youth aged 18–35 years who were enrolled for some type of educational training or in higher education institutions (including private colleges), were invited to participate in the online survey. The survey was conducted via a data free platform from 18 June to 18 September 2020, and study inclusion criteria included participants who had access to an electronic device and/or internet access.

### Study procedures

To encourage participation and distribution of the survey, the HSRC engaged with various media platforms and stakeholders. The invitation for survey participation was also distributed to strategic partner networks in both higher education institutions and government. Posts were amplified and further youth participation were encouraged by organizations and partners within the education sector. Social media platforms such as Facebook and Twitter, and mainstream media such as television and radio interviews were utilized. Additionally, to increase and encourage youth participation from all provinces, two bulk SMS campaigns were executed, that were geo-targeted across the nine provinces. Peer educators within national TVET institutions were also mobilized by one of the study partners to recruit youth.

Survey participation was voluntary, and no personal information was required from participants in order to complete the survey. Participants provided informed consent, and they were notified of voluntary participation, the option to withdraw from the survey at any given time, and response anonymity. The estimated survey completion time was 20 min. The BINU data-free platform was <https://hsrc.datafree.co/r/CovidYouth> utilized for data collection. The application was free of charge and available on all major application stores, including mobile App stores. Due to the data free service and that it could be used without respondent data being depleted, it was more appealing to users who were young people and more cost aware. It was also easily accessible to youth who had access to a smart phone.

## Study instrument

Based on previous COVID-19 surveys, review of the literature and through a consultative process with researchers in behavioral sciences, public health and epidemiology, a structured questionnaire was designed. The questionnaire included 58 close ended questions, of which 15 questions focused on learning. The survey was only available in the English medium as it was administered to a population that were registered in higher education institutions where the mainstream teaching and learning is conducted in English.

## Ethical considerations

Ethical approval for the study was approved by the Human Sciences Research Council Research Ethics Committee – approval number: REC 5/03/20.

## Measures

Sociodemographic variables included sex (female or male), population group (Black African, Colored,<sup>1</sup> White, Indian/Asian), community type (city, suburb, township, informal settlement, rural/traditional tribal area, farm), province in which youth studied, level of study (1st, 2nd, 3rd, and 4th year or beyond), institutional type (TVET college, University of Technology, conventional university, private college or SETA), and level of study (NCV 3 [or above], N4 to N6, Diploma, Higher certificate, Bachelors/undergraduate, Masters, Doctoral [PhD]).

Variables related to learning and education included challenges faced during lockdown, methods of accessing the internet during lockdown, availability of virtual learning at the participants' institutions, perceptions of their institution's online learning portal, types of support received from their institution, and study resources during lockdown such as access to electricity and a suitable study space and available time for studying.

## Statistical analysis

The data were exported from the online platform into MS Excel and processed and analyzed in Stata 15.0 (StataCorp, USA). Estimates are benchmarked (weighted) using Statistic's South Africa's estimates of the youth population aged 18–35 who are attending educational institutions by sex, population group, age and the province that they reside in. These estimates were sourced from Statistics SA Quarterly Labour Force Survey for Quarter 4 2019. The benchmarking of estimates increases generalizability to the national population of PSET youth.

A total of 13,119 students accessed the survey and completed the mandatory questions on demographic characteristics. However, only

<sup>1</sup> Colored' is a constructed racial category, similar to 'white' and 'black' designated onto South Africans during the system of legislated racial segregation.

7011 students completed the rest of the questionnaire which included items on education and learning. This paper analyses data from the 7011 students. Descriptive statistics were used to summarize the variables. Unweighted totals and weighted percentages with 95% confidence intervals are presented. Differences between estimates were considered statistically significant if their 95% confidence intervals did not overlap.

## Results

### Demographic and educational profile

The students in the weighted sample were almost equally split by sex with 50.8% of the respondents being female and 49.1% male (Table 1). About 84.7% of the student participants classified themselves as Black African, and about 7.5% were White respondents, with a further 5.4% of respondents who were Colored and 2.4% of the respondents who were Indian or Asian.

The geographic distribution of the students showed that 25.7% were studying in Gauteng, 20.8% in KwaZulu-Natal and 12.5% in the Eastern Cape provinces. The lowest proportion (1.6%) of students reported that they were studying in the Northern Cape province. Further geographic distribution showed that about 28% lived in rural and farm localities while over a third of the students lived in townships. Those who reside in urban localities (suburb and city) constituted about 30 and 6% lived in informal settlements.

The majority of students who participated in this study were enrolled at universities and comprised 62.0% of the sample. The students who enrolled at Universities of Technology were 15.0% and youth studying in TVETs colleges were 15.4% of the total sample.

A large proportion of the students (over 45%) were in their first year of study, while 22.2% were in second year and 14.5% were in third year. Those who reported that they were in their 4th year or beyond constituted 16.4% of the sample.

The findings in this study show that over 45% of the students were at bachelors/undergrad level of study while 21.7 and 13.8% were at diploma and higher certificate level, respectively. Nearly 6% classified themselves as at “other level of study.”

### Impact of COVID-19 on learning and institutional support

The main challenges experienced by students during lockdown were loss of study time (57.9% [95% CI: 56.4–59.4]), not having enough money for essentials like personal items or items for studying (55.8% [54.3–57.3]), loss of social contact (42.2% [40.7–43.7]) and not having enough money for food (40.1% [38.7–41.6]) (Figure 1).

With regard to access to internet, 47.0% (45.5–48.5) said they had free access to the internet, 49.5% (48.0–51.0) used personal internet or paid for internet access, and 3.5% indicated that they had no access to the internet ( $N=6823$ ). Regarding learning support, 90.2% (86.5–93.0) of students at private colleges and 80.2% (78.6–81.7) of university students reported that their institutions provided virtual learning. Significantly fewer (38.1% [34.0–42.4]) TVET students indicated that their institution provided the capacity to conduct virtual learning. About two-thirds (66%) of students rated their institution's eLearning

TABLE 1 Demographics of the study participants.

	<i>n</i>	%	95% CI
<b>Sex</b>			
Female	4,702	50.8	[49.3–52.4]
Male	2,046	49.1	[47.6–50.7]
Prefer not to say	263	0	[0.0–0.0]
<b>Population group</b>			
Black African	5,517	84.7	[83.7–85.6]
White	810	7.5	[6.9–8.2]
Colored	330	5.4	[4.8–6.1]
Indian/Asian	306	2.4	[2.1–2.7]
Other	48	0	[0.0–0.0]
<b>Community type</b>			
City	810	9.7	[8.9–10.5]
Suburb	1,842	21.5	[20.4–22.7]
Township	2,540	34.9	[33.5–36.3]
Informal settlement	363	6.0	[5.3–6.8]
Rural (Traditional tribal area)	1,343	26.2	[24.8–27.6]
Farm	113	1.8	[1.4–2.3]
<b>Province in which you are studying</b>			
Western Cape	481	9.0	[8.6–9.5]
Eastern Cape	390	12.5	[11.9–13.1]
Northern Cape	79	1.6	[1.4–1.8]
Free State	312	5.2	[4.9–5.5]
KwaZulu-Natal	1,076	20.8	[20.1–21.4]
North-West	527	5.6	[5.4–5.9]
Gauteng	3,400	25.7	[25.2–26.2]
Mpumalanga	245	7.4	[6.9–7.9]
Limpopo	501	12.2	[11.6–12.8]
<b>Current year of study</b>			
1st year	3,061	46.5	[44.9–48.0]
2nd year	1,562	22.6	[21.4–23.9]
3rd year	1,042	14.5	[13.4–15.6]
4 <sup>th</sup> year or beyond	1,346	16.4	[15.4–17.6]
<b>Type of institution enrolled at</b>			
TVET college	782	15.4	[14.2–16.6]
University of Technology	964	15.0	[13.9–16.1]
University	4,662	62.0	[60.5–63.4]
Private college	462	5.8	[5.1–6.5]
SETA	9	0.1	[0.0–0.3]
Other	126	1.8	[1.4–2.2]
<b>Level of study</b>			
NCV 3 (or above)	257	5.0	[4.3–5.8]
N4 to N6	380	6.9	[6.1–7.8]
Diploma	1,416	21.7	[20.4–23.0]
Higher certificate	959	13.8	[12.8–14.9]
Bachelors/undergraduate	3,475	45.6	[44.1–47.1]
Masters	122	1.2	[0.9–1.5]
Doctoral (PhD)	35	0.3	[0.2–0.4]
Other	367	5.5	[4.9–6.3]
<b>Total</b>	<b>13,119</b>	<b>100</b>	



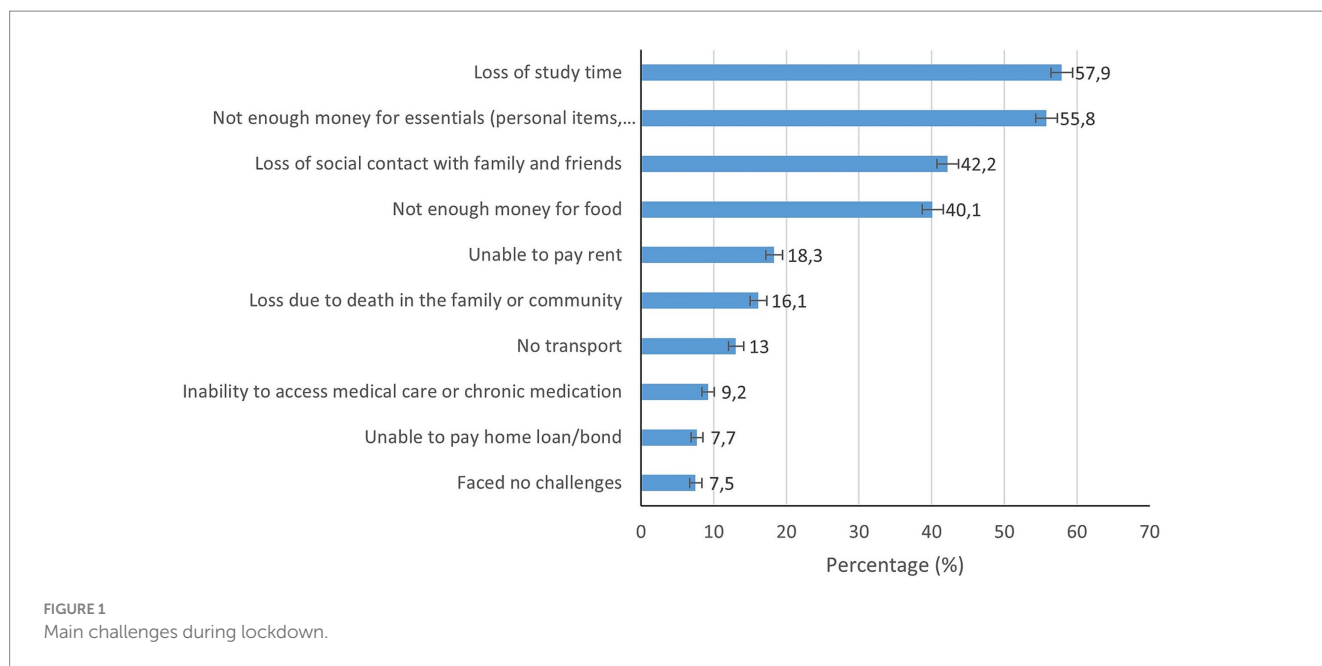


TABLE 2 Accessing the internet and quality of institutional eLearning portal during lockdown.

How do you access the internet during lockdown?	%	95% CI
Free	47.0	[45.5–48.5]
Personal/Paid	49.5	[48.0–51.0]
No internet access	3.5	[3.0–4.1]
<b>Please rate the quality of your institution's eLearning portal during lockdown</b>		
Excellent	17	[15.9–18.1]
Good	49	[47.5–50.5]
Poor	14.5	[13.5–15.6]
Very Poor	8.9	[8.1–9.9]
I have no experience using the eLearning portal	6.2	[5.6–7.0]
My institution does not have an eLearning portal	4.4	[3.8–5.1]

portal during lockdown as good or excellent, and 23.4% thought their institution's eLearning portal was of poor quality ( $N=6811$ ), while 6.2% indicated having no experience of using the eLearning portal, and a further 4.4% said that their institution did not have an eLearning portal (Table 2 and Figure 2).

Students received the most support from their institutions in the areas of online learning, provision of data free bundles and data free access to the online learning platform and the university website. Only 16.9% (15.8–18.2) of students received transport support to return home during lockdown and 6.3% (5.6–7.2) received refunds on fees or accommodation expenses. Significantly more TVET and University of Technology students received transport to return home and fee refunds (Figure 3).

Almost two thirds of students (66.2%) from TVET colleges found it difficult to communicate with their institutions, followed by those in university of technology with 63.7%. Most private college students found it easy to communicate with their colleges. Most students found

it easy (66.6%) to communicate with their lecturers during lockdown. 39% found it easy to communicate with IT support services at their institution while 21% found it difficult. 31.1 and 24.2% indicating difficulty communicating with library services and admin support staff, respectively (Table 3 and Figure 4).

### Socio-economic conditions during lockdown

About half of the students (49.9%) reported that they had a suitable place to study during lockdown. 20.8% had a suitable place to study only some of the time, while 29.3% of the students had no suitable place to study during lockdown. While the majority (78.6% [77.4–79.8]) of the students had regular access to electricity during lockdown, (5.7% [5.1–6.5]) did not have access to electricity (Table 4).

## Discussion

The COVID-19 pandemic impacted HEIs around the world due to the closure of institutions and a shift from the traditional face-to-face learning to grasping the complexities of virtual learning. This shift in learning exposed the vulnerabilities experienced by students, especially those who were doing their first year of study to adapting to remote learning, and the availability and access to eLearning (Barrot et al., 2021; Takács et al., 2023). This paper explored the challenges faced during lockdown, methods of accessing the internet during lockdown, availability of virtual learning at the participants' institutions, perceptions of their institution's online learning portal, types of support received from their institution, and study resources during lockdown such as access to electricity and a suitable study space. Going forward in the discussion, to prevent repetition, it is vital to presenting previous research results together.

Regarding the impact of the COVID-19 pandemic on their learning, most respondents indicated that their main challenges experienced during lockdown were a loss of study time, not having enough money for essentials, loss of social contact, and not having enough money for food. These findings are consistent with other

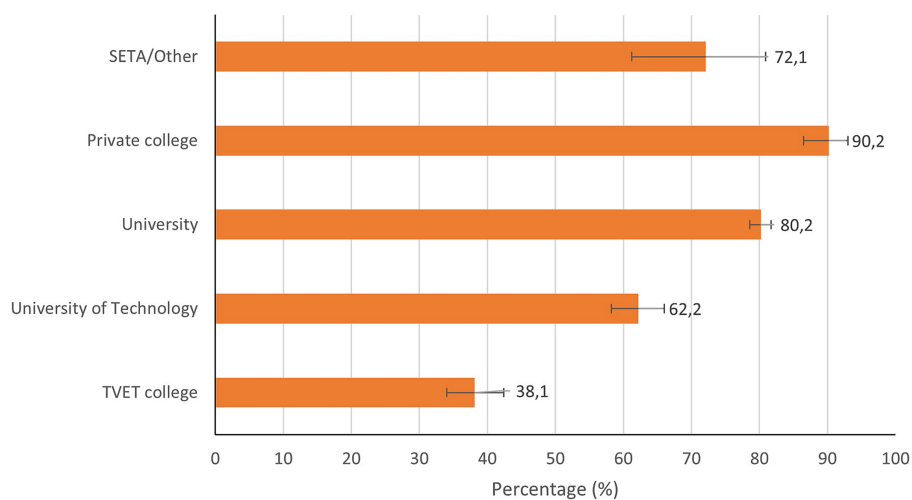


FIGURE 2 Capacity to conduct virtual learning by institutional type.

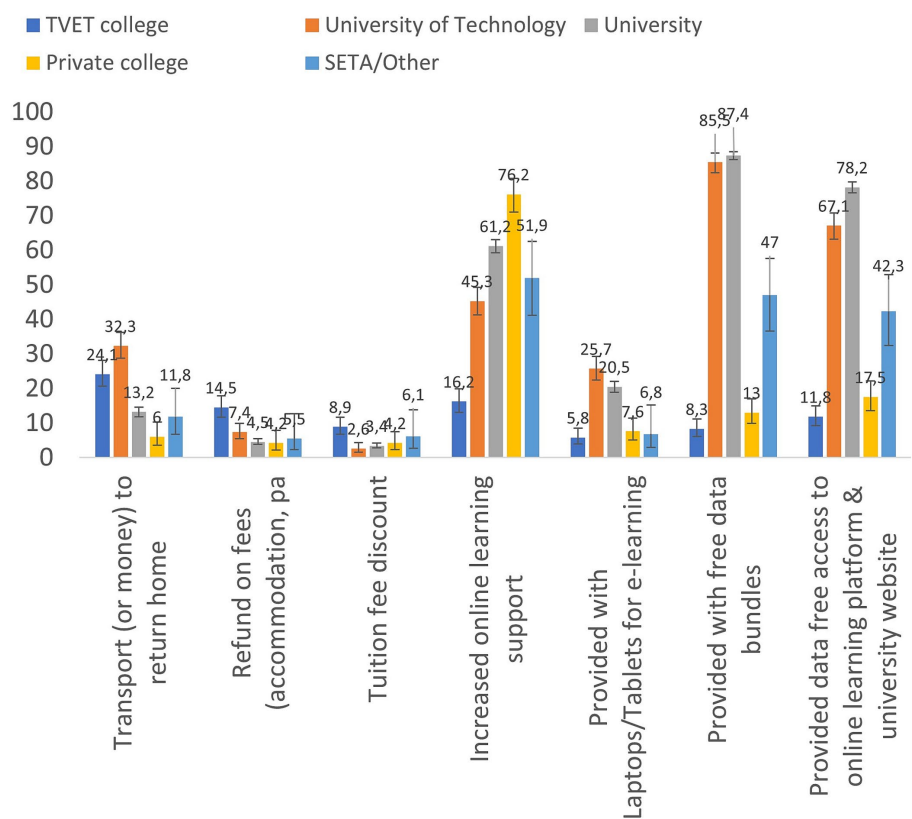


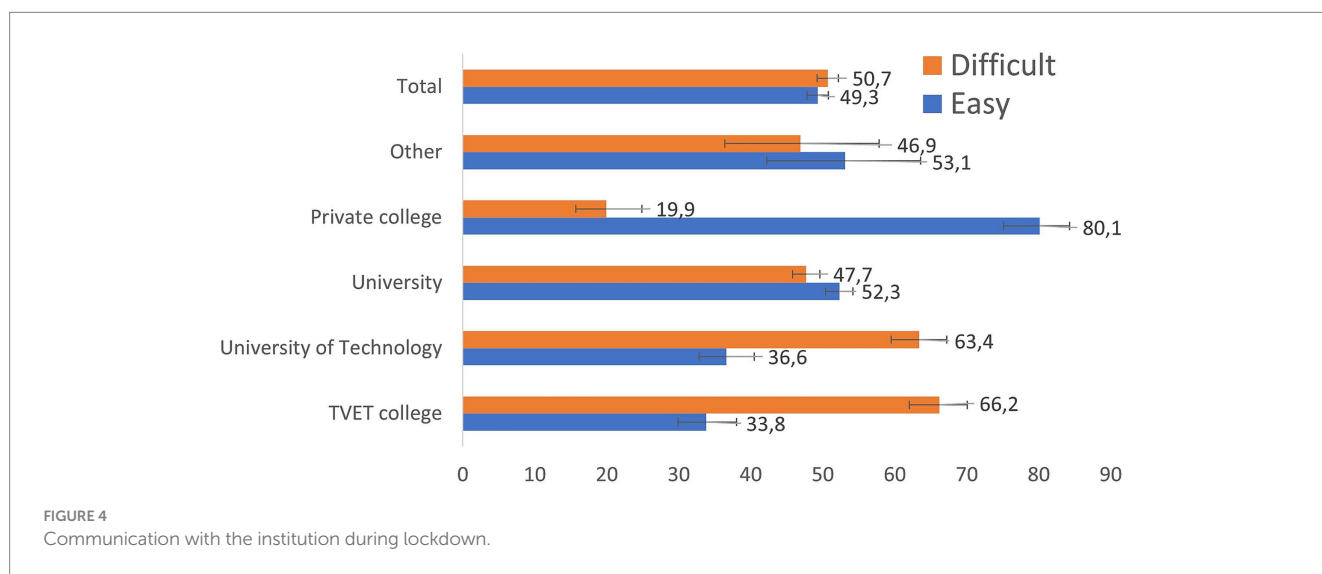
FIGURE 3 Support received from institution.

studies, where the quick transition from onsite to virtual classes affected students as most of them were encountering this form of online teaching for the very first time (Barrot et al., 2021; Takács et al., 2023). Therefore, they felt that this created increased and unexpected workloads, with inadequate time to study. Others felt that they lost a lot of study time due to learning and adapting to online platforms for learning and completion of assessments (Adedoyin and Soykan, 2020;

Barrot et al., 2021). Another study found that face-to-face learning provided them with direct access to educators and peers if they did not understand any work, while with online learning this was limited or not possible. Furthermore, studying from home or living with others also meant a loss of study time due to interruptions from family or friends it also took away or limited peer support (Suryaman et al., 2020; Hosen et al., 2022). This shift to online learning also

TABLE 3 Communication with the institution and support structures during lockdown.

	Very Easy		Easy		Not Easy		Difficult		Total
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	n
The university/college	14,2	[13.1–15.3]	35,1	[33.7–36.6]	33,4	[32.0–34.8]	17,3	[16.2–18.5]	6776
IT support services	7,5	[6.7–8.4]	31,5	[30.1–32.9]	39,8	[38.3–41.3]	21,2	[20.0–22.5]	6602
My lecturers	22,2	[21.0–23.5]	44,4	[42.9–45.9]	22,9	[21.6–24.1]	10,5	[9.6–11.5]	6768
Library services	6,5	[5.8–7.3]	27,8	[26.5–29.2]	34,6	[33.1–36.0]	31,1	[29.7–32.6]	6606
Admin support	7,9	[7.0–8.8]	32,9	[31.4–34.3]	35	[33.6–36.5]	24,2	[23.0–25.6]	6623
Student Representative council (SRC)	13,9	[12.8–15.0]	34,1	[32.7–35.6]	30,7	[29.3–32.1]	21,3	[20.1–22.6]	6569



compromised students as many could not afford the essential personal items required for studying.

Many young people lived in impoverished conditions due to socio-economic inequalities and so there was not sufficient or extra money in the household to accommodate costs associated with online learning. Some students were forced to borrow money from friends and/or family, creating greater financial stress for themselves (Mukuka et al., 2021; Hosen et al., 2022). The same was reported for basic needs such as food, as some studies reported that youth residing in households that were challenged with food insecurity were more likely to worry about not having adequate money for food or not being able to afford food (Oberle et al., 2019; Chen I. H. et al., 2020; Shroff et al., 2022). Students who were already food insecure prior to the pandemic were more likely to experience even greater food insecurity during the pandemic, and those students who experienced job loss during the lockdown were also more likely to be food insecure. Students living alone and who had work or other commitments/obligations were more likely to rely on fast foods or take-outs, that could ultimately result in food insecurity (Davitt et al., 2021).

The pandemic did not only affect the student’s work life but also affected their social lives. Some students faced a greater risk of social isolation that led to mental health challenges, a phenomenon that has been observed globally among children, adolescents, and the youth (Cost et al., 2021; Ravens-Sieber et al., 2021). In one study it was found

that compared with pre-COVID-19 times, “there were significant increases in depression symptoms, internalizing and externalizing symptoms, and a significant decrease in positive mental wellbeing at different points during lockdown” (Houghton et al., 2022). Similar findings have been reported by several studies across different countries (Branquinho et al., 2020; Chen F. et al., 2020; Ellis et al., 2020; Asanov et al., 2021). In other studies, it is reported that as a coping mechanism others turned to social media, especially first year students who relied more on these social networks as compared to postgraduate students to help them cope with isolation (Maftai et al., 2023). The availability of supportive structures and systems was found to be critical for building resilience among youth during and post COVID-19 lockdowns (Masten and Motti-Stefanidi, 2020). The environment that students lived in also contributed to how they maintained a normal social life. Some lived with roommates, friends or family and they used that as an opportunity to socialize, while others were by themselves and relied on online communication (Elmer et al., 2020; Aristovnik et al., 2021).

In the current study an almost equal number of respondents indicated that they had free access to internet or paid for internet access. Free internet included data bundles provided by the institution, using campus Wi-Fi in residence, and internet access on municipal/ community Wi-Fi, while paid access included buying prepaid data bundles, ADSL/Fiber at home, data on cell phone contract, and using

TABLE 4 Resources during lockdown.

	%	n
During the current lockdown: Do you have a suitable place to study where you are currently staying		
Yes	49.9	3417
Sometimes	20.8	1480
No	29.3	1922
During the current lockdown: Do you have access to electricity where you are staying?		
Yes	78.6	5255
Sometimes	15.7	1182
No	5.7	369
During the current lockdown: Do you have enough time to study?		
Yes	46.0	3042
Sometimes	23.0	1681
No	31.0	2090

an internet café. Similar studies in developing and developed countries (Drane et al., 2020; Kapsiaa et al., 2020; Owusu and Hanson, 2020) reported that access to the internet was crucial for student adaptation to online learning and this was compromised where socio-economic needs were unmet, and students lived in impoverished and/or rural areas. While two thirds of respondents rated their institution's eLearning portal during lockdown as good or excellent, others indicated that the eLearning portal was poor, they had no experience of how to use it or their institution did not have an eLearning portal. Other studies also reported similar findings. In Cambodia and South-East Asia, online learning was challenged by limited or lack of internet access, as well as not knowing how to utilize such applications (Heng and Sol, 2020; Jalli, 2020), while in Bangladesh, more than 75% of students reported that prior to the pandemic they had never had any encounter with eLearning (Hosen et al., 2022).

The majority of the respondents reported that their institution provided virtual learning, while just over a third of TVET students indicated that their institution provided the capacity to conduct virtual learning. This low capacity of online migration or learning might be attributed to the type of learning provided in TVET colleges. In South Africa, teaching and learning at TVET colleges are mostly conducted in the form of work integrated experience and practical work. Hence, online learning delivery is often challenging as educational activities in TVETs are affected by technological development influence (Nundkumar and Subban, 2018; Makgato, 2019; Hoftijzer et al., 2020). Similar to Engineering studies, virtual teaching in TVET colleges require experiential learning that equip students with highly intellectual and professional skills that will meet the demands of employers (Ahmed and Opoku, 2022). According to Mbanga and Mtembu (2020), in TVET colleges, online learning can be utilized effectively provided that adequate resources are available, with a certain level of educator and learner willingness and readiness. However, the authors claim that there is a lack of strategic direction that encompasses alignment of TVET college program

needs and online learning. Research prior to the pandemic reported that one of the significant challenges that prevents TVET colleges from effectively transitioning to online learning is the resistance to change. Organizational change resistance occurs due to almost a lack of planning and implementation strategies, and the inclusivity of the employees' opinions, behaviors and readiness as part of the change process (Abdel-Ghany, 2014; Parlakkiliç, 2017).

A study conducted in South Africa to investigate TVET college educators' experiences as they transitioned to the virtual classroom during the pandemic reported that while some educators embraced the move to online learning, others expressed their concerns such as a lack of resources, insufficient training for online learning implementation, and digital technology integration policies being poorly enacted. Further to this, educators reported that the online learning transition is also challenged due to students' lack of access to digital resources, devices, and the internet (Aina and Ogegbo, 2022). This highlights the limited access to virtual learning, capacity of their institutions to provide such learning, and challenge of communicating with their institutions during lockdown in our study. Our study further highlights that TVET colleges provided more funds to send students back home or to refund students their academic fee or accommodation expenses compared to other institutions that prioritized capacity for online learning. This aligns to the literature mentioned above, that indicates TVET colleges as not having sufficient resources, training and staff that would add capacity for online learning.

According to Leng et al. (2020), it is the role of institutional leaders to ensure that the switch to online learning is successful. There must be a firm commitment and support in the adoption of the blended learning, whereby resources and infrastructure required for the digital education transformation are provided. Furthermore, HEIs need to build on achieving greater levels of digital literacy and infrastructure so that students from low socio-economic backgrounds are still supported.

While students did report that they found it easiest to communicate with lecturers, the lack of communication between students and support structures such as IT and library services, admin support and Student Representative council (SRC) was concerning. However, our findings are consistent with another study that reported that rank and power played key roles in how students were communicated with, with the higher the employees rank at an institution, the greater the chance of a response. Thus, it was most likely that students received late or no responses from higher ranking staff and this impacted their learning greatly. The flexibility of working from home was a new concept to most support structures, and so along with home and family demands, they were unable to be fully available to students when required (du Plessis et al., 2022).

Socio-economic conditions during lockdown were also highlighted by suitability of a place for students to study and access to electricity. A study in Zimbabwe found that interrupted access to electricity was one of the major challenges of online learning reported by students. The lack of or interrupted electricity may stem from financial challenges brought about by the pandemic or that was prevalent prior to the pandemic (Jaka, 2021). While over 75% of students reported having regular access to electricity in this study, it must be noted that students within the lower



socio-economic strata in South Africa are still plagued by interrupted or lack of electricity, especially in rural areas (Mphahlele et al., 2021).

Some of the limitations of this study are that, firstly, the survey was voluntary, therefore out of 13,119 students who accessed the survey only 7011 students completed the rest of the questionnaire which included items on education and learning. Secondly, this was self-reported survey and therefore may be prone to social desirability bias. Thirdly, students who had no access to technology and internet had a limited chance of participating in the online survey, which may have introduced some sampling bias. To correct this potential sampling bias and to allow generalizability of the findings to the national youth population in HEIs, the data was benchmarked using Stats SA's estimates of the youth population aged 18–35 who are attending educational institutions.

## Conclusion

This study aimed to explore the impact of COVID-19 on learning and institutional support in HEIs in South Africa. The findings revealed that the pandemic had various impacts on the process of learning for PSET youth. While it was encouraging to find that most HEIs had good capacity for online learning, made provision of internet access for students, it was concerning to identify that TVET students faced greater challenges regarding their learning during the lockdown. This highlights the inequality in learning at different types of institutions, where implementation of digital strategies and policies, as well as the onboarding for online learning during the lockdown were minimal or lacking, especially in TVETs. Furthermore, the study highlighted the socio-economic divide in the country, especially those in impoverished areas where students experienced poor access to the internet and electricity, lack of data bundles, lack of money for food and essential items for studying, as well as inadequate time to study. This highlights not only a digital divide, but a divide that threatens the future of learning and education during crises and times of uncertainty. While most HEIs in South Africa had business continuity plans that were derived from the #feesmustfall movement (Pillay, 2016), where online and/or off campus learning was adopted, effective preparedness of HEIs for the unprecedented threats of COVID-19 was not fully established, leaving room for greater inequalities.

## Recommendations

The findings clearly show that historically disadvantaged institutions were affected more by the learning disruption when compared to well-resourced institutions and special attention needs to be paid in ensuring that they are well resourced and supported through better funding, and ICT infrastructure. All institutions of higher learning should make data bundles accessible to all students who are studying remotely. The need for better internet connection is a long-term strategy as remote learning and hybrid teaching will become the common way of teaching in the future. TVET colleges were also not well prepared for virtual learning due to nature of their work integrated experience and practical work, therefore there is need of hybrid or blended approach in their learning to prepare for future pandemics as well as the digital world that is upon us.

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

The studies involving humans were approved by Human Sciences Research Council Research Ethics Committee. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## Author contributions

ND: Conceptualization, Investigation, Methodology, Project administration, Resources, Writing – original draft, Writing – review & editing. RS: Data curation, Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – review & editing. NZ: Investigation, Resources, Writing – review & editing. TM: Data curation, Formal analysis, Methodology, Validation, Writing – review & editing. SS: Investigation, Resources, Supervision, Writing – review & editing.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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