

AUTHOR:

Priya Ramgovind¹ Mbali Cynthia Valashiya² Dr Shamola Pramjeeth² 

AFFILIATION:

¹The Independent Institute of Education (IIE), South Africa²The IIE's Varsity College, South AfricaDOI: <https://doi.org/10.38140/pie.v42i2.7542>

e-ISSN 2519-593X

Perspectives in Education

2024 42(2): 60-76

PUBLISHED:

28 June 2024

RECEIVED:

16 August 2023

ACCEPTED:

7 April 2024



Published by the UFS

<http://journals.ufs.ac.za/index.php/pie>

© Creative Commons

With Attribution (CC-BY)



Educational resources leveraged by students at a Private Higher Education Institution during Covid-19 pandemic

Abstract:

Introduction: The initial response of higher education institutions (HEIs) to the Covid-19 pandemic was to shift to online learning as a contingency. However, not all students were equipped with the appropriate resources to make this shift.

Research problem: There is scant contemporary research outlining the types of educational resources leveraged by students at a private HEI (PHEI) in South Africa during the Covid-19 pandemic. This limits the ability of PHEIs to develop targeted approaches for student success during similar disturbances.

Methodology: Using a quantitative research design, an online survey was administered to second-year to postgraduate students at a PHEI in South Africa. Of the 44 715 total student population at the PHEI, a sample size of 387 was targeted, with a total of 239 students responding to the survey.

Key findings: The study found that most students had access to resources during emergency remote learning (ERT), with family playing a key role in providing human and financial resources to the student, while the PHEI provided key material resources. Textbooks, data/Wi-Fi, laptop/computer, and mobile phones/smart-phones were considered critical, with administrative and academic support staff, online lecturers, videos, and textbooks/eBooks playing a key role in the students' academic performance.

Conclusion: By understanding the educational resources (i.e. human, material and financial) that were leveraged by students during Covid-19, PHEIs can streamline decision-making regarding operations, assistance provided to students, and manage online learning in a manner that mitigates pitfalls should events similar to the pandemic occur.

Keywords: Covid-19, online learning, private higher education, resources

1. Introduction

The Covid-19 pandemic saw countless private higher education institutions (PHEIs) shift their teaching and learning (T&L) practices to online delivery methods through Emergency Remote Teaching (ERT). This approach to online T&L differs from e-Learning, as it is only intended to be utilised by an institution temporarily, while e-Learning occurs predominantly online, typically through a single system (Van Wyk *et al.*, 2020). At the start of the Covid-19 pandemic, PHEIs had varying degrees of exposure to and engagement with online resources and systems, which determined to which degree they leveraged various educational resources to enable ERT.

Understanding the impact of the Covid-19 pandemic on PHEIs is of the utmost importance, given its significant impact on student learning, and its implications for the future. Understanding the role of educational resources, namely human, material and financial, and how a lack thereof affects the facilitation of curriculum continuation through online learning, can assist PHEIs to leverage resources that are valuable to students and forgo those that are not. The purpose of this study is to gain an understanding of the resources that students leveraged during the Covid-19 pandemic to continue their higher education (HE). The study's key objectives are to:

- Identify the availability of resources (i.e. human, material and financial) used by students at a PHEI during the Covid-19 pandemic.
- Establish the importance of resources (i.e. human, material and financial) for students at a PHEI during the Covid-19 pandemic.
- Analyse students' perception of the impact that resources (i.e. human, material and financial) had on the success of their HE studies at a PHEI.

Since the initial outbreak of Covid-19, PHEIs and students have begun to react favourably to online learning, as shown by lessons learned and stakeholder feedback (Dhawan, 2020; Bordoloi, Das & Das, 2021). Studies conducted during and after the Covid-19 pandemic focus on student and lecturer perceptions of online/blended learning during Covid-19 (Rasmitadila, *et al.*, 2020; Marmoah & Poerwanti, 2022), the advantages and challenges associated with online learning during the pandemic (Surkhali & Garbuja; 2020), and the revisitation of assessment practices and curriculum (Al-Halabi *et al.*, 2020; Kumar, 2020).

In South Africa, the growth of PHEIs is a direct response to the need for tertiary education, as public sector institutions cannot accommodate the growing need of citizens seeking to alleviate historic challenges and disadvantages through education (SAPHE, 2024). PHEIs are often viewed as direct competitors to their public sector counterparts, while they are, in fact, complementary drivers of training and development, and equal contributors to change (James, 2023).

Against this backdrop, there is scant contemporary research outlining the nature and use of resources in a PHEI in South Africa during the Covid-19 pandemic. This study's findings could assist PHEIs in streamlining decision-making pertaining to operations, providing assistance, and managing online learning in a manner that would mitigate the pitfalls of the ERT approach, ensuring a smoother learning experience.

2. Literature review

2.1 Educational resources during Covid-19

There are various resources that PHEIs can adopt to ensure the smooth facilitation of T&L. Găvruş Chivu and Chivu (2021) postulate that organisations leverage material, as well as financial, human and information resources, in a manner the most advantageous to them. Contextualising this within the HE sector, the authors explain that the output produced by a university is the knowledge gained by students, which is strongly influenced by the quality of material resources used during T&L. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2024) further qualifies educational resources to include electronic education resources, which are educational resources in an electronic format, which includes structure, metadata and subject content. Each HEI engages with various educational resources to create forward-thinking students with the skills and capabilities to engage in real-world challenges and problem-solving.

Educational resources are vast, complex, and used simultaneously, often making it difficult to underpin which educational resources are the most useful, and how best they can be leveraged. The most commonly used educational resources in the context of this study are human, material and financial resources.

2.2.1 Human/Social Resources

Luminița (2020) includes teachers, non-teaching staff (i.e. librarians, information technology [IT] staff), auxiliary teaching staff, parents, pupils and members of the local community under the human resources of an educational establishment. Langedgård *et al.* (2021) indicate that distance students often have limited access to classmates as a social resource, which places increased reliance on family members for support. Liu *et al.* (2010) explain that in the absence of the physical presence of a lecturer or tutor, the time students spend with parents when learning online is especially important for their academic achievement. In addition, students also actively leverage small online group discussions to debate and engage with academic material (Surana *et al.*, 2020).

Studies by Biavardi (2020) and López-Ruiz (2020), respectively, indicate that students rely on and consider lecturers/tutors facilitating a class of critical importance. These studies also note that PowerPoint slides with voice-overs are far less effective than traditional face-to-face facilitation. Additionally, Luminița (2020) notes that human/social resources are dependent on feedback from students to enhance and improve online engagement. Abou-Khalil *et al.* (2021) indicate that system designers, instructional designers, and instructors must be aware of the most effective engagement strategies to ensure effective student engagement in online classes. To mitigate the negative effects of isolation due to Covid-19 lockdowns, institutions relied on student wellness centres to assist students and staff (Visser & Law-van Wyk, 2021).

2.2.2 Material resources

According to Luminita (2020), material resources can be classified into four broad categories:

- Resources designed and carried out for training/learning/assessment, like boards, slides, functional layouts, and teaching kits. The material resources that were leveraged by these students were online lectures, online teaching videos, medical literature, and traditional learning resources like small group discussions, written notes and prescribed textbooks.

For many institutions, shifting to online learning as a result of Covid-19 was a first, which required of faculties to identify online resources that were lecturer and student friendly, especially for first-time users (Mathe, 2021).

- Resources taken from other domains like school appliances, instruments, tools, utilities and printers.
- Technical equipment like cinema projectors, computers, printers, tablets and video projectors.
- Training environments like classrooms, laboratories and school workshops became redundant during the pandemic due to restrictions posed on physical contact. As such, HEIs relied on online educational resources for students and lecturers (Van Wyk *et al.*, 2020). This required significant capital (financial) investment. The absence of such investment can result in the educational institution abandoning this option altogether (Lim *et al.*, 2009).

Zareef and Ahmad (2021) found that the pandemic has reshaped life, study systems, and styles of learning and working from traditional to e-Learning, which resulted in libraries actively attempting to provide online services to all relevant users. The pandemic has prompted libraries to create access to resources like e-book databases, conference papers, website e-book repositories, subscribed journals, subscribed e-resources, videos, online tutorials for resource access, thesis and dissertation repositories, and subject guides.

2.2.3 Financial resources

In 2004, the South African Ministry of Education developed a new funding framework (NFF) to ensure that the national development agenda for access, redress and human resource development is met (DHET, 2004). The areas that receive the most funding are the National Student Financial Aid Scheme (NSFAS), teaching and community development, as well as interest on and payment of loans guaranteed by the State prior to 1 April 1991 (DHET, 2004). This funding model has been amended over the last two decades and has recently integrated support to students who are not covered by NSFAS, known as the “missing middle” (Republic of South Africa, 2024). However, such funding is not available to students studying at PHEIs. As such, they have to rely on other options for funding their studies (Botha, 2021).

The three educational resources identified in this study can guide PHEIs on which resources to procure. The Covid-19 pandemic restrictions are slowly fading from the South African educational landscape; however, the T&L impact and insight that was gained as a result thereof must be used to equip students for future technological, operational and academic disruptions. As industry and society are moving towards more digitally enhanced operations, so too must PHEIs, to ensure that educational resources are compatible with online learning.

3. Research method

The study was descriptive and adopted a quantitative research methodology to gain an understanding of the resources that students leveraged during the Covid-19 pandemic as a means of continuing their HE studies. Furthermore, it sought to identify the availability of resources amongst HE students, establish the associated importance of these resources to students, and gauge the perceived impact thereof on student success in their studies.

Following a survey research approach, a close-ended online questionnaire in Microsoft Forms was used to collect data from May to June 2022. This data collection approach was used, as Covid-19 regulations did not allow for physical contact and sharing of paperwork. A

link to the survey was distributed to students via their student email service. A South African PHEI was selected as a unit of analysis for this study, where a sample frame was drawn. The sampling strategy targeted students who registered at a PHEI before 2022, to obtain an accurate view of the impact of the Covid-19 pandemic on their education experiences. Probability sampling, namely random sampling, was the preferred technique to ensure that each student had an equal chance of selection to eliminate bias and to enable generalisation of the findings (Saunders, Lewis & Thornhill, 2019). When the study was conducted in 2022, the PHEI had 44 715 registered students. Sekaran and Bourgie (2016) suggest that a sample size of 387 is appropriate for a population greater than 10 000. A total of 239 responses were completed by the students (a 60% response rate), which suggests that the results of this study may be generalised to the overall population. However, this should be done with caution, as the majority of the population's respondents were females, and the response rate among students in the varying years of study was not equal. The data collected via Microsoft Forms were exported to Excel, cleaned and coded. Thereafter, it was analysed using the Statistical Software Package for Social Sciences (SPSS) version 28. Descriptive analyses, namely frequency scores, mean, median, mode and standard deviation, were performed. A statistical Chi-square test and Cramer's V were conducted to examine the relationship between two categorical variables. The responses were examined to determine the effect of the resources on student performance during the Covid-19 pandemic.

Ethical issues surrounding this study were addressed through ethical approval, informed consent, and confidentiality of data. An ethical clearance letter, R. 15594, was obtained from the PHEI under study for the collection of data from respondents. Informed consent was requested from respondents through an email detailing the nature and contents of the study. The researchers encouraged voluntary participation, and respondent anonymity and confidentiality were respected.

4. Results

4.1 Demographics

Biographic information was collected to compare demographic profiles. The univariate technique was used to assess the dispensation of demographic data for respondent gender, age, year of study, mode of study, and institution of learning. The majority of respondents (78%) were female. In terms of years of study, 47,7% were in their second year, 37,7% in their third year, and 14,6% were completing their postgraduate studies.

4.2 Availability of resources

Respondents were asked to indicate if they had access to resources (human, material and financial resources) during the Covid-19 pandemic. Figure 1 illustrates that 81% of respondents indicated that they had access to resources, while 19% indicated that they did not have access to resources.

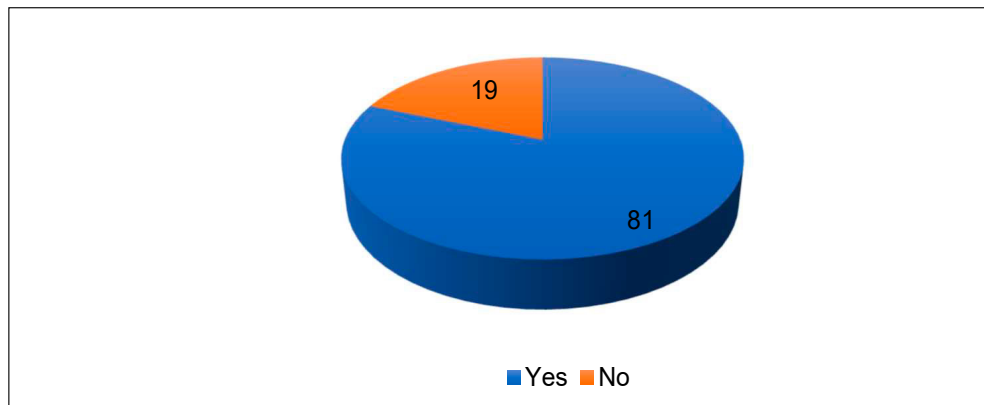


Figure 1: Percentage of students who had access to resources during the Covid-19 pandemic

Respondents were further asked to indicate who had provided resources to them during the Covid-19 pandemic. Table 1 illustrates where students sourced resources from.

Table 1: Places where resources were sourced from

	Human	Material	Financial
	%	%	%
Education Institution	30,1	42,3	0,4
Family (Parents/Guardian/Relatives)	46,4	38,5	78,2
None	6,7	2,5	1,3
Myself	14,6	13,0	9,6
Bursary/Loan	1,7	3,3	10,0
NSFAS	0,4	0,4	0,4
Total	100	100	100

In terms of human resources, 46% of respondents indicated that these resources were provided by their family, while 30% received it from their educational institutions. The high reliance of students on family members as a human resource may be attributed to the restrictions imposed on social interaction. October *et al.* (2021) advise that physical movement restrictions placed on South African families during the Covid-19 pandemic resulted in changes to their daily schedules, restrictions on events, limited physical interaction, and psychological issues. Therefore, family, as a human resource, is necessary for students as many are financially dependent on family members for academic support in the form of resources or emotional support.

In terms of material resources, 42% of respondents indicated that material resources were provided by their educational institution, while 39% indicated that they received their material resources from their family. These results concur with findings from other studies of a similar nature (Luminița, 2020; Van Wyk *et al.*, 2020; Zareef & Ahmad 2021), which suggest that PHEIs provided facilities and tools for online learning during the pandemic.

In terms of financial resources, a significant percentage (78%) indicated that financial resources were provided by their parents or guardians. Student reliance on family members for financial support reflects a lack of funding for PHEIs in South Africa as indicated by Botha (2021). This further aligns with the finding that this study includes no NSFAS-funded students, since PHEI students do not qualify for NSFAS funding.

4.3 The importance of resources

Respondents were asked to specify the types of resources they had from a list of human, material, and financial resources. Respondents were then asked to indicate, using a 3-point Likert scale, each resource’s level of importance and the level to which resources were deemed essential to their HE success during the Covid-19 pandemic. Resources that are considered ‘important’ are those that are valuable, while ‘essential resources are those that are mandatory or compulsory.

4.3.1 Human resources

Human resources comprise classmates, family, administrative staff, and academic staff. Figure 2 shows that the majority of the respondents indicated that all types of human resources were of high importance, with academic support staff being of the highest importance (76%).

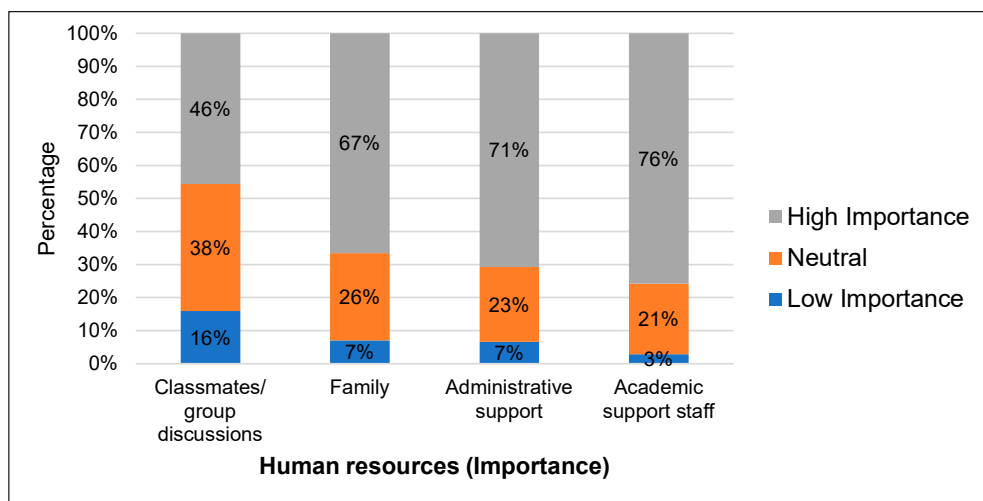


Figure 2: Importance of human resources

The results on how essential human resources were to students, reveal that family was considered the most essential (63%), followed by academic support staff (60%) (Figure 2).

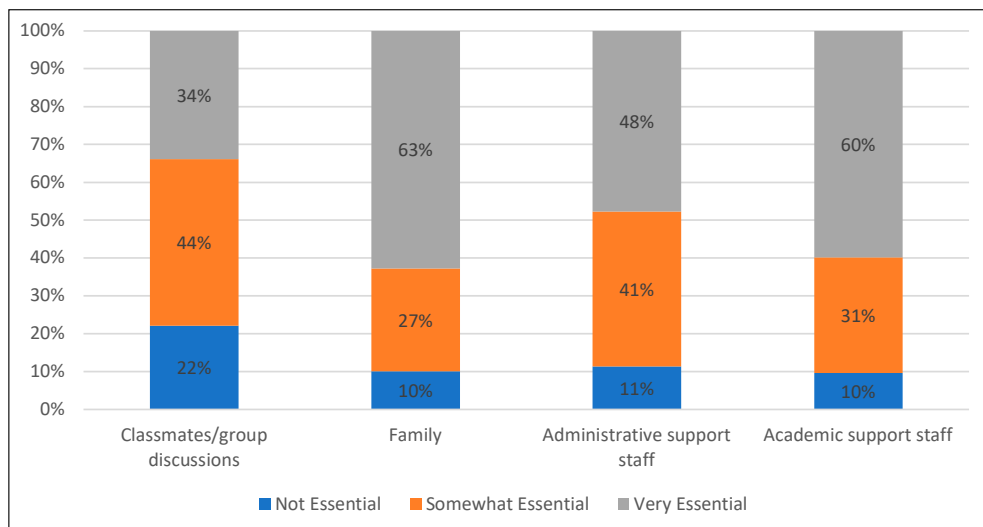


Figure 3: Essential human resources

The World Bank (2021) and Hoadley (2020) identify family members as key contributors to student well-being and support during the pandemic and online learning. Lecturers were not ready to implement ERT at the beginning of the pandemic due to the limited timeframe and workload, resulting in mental health issues, anxiety, overworking, and an inability to cope (Gumede & Badriparsad, 2021; Du Plessis *et al.*, 2022; Legg-Jack & Ndebele, 2022). It is evident that, in the absence of physical resources students normally would have access to, they turned to their family and online academic support staff for assistance, making these groups essential during the ERT. This implies that these resources were critical to student success during the Covid-19 pandemic.

4.3.2 Material resources

Figure 3 demonstrates the importance of material resources. The results show that textbooks, data/Wi-Fi, laptops/computers, and mobile phones/smartphones were considered of high importance by 80% or more of the respondents.

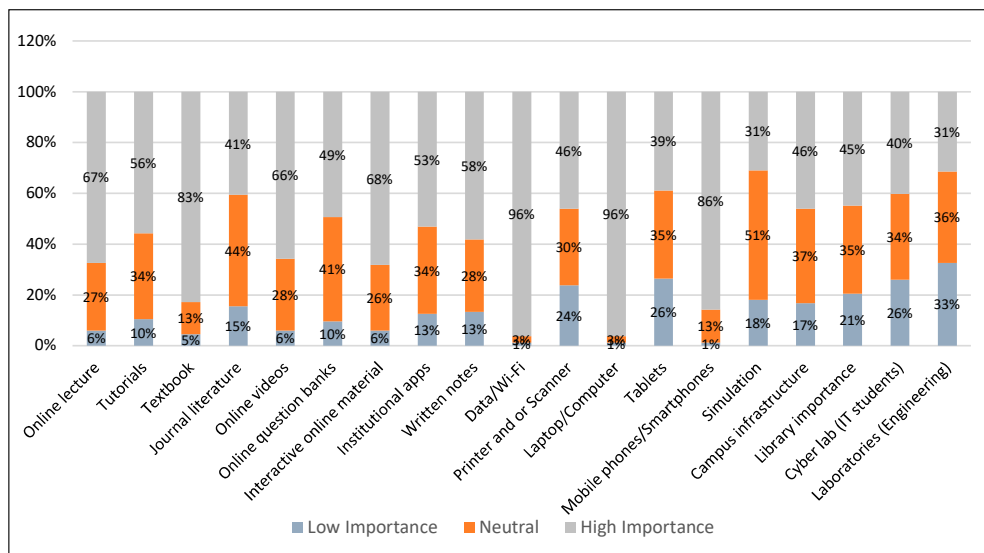


Figure 4: Importance of material resources

Figure 4 indicates that more than 80% of participants agreed on the importance of material resources like textbooks, data/Wi-Fi, laptop/computer, and mobile phones/smartphones. These results align with the results from the previous section.

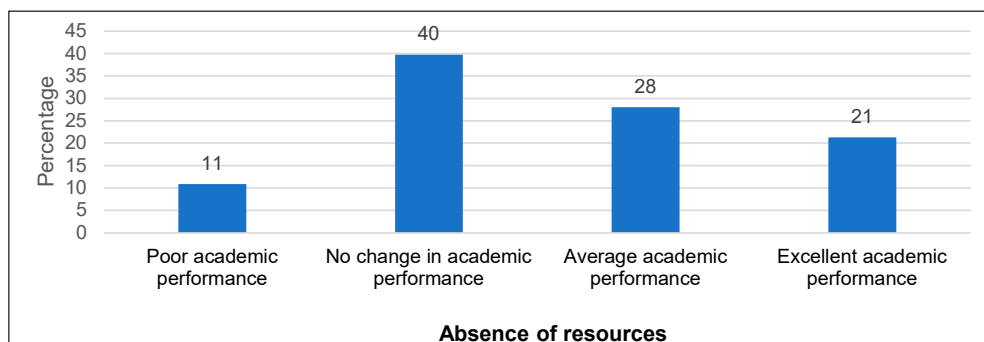


Figure 5: Essential material resources

These results are similar to the findings of Pan (2020), indicating that students in China used laptops and mobile phones for online learning during the pandemic. Even though the use of electronic resources has been noted, the data indicate that some students still relied on textbooks, written notes, and physical facilities like campus infrastructure, libraries, cyber labs, and laboratories offered by universities. These findings are supported by Landa, Zhou and Marongwe (2021), who found that South African students from poor communities experienced challenges gaining access to online learning due to income inequality, lack of devices, data, training, and readiness for online learning. Most respondents considered textbooks an essential resource during the pandemic, showing limited use of eBooks among students. Masango, Van Ryneveld and Graham (2020) cite the unavailability of some textbooks in an

electronic format, licensing issues for accessing eBooks, comfortability of e-reading, eyesight constraints, and a lack of awareness, as some of the barriers that hinder the adoption of eBooks amongst students.

4.3.3 Financial resources

Financial resources comprise bursaries, student loans, and financial aid. Figure 5 shows that approximately 50% of participants indicated that all financial resources were of high importance. Gumede and Badriparsad (2021) point out that South African families were already facing financial turmoil before the pandemic, which limited the ability of students in such families to afford the technological tools required to participate in online learning. Duby *et al.* (2022) reveal that financial pressures experienced during the pandemic led students to “cut modules”, drop out, or miss out on online classes.

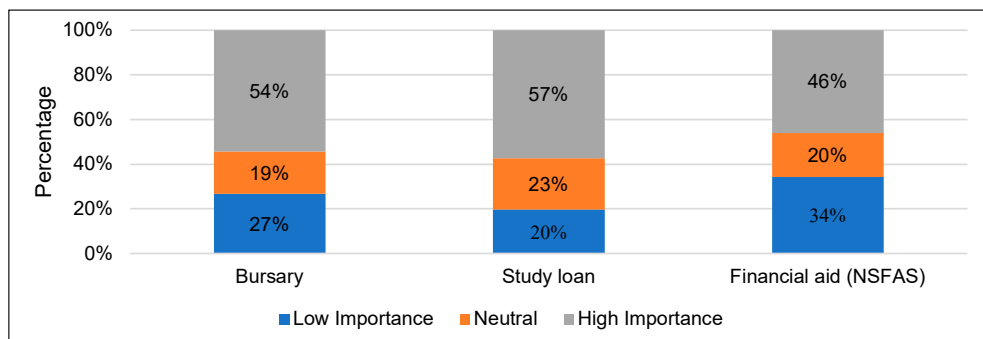


Figure 6: Importance of financial resources

4.4 Student performance and resources

Respondents were asked to indicate the effect of resource availability on their academic performance during the Covid-19 pandemic. The respondents' feedback is depicted in Figures 6 and 7. For students who had access to resources, 52% indicated that they had excellent academic performance, 33% had average academic performance, 8% had poor academic performance, and 7% reported that there was no change in their academic performance (Figure 6). Contrary to expectations, of the students who did not have access to resources (19%), 40% indicated no change in their academic performance, 21% indicated excellent academic performance, and 11% indicated poor performance (Figure 7). It can be concluded that access to resources has a minimal impact on academic performance.

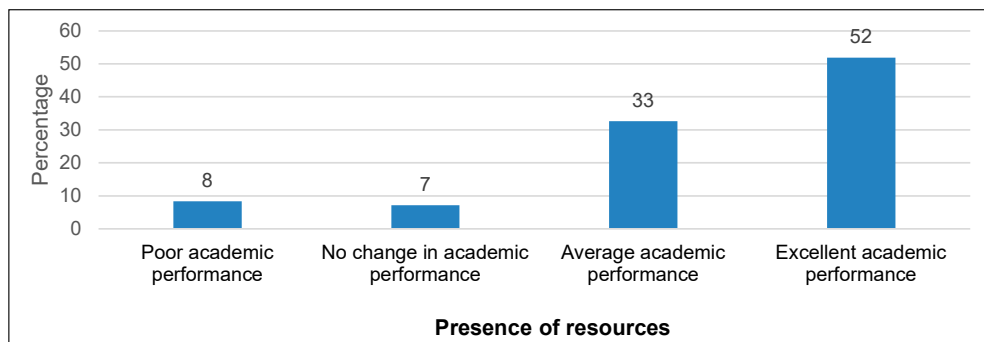


Figure 7: Student performance based on the availability of resources

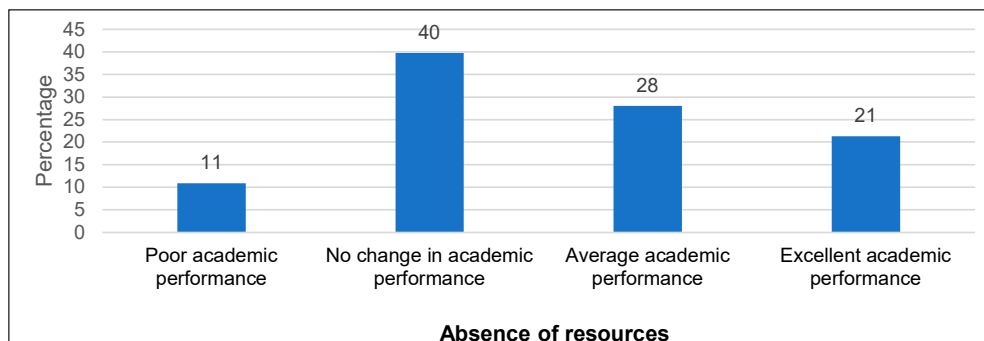


Figure 8: Student performance based on the lack of resources

A statistical Chi-square test and Cramer’s V were conducted to determine the effect of resource availability on student performance during the Covid-19 pandemic. Pallant (2011) provides the following guidelines to interpret the Cramer’s V value: (0.10 < V < 0.3; small effect), (0.3 < V < 0.5; medium effect and (V > 0.5; large effect). Crosstabulations were performed to determine whether there was a statistically significant association between respondents’ academic performance and the resources they had. Table 2 reports only the significant associations that were established.

Table 2: Cross-tabulation of resources and student performance

	Performance of resources								Statistical significance
	Poor academic performance		No change in academic performance		Average academic performance		Excellent academic performance		
Resources	No	Yes	No	Yes	No	Yes	No	Yes	
Institutional support during pandemic	2%	7%	5%	2%	27%	13%	31%	12%	p = 0.001
Interactive online material	7%	2%	5%	2%	29%	12%	18%	26%	p = 0.001
Online lecture	1%	8%	2%	6%	3%	38%	0%	44%	p = 0.001
Journal literature	8%	0%	7%	0%	33%	7%	27%	17%	p = 0.001

	Performance of resources								Statistical significance
	Poor academic performance		No change in academic performance		Average academic performance		Excellent academic performance		
Resources	No	Yes	No	Yes	No	Yes	No	Yes	
Campus infrastructure	8%	0%	7%	0%	33%	7%	27%	17%	p = 0.017
Classmates/group discussions	8%	1%	5%	3%	27%	13%	24%	19%	p = 0.002
Academic support staff	4%	5%	5%	3%	12%	29%	9%	34%	p = 0.002
Institutional apps	5%	4%	4%	3%	21%	19%	12%	31%	p = 0.003
Online videos	5%	3%	4%	3%	16%	25%	12%	32%	p = 0.004
Admin support	8%	1%	5%	3%	31%	10%	24%	20%	p = 0.004
Tutorials	5%	3%	4%	3%	16%	25%	12%	32%	p = 0.005
Textbooks or eBooks	5%	4%	3%	4%	20%	21%	11%	32%	p = 0.008
Online question banks	8%	1%	6%	1%	30%	11%	26%	18%	p = 0.121
Written notes	7%	2%	4%	4%	19%	21%	16%	28%	p = 0.271
Printer and/or scanner	8%	1%	5%	2%	33%	8%	30%	14%	p = 0.564
Laptop/ computer	8%	1%	7%	1%	32%	8%	32%	11%	p = 0.708
Data/Wi-Fi	8%	1%	6%	1%	37%	3%	39%	5%	p = 0.835

Table 2 shows the cross-tabulations for material resources and student performance. The data reveal that the statistical significance for institutional support, interactive online learning materials, online lectures, journal literature, campus infrastructure, classmates/group discussions, academic support staff, institutional apps, online videos, admin support, tutorials, textbooks/eBooks, online question banks and written notes had a small effect ($0.10 < V < 0.3$; small effect).

Classmates/group discussions, academic support staff, online lectures, textbooks/eBooks, and written notes were found to have a small effect on student performance despite being considered somewhat or very essential.

The findings for institutional apps, tutorials, journal literature, campus infrastructure and the library also correlate with the responses obtained regarding resource availability. The majority of participants with average or excellent academic performance indicated that they did not use or have them. This means that resources that were not at the students' disposal during the pandemic did not have any effect on their academic performance.

The statistical significance of the performance of the students in relation to printer/scanner, laptop/computer, and data/Wi-Fi was notably higher than other resources. These data indicate that these resources had a larger effect on student performance, since their Cramer's V values were greater than 0.5. These findings confirm that resources like laptops, computers, data/Wi-Fi made a meaningful contribution to the facilitation of ERT at the PHEI during the pandemic, as posited by Masango *et al.* (2020); Zheng, Bender and Lyon (2021); and Legg-Jack and Ndebele (2022).

5. Implications of findings

There is a multitude of educational resources at the disposal of PHEIs in South Africa. The choice and combination of educational resources employed by PHEIs are dependent upon PHEI capabilities and the needs of their students. Where students will continue to engage in online learning, reliance on those educational resources that will enable this, i.e. printer/scanner, laptop/computer, and data/Wi-Fi, will increase. However, for PHEIs that will revert to face-to-face learning and assessment, the reliance on educational resources will differ, as students will be exposed to resources that were previously unavailable due to government restrictions.

Based on the findings of this study, it is evident that students place significant importance on online learning and educational resources that assist in achieving academic excellence. Should PHEIs choose to continue with online learning and assessment given contemporary student preference, there are some implications that PHEIs must be cognisant of when planning for the new South African HE landscape.

During ERT, most PHEIs provided students with a learning experience that met their needs while navigating the unfamiliar territory of online learning that not all PHEIs were familiar with. PHEIs provided continuous support to students during the transition to online learning. Certain technological teachings must be understood before they can be addressed and presented to students. For example, system designers, instructional designers, and instructors must be cognisant of the learning management system (LMS) that students engage with and how academic content is presented to them. Furthermore, the academic content provided must address student needs, especially those that would have been addressed during in-person sessions (Lim *et al.*, 2009).

The increasing reliance of students and lecturers on technology shows greater acceptance and adoption of technology in T&L, given that students perform better (Zheng *et al.*, 2021). As postulated by Haleem *et al.* (2022), the role of technology must be clearly defined by institutions and understood by students to ensure that students obtain the correct technological devices to facilitate uninterrupted learning. Furthermore, PHEIs must enforce the proper use of technological devices, namely, interaction with others, providing access to educational resources, solving technological challenges, and developing new ways of learning (Haleem *et al.*, 2022).

Financial resources were identified as important, with students indicating that their HE studies were funded by their family. This means that access to PHEIs will continue to be limited by family financial constraints. To assist students with funding, PHEIs should engage with financial institutions to provide loans to students at a reduced interest rate and work with private companies to offer bursaries, scholarships and graduate internships to reduce the financial implications to students during disruptions like the Covid-19 pandemic.

The findings reveal that eBooks had a small statistical significance in terms of student performance. As such, students and lecturers must be made aware of the electronic and digital library services and their various functionalities (i.e. eBooks, subscribed journals, e-resources, online tutorials, thesis and dissertation repositories as well as content guides) (Zareef & Ahmad, 2021). Furthermore, by familiarising students with digital library services, they will gain confidence in using this platform, thus minimising the stress and anxiety associated with conducting further research to supplement their academic journey.

Wi-Fi and data were identified as one of the resources that were leveraged the most for online learning. However, data costs and network problems were reported as a general issue for most students across South Africa (Mpungose, 2020). The major role of the internet in conducting ERT during the pandemic suggests that PHEIs should engage with data providers to create data/Wi-Fi packages that cater for student learning at reduced segmented pricing levels and have them consider zero-rating academic websites for learning.

6. Conclusion

This study established that the majority of students at the PHEI in question had access to resources during the ERT necessitated by the Covid-19 pandemic. Family played a central role in providing students with the required resources, especially in terms of human and financial resources. The educational institution was a key provider of material resources, followed very closely by the family. In terms of importance assigned to human resources, the institution's administrative and academic support staff were considered essential, followed by the family. Textbooks, data/Wi-Fi, laptop/computer, and mobile/smart phones were also indicated as being essential and of high importance. Regarding the effect of availability or lack of resources on student academic performance during the Covid-19 pandemic, the crosstabulations and chi-square tests indicate the associations were significant, despite the effect being small. It was found that students with average to excellent academic performance used administrative and academic support staff, online lectures and videos, as well as textbooks/eBooks.

This study's findings reduce the gap in literature and research relating to the role of educational resources (human, material and financial resources) and the lack thereof in facilitating the continuation of the curriculum through online learning, as well as the impact of this on student performance. Understanding this information is vital after the Covid-19 pandemic, as PHEIs begin to integrate technology more into their T&L strategies, and students as well as lecturers become more comfortable using technology. PHEIs can use this data to make the most of the resources that benefit students and have an impact on their performance, helping to streamline their operational decision-making, financial spending, and resource allocation that align with the evolving digital learning landscape.

The generalisability of this study is limited to PHEIs during the Covid-19 pandemic. Thus, it is advised that the study be conducted at PHEIs after the pandemic to establish the effect thereof on PHEIs. Moreover, the sample was skewed toward the female population group; thus, an equal representation of the gender groups is required for greater generalisation.

References

- Abou-Khalil, V., Helou, S., Khalifé, E., Chen, M.A., Majumdar, R. & Ogata, H. 2021. Emergency online learning in low-resource settings: Effective student engagement strategies. *Education Sciences*, 11(1): 24. <https://doi.org/10.3390/educsci11010024>
- Al-Halabi, M., Salami, A., Alnuaimi, E., Kowash, M. & Hussein, I. 2020. Assessment of paediatric dental guidelines and caries management alternatives in the post COVID-19 period. A critical review and clinical recommendations. *European Archives of Paediatric Dentistry*, 21(5): 543-556. <https://doi.org/10.1007/s40368-020-00547-5>
- Biavardi, N.G. 2020. Being an Italian medical student during the Covid-19 outbreak. *International Journal of Medical Students*, 8(1): 49-50. <https://doi.org/10.5195/ijms.2020.489>
- Bordoloi, R., Das, P. & Das, K. 2021. Perception towards online/blended learning at the time of Covid-19 pandemic: an academic analytics in the Indian context. *Asian Association of Open Universities Journal*, 16(1): 41-60. <https://doi.org/10.1108/AAOUJ-09-2020-0079>
- Botha, L. 2021. Funding options for private college students. *Careers Portal website*. <https://www.careersportal.co.za/bursaries-2021/student-loans/funding-options-for-private-college-students>
- Department of Higher Education and Training [DHET]. South Africa. 2004. A new funding framework: How government grants are allocated to public higher education institutions. https://www.gov.za/sites/default/files/gcis_document/201409/fundframework0.pdf.
- Dhawan, S. 2020. Online learning: A panacea in the time of Covid-19 Crisis. *Journal of Education Technology Systems*, 47(1): 5-Importance of human resources. <https://doi.org/10.1177/0047239520934018>
- Du Plessis, M., Jansen van Vuuren, C.D., Simons, A., Frantz, J., Roman, N. & Andipatin, M. 2022. South African higher education institutions at the beginning of the Covid-19 pandemic: Sense-making and lessons learnt. In *Frontiers in Education*, 6: 1-17. <https://doi.org/10.3389/educ.2021.740016>
- Duby, Z., Jonas, K., Bunce, B., Bergh, K., Maruping, K., Fowler, C., Reddy, T., Govindasamy, D. & Mathews, C. 2022. Navigating education in the context of Covid-19 lockdowns and school closures: challenges and resilience among adolescent girls and young women in South Africa. *Frontiers in Education*, 7. <https://doi.org/10.3389/educ.2022.856610>
- Găvruş, C., Chivu, C. & Chivu, C. I. 2021. Educational resource management by using virtual platform. *Review of Management and Economic Engineering*, 20(1): 31-42. https://www.rmee.org/abstracturi/79/05_Articol_583_RMIE_Gavrus_EN_v3.pdf
- Gumede, L. & Badriparsad, N., 2021. Online teaching and learning through the students' eyes – Uncertainty through the COVID-19 lockdown: A qualitative case study in Gauteng province, South Africa. *Radiography*, 28(1): 193-198. <https://doi.org/10.1016/j.radi.2021.10.018>
- Haleem, Prof. A., Javaid, D.M., Qadri, P.M.A. & Suman, D.R. 2022. Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3(3): 275-285. <https://doi.org/10.1016/j.susoc.2022.05.004>
- Hoadley, U. 2020. Schools in the time of COVID-19: Impacts of the pandemic on curriculum. University of Stellenbosch Department of Economics Research on Socio-Economic Policy (RESEP). <https://resep.sun.ac.za/wp-content/uploads/2020/11/COVIDCURRICULUM-WORKING-PAPER.pdf>

- James, A. 2023. Private HE providers are 'sitting on periphery' of society. *University World News* 25 May 2023. <https://www.universityworldnews.com/post.php?story=20230523040715560>
- Kumar, R. 2020. Assessing higher education in the Covid-19 Era. *Brock Education: A Journal of Educational Research and Practice*, 29(2): 37-41. <https://doi.org/10.26522/brocked.v29i2.841>
- Landa, N., Zhou, S. & Marongwe, N., 2021. Education in emergencies: Lessons from COVID-19 in South Africa. *International Review of Education*, 67(1): 167-183. <https://doi.org/10.1007/s11159-021-09903-z>
- Langegård, U., Kiani, K., Nielsen, S.J. & Svensson, P.A. 2021. Nursing students' experiences of a pedagogical transition from campus learning to distance learning using digital tools. *BMC Nursing*, 20(1): 1-10. <https://doi.org/10.1186/s12912-021-00542-1>
- Legg-Jack, D.W. & Ndebele, C. 2022. Lecturers' reflections on emergency remote teaching and learning at a university in South Africa during COVID-19 lockdown. *E-Journal of Humanities, Arts and Social Sciences*, 3(6): 238-255. <https://doi.org/10.38159/ehass.2022364>
- Lim, E.C.H., Oh, V.M.S., Koh, D.-R. & Seet, R.C.S. 2009. The challenges of "continuing medical education" in a pandemic era. *Annals of the Academy of Medicine, Singapore*, 38(8): 724 -726. <https://pubmed.ncbi.nlm.nih.gov/19736579/>. <https://doi.org/10.47102/annals-acad-medsg.V38N8p724>
- Liu, F., Black, E., Algina, J., Cavanaugh, C. & Dawson, K. 2010. The validation of one parental involvement measurement in virtual schooling. *Journal of Interactive Online Learning*, 9(2): 105-132. <https://eric.ed.gov/?id=EJ938840>
- López-Ruiz, E. 2020. Studying medicine in Barcelona during the COVID-19 pandemic. *International Journal of Medical Students*, 8(1): 60-61. <https://doi.org/10.5195/ijms.2020.504>
- Luminița, A. 2021. Globalization and Internationalization of the education management. *The Annals of the University of Oradea Economic Sciences*, 30(2): 336-343. [https://doi.org/10.47535/1991AUOES30\(2\)035](https://doi.org/10.47535/1991AUOES30(2)035)
- Marmoah, S. & Poerwanti, J. I. S. 2022. Lecturers and students' perceptions about online learning problems during the Covid-19 pandemic. *Journal of Education and Learning (EduLearn)*, 16(4): 524-530. <https://doi.org/10.11591/edulearn.v16i4.20350>
- Mathe, N. 2021. Insights from 'Unlocking COVID-19 current realities, future opportunities: Artificial intelligence in the time of COVID-19'. *South African Journal of Science*, 117(3/4): 1-2. <https://doi.org/10.17159/sajs.2021/9311>
- Masango, M.M., Van Ryneveld, L. & Graham, M.A. 2020. Barriers to the implementation of electronic textbooks in rural and township schools in South Africa. *Africa Education Review*, 17(6): 86-118. <https://doi.org/10.1080/18146627.2022.2064310>
- Mpfungose, C.B. 2020. Emergent transition from face-to-face to online learning in a South African university in the context of the coronavirus pandemic. *Humanities and Social Sciences Communications*, 7(1): 1-9. <https://doi.org/10.1057/s41599-020-00603-x>
- October, K.R., Petersen, L.R., Adebisi, B., Rich, E. & Roman, N.V. 2021. Covid-19 daily realities for families: A South African sample. *International Journal of Environmental Research and Public Health*, 19(1): 221. <https://doi.org/10.3390/ijerph19010221>
- Pallant, J. 2011. *SPSS survival manual. A step by step guide to data analysis using SPSS*. Berkshire: Allen & Unwin. <https://doi.org/10.4324/9781003117452>

- Pan, H. 2020. A glimpse of university students' family life amidst the COVID-19 virus. *Journal of Loss and Trauma*, 25(6-7): 594-597. <https://doi.org/10.1080/15325024.2020.1750194>
- Rasmitadila, R., Aliyyah, R.R., Rachmadtullah, R., Samsundin, A., Syaodih, E., Nurtanto, M. & Tambunan, A.R.S. 2020. the perceptions of primary school teachers of online learning during the COVID-19 pandemic period: A case study in Indonesia. *Journal of Ethnic and Cultural Studies*, 7(2): 90-109. <https://doi.org/10.29333/ejecs/388>
- Republic of South Africa. 2024. Over one million NSFAS bursary applications received. <https://sanews.gov.za/south-africa/over-one-million-nsfas-bursary-applications-received>
- Saunders, M., Lewis, P. & Thornhill, A. 2019. *Research methods for business students*. New York: Pearson.
- Sekaran, U. & Bougie, R. 2016. *Research methods for business: A skill building approach*. West Sussex: John Wiley & Sons.
- South African Private Higher Education [SAPHE]. 2024. About SAPHE. South African Private Higher Education website <https://www.saphe.ac.za/about-saphe>
- Surkhali, B. & Garbuja, C. K. 2020. Virtual learning during Covid-19 pandemic: Pros and cons. *Journal of Lumbini Medical College*, 8(1): 154-155. <https://www.nepjol.info/index.php/JLMC/article/view/40778>
- Surana, A., Panika, R.K., Gupta, V. & Singh, A. 2020. Principal components analysis of educational resources usage among undergraduate medical students during the Covid-19 pandemic in Southern Haryana, India. *Journal of the Scientific Society*, 47(2): 99-104. https://doi.org/10.4103/jss.JSS_41_20
- The World Bank. 2021. Education and Technology. <https://www.worldbank.org/en/topic/edutech>
- United Nations Educational, Scientific and Cultural Organization [UNESCO]. 2024. Open Educational Resources. <https://www.unesco.org/en/open-educational-resources>
- Van Wyk, B., Mooney, G., Duma, M. & Faloye, S. 2020. Emergency remote learning in the times of COVID. In M. Steinicke (Ed), *ECEL 2020 19th European Conference on e-Learning in Berlin 28–30 October 2020*. Reading, United Kingdom: ACPIL
- Visser, M. & Law-van Wyk, E. 2021. University students' mental health and emotional wellbeing during the Covid-19 pandemic and ensuing lockdown. *South African Journal of Psychology*, 51(2): 229-243. <https://doi.org/10.1177/00812463211012219>
- Zareef, M. & Ahmad, P. 2021. The Impact of COVID-19 on university library services: A systematic literature review. *Library Philosophy and Practice*, 6062(1): 1-13. <https://digitalcommons.unl.edu/libphilprac/6062/>
- Zheng, M., Bender, D. & Lyon, C. 2021. 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 medical education*, 21(1): 1-11. <https://doi.org/10.1186/s12909-021-02909-z>