

Key indicators informing students' perceptions of online learning and academic performance during the COVID-19 pandemic¹

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ABSTRACT

The purpose of this paper is to examine students' perceptions of their online learning experience during the first wave of COVID-19. The paper highlights the actions taken by the institution in transitioning to online learning and key indicators which influenced students' perceived online learning and academic performance during the pandemic. The study was conducted at a university and reports on quantitative and qualitative data collected from an online survey of 3257 students. Tinto and Pusser's (2006) model of institutional actions was used as a framework to guide the study. The study's findings forced the university to re-look at student support through new lenses. The findings from the data provided the basis for the institution to re-invent three academic policies to include a more holistic approach to learning, teaching, and student success. The policies developed were: Flexible Learning and Teaching Provision (FLTP), Assessment, and Curriculum Transformation and Renewal, which placed the student at the centre of university actions.

Keywords: online learning, student perceptions, COVID-19, higher education, key indicators

INTRODUCTION

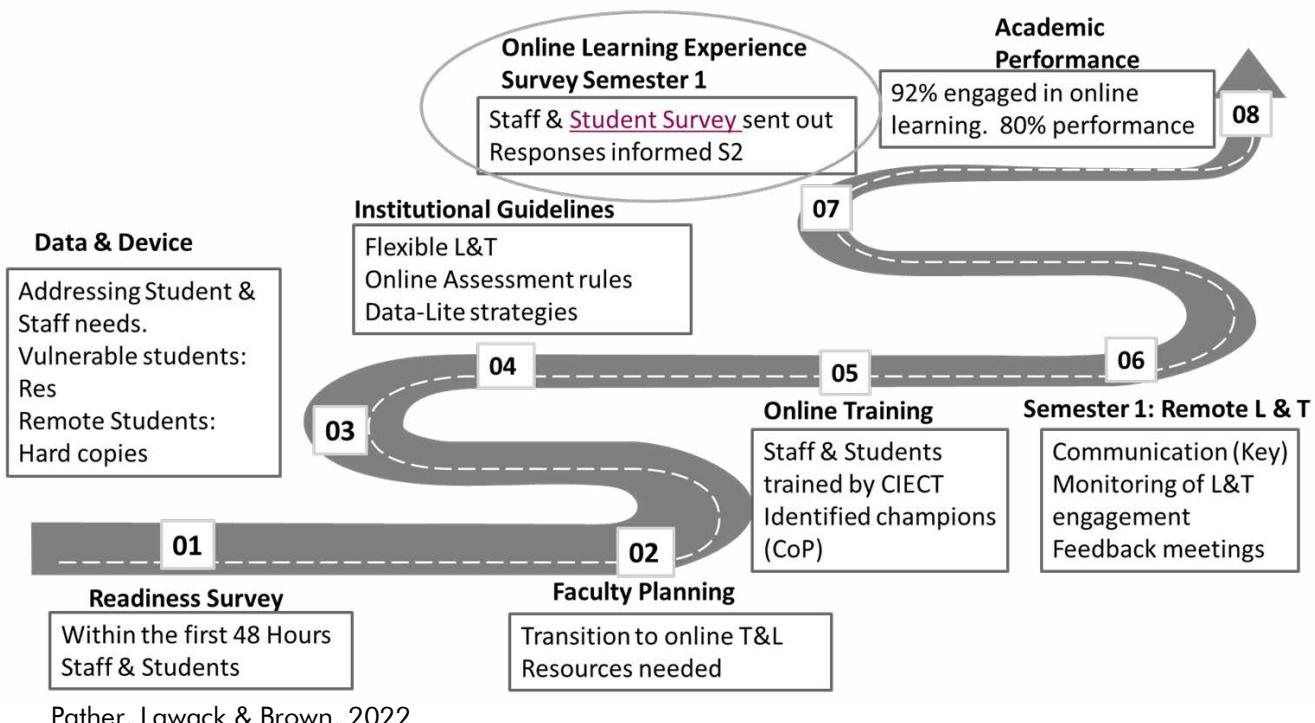
The outbreak of the coronavirus in 2020 disrupted life around the globe. The education sector was affected in many ways. Teaching and learning in higher education institutions, which were predominantly face-to-face, had to grapple with moving their academic programmes onto the online/virtual platform due to the unforeseen global lockdown. The lockdown announced by the South African President in March 2020 resulted in all universities suspending tuition. Each institution had to re-imagine its academic programme taking into account its own university context and that of its student population. The lack of homogeneity in the disparities with resources, financial status, readiness, and infrastructure of institutions in South Africa resulted in different start and end dates of the academic year and varying modes of delivery of teaching, learning, assessments, and examinations. South African institutions and students from all spheres of society were severely impacted by the country's stark digital divide, which is characterised by uneven network penetration (urban versus rural areas) and a relatively high cost of online communication (Pather, Booij & Pather, 2020).

Muthuprasad et al. (2021) outline that technical constraints such as the suitability of devices and bandwidth availability pose a serious challenge, particularly for developing countries, which brings into question the clarity in understanding preparedness, and the designing and effectiveness of e-learning. As part of the university leadership, it was important to understand staff and students' preparedness for moving learning and teaching online. Gaining a better understanding was key to firstly informing the institution's design of

the novice virtual online academic engagement, and secondly, to ensure that the institution did not take for granted the resource disparities that exist among the staff and student population. Figure 1 below outlines the initial actions taken by the university leadership during the first wave of the COVID-19 pandemic in supporting staff and student transition to emergency remote teaching and learning during semester one.

The actions indicated in Figure 1 did not follow a sequential process but were actions taken to move the academic project online while ensuring no student was left behind. Action one in Figure 1 highlights the first online survey (Student Readiness for Online Learning Survey) administered within 48 hours of the announcement of the national lockdown. The immediate response by university leadership was to determine students' resource readiness for online engagement and how best the university could support its diverse student population. The survey was administered online to the entire student population ($N = 23,788$). The following indicators were probed in the survey: device ownership (laptop, smartphone, computer, and tablet); device preference for learning; access to the internet; affordable access to the internet on a daily basis; conducive learning environment; and finally, confidence in online learning.

*Figure 1:
Actions Taken during the First Wave of COVID-19*



Pather, Lawack & Brown, 2022

The readiness survey (Table 1 below) assisted us in probing whether the average student was prepared for the dramatic shift from face-to-face tuition to that of remote online learning. The results in Table 1 show the data for the following indicators: device ownership (laptop, smartphone, computer, tablet) 98% of respondents indicated they either owned a device or had access to a device; device preference for learning, 70% preferred to use laptops; access to the internet, 56% indicated they had access; affordable access to the internet on a daily basis, only 51% indicated daily affordable access; conducive learning environment, 74% regarded their remote learning environment as conducive; and finally confidence in online learning, a small percentage of 36% of respondents indicated they were confident to continue to learn online during the crisis. However, among the respondents that indicated they were not confident with learning online, 23% indicated that if they received appropriate training on skills to engage with online learning they would continue, and an additional 41% indicated that with the appropriate resources provided to them, they will be willing to engage in online learning. These results brought to the fore several issues that were pivotal in

how the university organized itself during the initial period of the lockdown, but more importantly, it provided a basis on which the university leadership was able to frame a business continuity response which is illustrated in Figure 1 above, from action two to seven.

*Table 1:
Response from Student Readiness for Online Learning Survey*

Student Responses: 11902 (51% - response rate) Year Level: Y1 -29%, Y2 – 28%, Y3 26% - UG Level (83%)	Positive Response	Negative Response
Device ownership (Laptop, desktop, tablet, smart phone)	98.6%	1.4%
Device ability to connect to the internet	84.3%	15.7%
Preferred device for online learning: Laptops (70% owned device),	69%	39%
Ownership of Smartphones preference for online learning (92.9% owned device)	23%	77%
Access to internet at home for online learning	55.8%	44.2%
Availability of affordable daily access to the internet with preferred device	49.2%	50.8%
Conducive learning environment off campus	73.4%	26.6%
Confidence to engage in online learning	36.07%	41.25% (Need Resources) 22.68% (Need additional help)

The evidence from the survey informed the following actions to ensure a smooth transition and continuity with the academic project: action 2 refers to the actions taken by faculties in planning for the delivery of their modules and assessments; action 3 refers to faculties identifying vulnerable students. Vulnerable students were identified as students who required data, devices, and accommodation at residences if connectivity or unsuitable living conditions were an issue; action 4 saw the institution readjust academic policies and provide guidelines to support online learning, teaching, and assessment during the pandemic; action 5 addressed the need for online training of lecturers and students with the appropriate skills so as to engage in the online platform effectively; action 6 highlights the importance of university communication to staff and students to ensure a sense of connectedness while working remotely. These immediate actions taken by the university leadership took into consideration the realities of the pandemic, and staff and students' work/home environments, while also being cognisant of planning actions from a place of care and compassion. Action 7, which was conducted at the end of semester one, was key to getting a more informed perspective on staff and students' online learning and teaching experiences, which informed plans for semester two. Action 8 in Figure 1 indicates that all actions taken by the institution resulted in 92% of students engaging in online learning and an increased average academic performance result of 80% for the 2020 academic year.

STUDY'S AIM AND PURPOSE

Given the above backdrop, this study's focus is on action 7 with particular attention to students' viewpoints during the pandemic. The aim of this study is to gain a better understanding of students' transition to online learning by investigating their perceptions of their online learning experience and academic performance as they transitioned to emergency remote online engagement during the COVID-19 pandemic. The study highlights the key indicators that influenced students' positive and challenging perceptions of their online learning experience and academic performance during the first wave. This study is framed by Tinto and Pusser's (2006) model on institutional actions, which shifts the focus away from the students and onto the institutions' system, actions, and commitment to supporting student success. By association, it is also framed by Tinto's (1995) integration theory to investigate students' integration into

their new online learning environment. The purpose of the study is to understand students' online learning transitions with the objective of informing university policy in respect of how digital learning spaces may become more conducive.

STUDY CONTRIBUTION

This study provides valuable insights into students' adaptation to learning online with limited resources and interventions. An empirical analysis is performed with a total participation of 3257 students at a university in the Western Cape, South Africa. The study revealed that the impact of students' perceptions of their online learning experience and academic performance was strongly mediated by their levels of satisfaction with the university services; support provided; engagement with lecturers and peers; and learning environments created. The following key indicators identified from the study could be influential in determining students' successful engagement in the digital learning space:

- Intentional support offered by the institution
- Creating a sense of connectedness to the institution
- Resource provisioning by the institution
- Institutional academic and psychosocial support
- Home environment.

LITERATURE REVIEW

Singh and Thurman (2019) define online learning as learning experiences that occur in synchronous, asynchronous, and hybrid learning environments using different devices that require internet access. The synchronous learning environment offers a platform for students to attend lectures live and is believed to be a space where there is a lot of interaction between the students and lecturers (Dhawan, 2020). This learning environment is collaborative in nature and makes use of e-activities and they require the presence of both the student and a lecturer (Perveen, 2016). While the asynchronous learning environment provides no live lectures or classes, students receive learning content using different learning systems and forums (Littlefield, 2018). According to Perveen (2016) asynchronous learning environment is not time bound and students can be able to work on their e-activities at their own pace and time. The type of online learning environment created can influence student satisfaction and motivation to learn. Barber, (2020) supports the notion that the online learning environment created is the single most important factor that could influence student satisfaction and motivation to learn. Barber believes that factors such as student online classroom engagement; course structure; lecturers' knowledge; and facilitation style positively influence student motivation, satisfaction, and students' perceived learning outcome. Bolliger, Supanakorn & Boggs (2010) also acknowledge that the learning environment created is an important factor to keep students satisfied in an online classroom, which influences student motivation. They add that students with high motivation will be more successful in the online learning environment than students with low motivation. Nguyen et al. (2021) study on students' online learning experience, the authors conclude that active-learning methods, which are known to increase motivation, engagement, and learning in traditional classrooms were found to also have a positive impact in the remote online learning environment. In a study conducted by Yan et al. (2021: 2046) students perceived online learning to be more beneficial on the grounds that it was 'more convenient to review course content', students 'can learn anytime and anywhere', 'access to courses delivered by famous teachers' and most importantly it is 'helpful to develop self-regulation and autonomy'. Therefore, flexibility has been highlighted as an essential component of online learning, which has increased the learning potential of students in institutions of higher learning (Dhawan, 2020).

In addition to a conducive learning environment being an important factor to influence student learning and motivation, student agency was considered to be influential in the learning experience. According to Code (2020), a student's effectiveness in adapting their cognitive, affective, and behavioural processes as they interact within a particular learning environment is critical to their academic success and in this regard, student agency becomes an essential component in the student's ability to regulate, control, and monitor

their own learning. Therefore, nurturing student agency benefits students' self-efficacy, motivation, engagement, and learning. In a study conducted by Mukhtar et al. (2020: 108), it has been evident online learning has enhanced a 'student-centred approach', where Self-Directed learning (SDL) has resulted in students managing their activities independently. On the other hand, Mahlaba (2020) discovered that SDL is the strongest predictor of academic performance on the online learning platform. Al-Jarf (2020) describes student agency as a component of student engagement, which enables students to act on their own learning by utilizing the resources and affordances in the learning environment. Although student agency plays a key role in the learning process and in students' academic performance, Al-Jarf's study on student agency in transitional distant learning (DL) during the COVID-19 pandemic, indicates low student agency which influenced student engagement, motivation, and performance.

Another important component that could influence students' online learning experience, motivation, and satisfaction relates to resources available to the student to engage meaningfully in online learning. The COVID-19 pandemic has brought into focus once again the disparities amongst students' preparedness for learning and in this circumstance, emergency remote online learning. Accessibility to course content and materials, and convenience in terms of time and place have a very strong effect on a student's perception of online learning and are highlighted as an advantage (Bączek et al., 2021). Disparities include students' readiness with regard to online learning skills, resources available for online engagement, and the many uncertainties added to students' perceptions of their online learning experience. The uncertainties also relate to technical IT problems that are prevalent among first- and second-year students that are enrolled during the COVID-19 pandemic (Bączek et al., 2021). The study revealed that students that are new to higher education (tertiary institutions) were having challenges related to IT, particularly those using smartphones where screen displays and pop-up media were distracting them from focusing on class. In a study conducted by Agung et al. (2020) a proportion of students reportedly 76% had incompatible devices for online learning; 15% of students who participated in the study used laptops for online learning, whereas 85% used smartphones to participate in online learning. The study results revealed accessibility to online devices was an issue for that cohort of students as they were dependent on their parents to gain access to online learning devices.

Muthuprasad et al. (2021) added that technical constraints such as the suitability of devices and bandwidth availability pose a serious challenge to an online learning experience, which impacts students' learning outcomes and is more visible in developing countries. Accessibility to appropriate technological devices such as a laptop or a desktop for online learning is one of the most influential components for student success (Barbour et al., 2018). The following section provides the conceptual framework that guided this study's investigation on identifying key indicators influencing students' perception of their online learning experience and academic performance.

CONCEPTUAL FRAMEWORK

Tinto and Pusser's (2006) model of institutional actions underpinned this investigation. However, the study by association refers to Tinto's (1995) theory on student integration. Tinto's theory on student integration is underpinned by the social constructivist paradigm of understanding student learning and commitment. Tinto asserts that, for a student to be successfully integrated into university life, integration must take place formally and informally in both the social and academic domains. The student's level of integration can be influenced by factors internal and external to the university environment. Internal refers to the university support services, resources, and environment created, while external refers to students' pre-university characteristics such as family background, prior schooling, skills, and abilities. Such assimilation, in turn, often decides the student's level of engagement, commitment, and success, which re-examines their commitment to their personal goals and that of the university (Pather & Chetty, 2016).

In Tinto and Pusser's (2006) model of institutional actions, they shift the focus away from the students and to the institution and its system. They argue that institutional commitments provide the overarching context

for institutional action and highlight that institutions that are more committed to student success are more likely to generate success. Institutional commitment to student success in turn creates an environment conducive to success that students encounter in their everyday interactions with the institution, lecturers, administrators, peers, and the institutions' policies and practices. Tinto and Pusser's (2006) model acknowledges that learning is central to student success, and by extension that without learning, students are not successful regardless of whether or not they persist. They further outline the commitment of the institution to set the tone for a conducive learning environment that supports student learning. Tinto and Pusser add that the earlier students start to engage in learning and value their learning, the more likely they are to stay and graduate. They identify four conditions within the institution that could hinder or support student learning environments and success. These conditions are: students' expectations, support, feedback, and involvement. This article makes use of these four concepts to examine the students' experiences with their online learning environment and their perceived academic performance.

METHODOLOGY

The study is positioned in the interpretivist phenomenology approach. Interpretive phenomenology is referred to as a study of the 'life-world' or 'lived experience' and describes the phenomena as they appear to the person experiencing it (Dowling, 2007). An interpretive phenomenological approach is suitable for research that aims to understand and interpret participants' experiences, to determine the meaning of the experiences (Tuohy et al., 2013). In this regard, this research approach provided the researchers in this study with a descriptive, interpretive, and engaging mode of inquiry from which the fundamental nature of the student's university online learning experience, engagement, and the transition was elicited. The study was designed within the pragmatic research paradigm, which allowed for a flexible approach to solving research problems and acknowledges that there can be single or multiple realities that are open to empirical inquiry (Creswell & Plano Clark 2011). This approach was appropriate for investigating students' online learning experiences in times of uncertainty in higher education during the COVID-19 pandemic. The pragmatic approach allowed the researchers to make use of the methodological approach that worked best for investigating the particular research phenomenon at hand (Teddlie & Tashakkori, 2009).

This study made use of a quantitative and qualitative survey design. Data were collected using a survey questionnaire that was administered online via Qualtrics, which is an online survey software tool that allows the user to conduct survey research, evaluations, and other data collection activities. The design of the survey instrument consisted of a quantitative and qualitative type of data collection methods, having both numerically rated items and open-ended questions. The qualitative type of questions provided a further in-depth understanding of the numerical data collected. The questionnaire designed by the research team explored students' experiences and engagement with online learning. The survey instrument was built with reference to the prior surveys conducted at the start of the first wave of the COVID-19 pandemic. The survey was sent out to the university community at the end of semester one. A total of 3257 students participated in the online survey, with 90% of the respondents being undergraduate students and 10% postgraduate students. A total of 68% of the respondents identified as female and 32% as male respondents. The majority of the respondents resided in the Western Cape with less than 30% being located out of the province. Questions on the survey addressed issues on students' perceptions and experience with online learning and teaching; online transition; engagement; institutional support; connectedness; and resource provisioning. The three research questions that guided the study were:

1. What are the enabling and challenging factors influencing students' online learning experience?
2. What are the key indicators identified by students as influential to their online learning experience and perceived academic performance during COVID-19?
3. To what extent did the institutional actions taken during the COVID-19 pandemic influence students' online learning experience and perceived academic performance?

Descriptive statistics were used to analyse the quantitative data, which was presented in tables and graphs to statistically describe, aggregate and present the findings. Tableau Software is a data analytical tool that was also used to create interactive dashboards and visualisation of the quantitative data. The qualitative data was analysed to gain an in-depth understanding of the participants' lived experience of online learning during the pandemic. In this regard, the open-ended questions on the online survey allowed for the collection of rich data, and the use of words provided more in-depth descriptive information on the students' experiences (Cohen, et al, 2011). The Atlas ti9 software was used for data organisation of codes and thematic groupings. According to Braun and Clarke (2006), thematic analysis is a qualitative analytic method for identifying, analysing, and reporting patterns or themes within data. It was important to recognise that students' realities which were affected by the COVID-19 pandemic and the national lockdown were also influenced by their social, economic, and cultural contexts and the extent to which support from the institution was perceived. Students' viewpoints and their interpretations of their own perceptions and experience were the medium explored to comprehend realities embedded in their transition to online learning during the first wave of the COVID-19 pandemic.

The following sections provide an analysis of the findings under the following categories:

- students' positive experience
- students' challenging experiences
- students' perceptions of online learning versus face-to-face learning
- students' perceptions of their academic performance.

RESULTS

The qualitative data collected from the open-ended questions were classified into themes and sub-themes in the first two sections below relating to the participants' positive and challenging experiences with online learning.

Positive online learning experiences

In the open-ended question on the online survey, participants were asked to describe their online learning experience during the first semester and the first wave of the pandemic in 2020. The institution resumed its academic programme online on 20 April 2020 and concluded the semester on 26 June 2020. Participants' responses to this question were grouped into positive and challenging experiences as a first step. In the second step, the positive and challenging responses were categorised into main and sub-themes. Table 2 below highlights the three main themes identified: institutional support, flexibility, and resilience. The sub-themes in the table developed around the broad theme of how institutional support contributed to the learning experience; how the flexibility of learning was positively perceived; and developing and strengthening resilience.

*Table 2:
Participants' positive online learning experience during COVID-19*

3 Main Themes	Sub-Themes
Institutional Support	Data & devices provided Multiple changes to engage with learning (catch-up programme) Regular communications from the university – kept updated Support from tutors & lecturers Online training workshops (e-learning centre) Resources available for online learning
Flexibility	Could work at my own pace & time Lockdown allowed for more focused engagement with studies Build communities of practice Allowed for creativity

Resilience	Increased motivation to work harder Support from family & friends Knowledge of working online Learned new skills
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Institutional support

The positive responses relating to institutional actions taken during the first wave of the pandemic that was appreciated by the students included the institution providing data and devices to students who requested these resources:

It was really helpful when the university made resources available for most students to continue learning, during a global pandemic.

The inclusion of other types of resources relating to the delivery of hard copies to students with no internet access or electricity, resources on the Learning Management System (LMS) and library sites were also helpful and supported students in their learning. This was acknowledged by a respondent:

My university has done a lot to accommodate us as students and being a student, I benefited a lot from the online learning and resources. Although there are many things that can make the online experience better, however with the limited budget, the transition to online overall has been well managed.

Regular communication that was received from the university, faculties, departments and lecturers made the students feel connected to the university as indicated by a respondent:

Departmental and work updates were constantly sent out to students, which kept us informed and up to date.

Another similar comment indicated the lecturer's commitment:

I am so proud of my lecture[r]s and how they availed themselves to us online during the pandemic. Hopefully the second semester will be the same.

Flexibility

The flexibility of the university to adjust to and accommodate the new challenges during the pandemic was noted by students. The university ensured that no student was left behind and multiple opportunities were given for students to engage in their learning and 'catch-up' programmes which were beneficial to struggling students. This was acknowledged in the following response:

This is new grounds for students, there is a need to adapt and while some students can adapt quickly others can't, and for me, it was important to know that there are measures in place that make you feel safe and guarantee that even if a student fails to do well, they will not be crucified because of it but will be given other chances to make up – that makes me feel better.

Working from home and online also brought other benefits that allowed for flexibility in the way students engaged in their online learning. This was noted in the following comment:

I feel better prepared this time, as I am focused full-time. The rush to campus is eliminated and I am dedicating more time to my work.

and

Working from home at my own pace and going over the lessons in my own time and relooking at it is good for me.

Resilience

The following comments that supported resilience and independence are identified by two respondents. The first respondent shows resilience in trying to be positive and overcome her challenge with the transition to online learning:

The hard work from my lectures is appreciated and I know they try their best. My experience for me is kind of challenging because I now need to get myself to actually do the work on my own. So my challenge of discipline is what I need to succeed in. I realize that I just need to work harder and I will succeed with my online work.

The second student commented on his/her prior knowledge of working online and the acquired skills which were beneficial to online learning:

My knowledge and experience with online learning greatly assisted me with working online and I enjoyed the independence.

The majority of the participants recognized the following components as positive contributors to their online learning experiences: resource provisioning; prior online skills; flexibility and autonomy; reduced commuting time and more focused study time; and support from the institution, lecturers, tutors, peers and family.

Challenging online learning experiences

The responses to the open-ended question that contributed to the themes and sub-themes that were identified as challenging are presented in Table 3 below. Participants' negative experiences were related to the challenges they experienced with online learning. The three broad themes identified included: infrastructure and resources; readiness for online learning; and curriculum-related issues.

*Table 3:
Participants challenging online learning experience during COVID-19*

3 Main Themes	Sub-Themes
Infrastructure and Resources	Lack of resources (costs of mobile data, suitable devices and electricity) Lack of adequate infrastructure (load-shedding and unstable connectivity) Absence of a multifaceted support ecosystem provided by 'campus life' Lack of conducive 'home' environments Lack of family support and pressure from multiple obligations
Readiness for Online	Lack of technical know-how (lack of digital literacy; unfamiliarity with the Learning Management System and other platforms) Unfamiliarity with online learning environment Unfamiliarity with online learning styles suited to engage online (self-directed learning, time management, etc) Reliance on physical presence of lecturers; tutors and peers for consultations & support
Curriculum Related Issues	Lack of timeous communication and adequate feedback from lecturers and tutors

	<p>Inadequate online provision, explanations of content, etc</p> <p>An escalation in workload, lack of coordination in faculties around assessment due dates</p> <p>Inconsistent use by lecturers and tutors of 'data-lite' approaches</p>
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Infrastructure and resources

Much of the challenges under infrastructure and resources are related to financial constraints in purchasing data, devices, and electricity. Participants struggled with connectivity and the unstable supply of electricity resulted in scheduled load-shedding that interrupted online learning and teaching.

As indicated by a respondent:

I could not always login during an online class during the day because of my poor connectivity and no unlimited data so I missed out if I had questions I wanted to ask.

The absence of support from the campus ecosystem was also felt by the participants:

Not having the use of the library and tutors not available to assist in all modules was difficult to cope with learning.

and

Being away from res (student residence) and having a lack of resources available from the institution made working online from home difficult for me.

Participants also indicated home environment and lack of family support as factors contributing to their challenging online learning experience.

Readiness for online

Under the broad theme of readiness for online learning in Table 3, four sub-themes are presented. These sub-themes related to students being unfamiliar with technical skills; online environments; and learning skills to engage in online learning. The last sub-theme highlighted students' reliance on the physical learning space and pointed out that they had been accustomed to relying on the physical presence of lecturers, tutors, and peers for consultation and advice. Below are participants' responses to the theme of readiness for online learning:

I can't cope with online learning I am failing as there isn't anything keeping me motivated, I am thinking of deregistering;

Being on campus and working with hard copy is better than e-learning;

and

That online learning is very difficult to adjust to and it feels like I'm teaching myself for my own degree now.

Curriculum-related Issues

The last broad theme under student challenges is related to curriculum issues. Due to the rush in moving online and the lack of coordination between lecturers and departments, students highlighted issues with balancing workload and assessments. They pointed to the unevenness in the skill levels of lecturers and tutors and their ability to conduct teaching and tutoring within the online environment. The following responses offered by participants support the sub-themes under curriculum issues:

It is really hard working from home. There's not enough time to complete the heavy workload given during online classes;

There needs to be uniformity in the presentation of the lectures. For me just posting information on Ikamva (learning management system) is not always helpful as one has questions in order to better understand the writing material;

and

Managing to use multiple online communication methods (zoom, google Meet, and Hangouts) was annoying, confusing and it would be better to stick to one software instead of each lecturer insisting on using a different one.

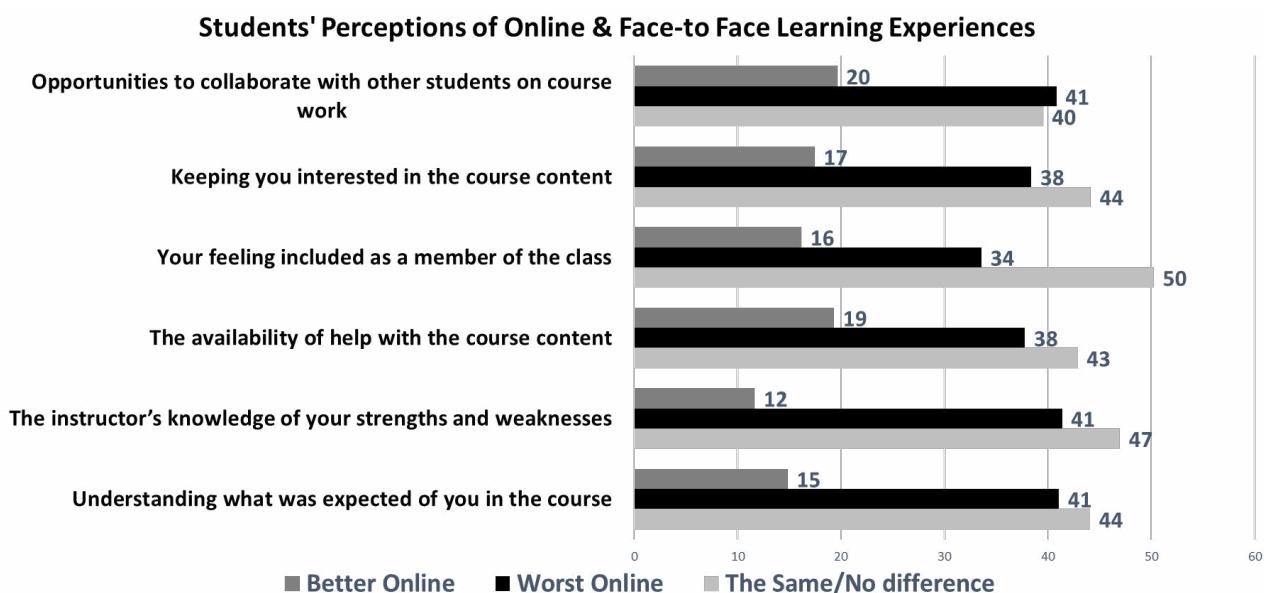
The participants' challenging experiences related to circumstances that were internal and external to the institution and in some instances beyond the control of students and the university.

Students' perceptions of online versus face-to-face learning experiences

The quantitative data collected from this question drew on a comparison of the participant's perceptions of their online and face-to-face learning experiences. Participants were provided with six statements, from which they had three possible answers to choose from. For each statement, they had to select whether their experience was: *better online; worse online; or the same/no difference*. Figure 2 below shows the results from the data analysed for this section of questions.

The study indicates that when comparing the experience of online with face-to-face learning experiences, the majority of the participants' overall perception of online and face-to-face learning experiences was regarded as the same/no difference. In five of the six statements, participants indicated that there was no difference in their learning experience between online and face-to-face. The statement with the highest percentage of *no difference* responses was shown for the statement '*You are feeling included as a member of the class*' with 50% of the respondents choosing no difference, 34% worst online, and 16% better online. Statement one, which referred to the opportunity to collaborate with other students on coursework, was the only statement to have a lower response rate for *no difference* with 41% of the respondents saying it was worse online, while 40% felt it was the same in both learning environments.

Figure 2
Respondents' perceptions of online and face-to-face learning experiences



Statement one also had the highest percentage of 20% of the respondents indicating that the online environment provided a better opportunity to collaborate with other students on coursework.

Students perceived academic performance in online learning

Quantitative data were collected from the survey questions that consisted of statements relating to students' perceptions of their academic performance during the first wave of the COVID-19 pandemic. Table 4 below refers to the four statements in this category in which participants had to agree or disagree with the statements. The table shows only the agreement percentages for the statements.

Table 4:
Respondents' perceived academic performance

I believe that I have successfully completed Semester 1, even though we faced many challenges during the pandemic.	79,3%
I am confident that I will be able to sustain my online learning activity for semester 2.	74,7%
I see myself as having a positive attitude and contributing to the success of my 2020 academic year.	77,0%
During this pandemic, I felt motivated to work harder than what is required of me.	63,1%

Three of the statements show that participants had a positive perception of their academic performance with 79% of the respondents indicating that they believed that they had successfully completed semester one even though they experienced many challenges. The lowest agreement statement was 63%, where the respondents indicated that during the pandemic they felt motivated to work harder than what was required of them. The second and third statements reveal that 75% and 77% of the respondents felt positive about the upcoming semester and successfully completing the academic year, respectively.

DISCUSSION

Positive factors

The purpose of the study was to explore key factors influencing students' perceptions of online learning and their academic performance. The study also aimed to examine students' perceptions of online learning versus face-to-face. The findings of the study highlighted positive factors under the three themes of institutional support, flexibility, and resilience that played an important role in enhancing the online learning experience, which increased student satisfaction and motivation to engage online. Support offered by the institution has an influence on how students engage with their online learning. Providing resources, support, and regular communication made students feel connected to the university, which motivated their online engagement and learning. As stated by Al-Jarf (2020) students act on their own learning by utilising resources and affordances offered by the institution, which not only increases students' motivation to learn but increases student agency. The findings highlight students' resilience and the online environment affording them the flexibility to take ownership of their own learning, time, and space. In Almahasees, Mohsen and Amin's (2021) study, students expressed that online learning helped them to acquire new experiences and skills; it reduced the cost of traveling to universities and related expenses; and more importantly, the sample expressed the opportunity and advantage of self-paced learning within the online environment. These positive factors were also indicated as recurring themes in other studies on students' perceptions of online experience. Other studies that identified similar benefits that led to student satisfaction with online engagement included: comfort and accessibility, economy (saving time and money), and psychological and medical safety, which led to an increase in students' sense of belonging and connectedness to the university during the COVID-19 pandemic (Muthuprasad et al, 2021; Carrillo & Flores, 2021; Swan & Shih, 2005).

Challenging factors

The findings from the study identified the following perceptions of online learning as challenging experiences: infrastructure and resources; students' readiness for online learning; and curriculum-related issues. Some of the challenges experienced by students during the pandemic included miscommunication and cross-communication between the university and faculty; access to the internet; affordable data; finding a quiet space to work from home; lack of digital competence skills; increase in workload; managing work hours; and balancing personal and study life. Much of the challenges that stem from access to the internet and affordable data can be attributed to the digital divide that has not only negatively influenced students' participation in online learning but also the academic staff. Pather et al. (2020) maintain that one of the primary challenges that exist in South African universities' plight to transform the programme delivery is that of the resource readiness of the average South African university student. This is also supported in Reddy Moonasamy and Naidoo's (2022) study, which exposed that the major challenges encountered by students in transitioning to online learning were technical issues such as lack of network connectivity and high data costs with the majority of students residing in rural areas, thus the inequalities of the education system have been further exacerbated. Higher education institutions need to be mindful of such challenges and institutional support in ensuring that all students have an equitable chance of successfully engaging in online learning should be part of their responsibility. The main themes extracted from Curelaru, Curelaru and Cristea's (2022) findings refer to two key areas that play a role in influencing participants' negative aspects of online learning. One is health and psychosocial problems (e.g. stress, anxiety, decreased motivation, isolation/loneliness, and apathy) and the second is the learning process problems (e.g. misunderstandings, a lack of feedback, additional academic requirements, a lack of challenge, and disengagement). Transitioning to online learning and teaching needs to be carefully planned and intentional about the resources, support and training of students and staff to have a successful experience. Motivational speakers, institutional counsellors and the e-learning team need to work collaboratively to build student agency and motivation to engage in online learning. However, during the pandemic, this important intentional action was not possible and it must be acknowledged that the online learning experience for university students during the pandemic was not an option freely adopted by students but something that was forced upon them. Higher education institutions planning to transition to

hybrid or e-learning need to be cognisant of students' personal and socio-economic stress together with their readiness for online engagement.

Online compared to face-to-face

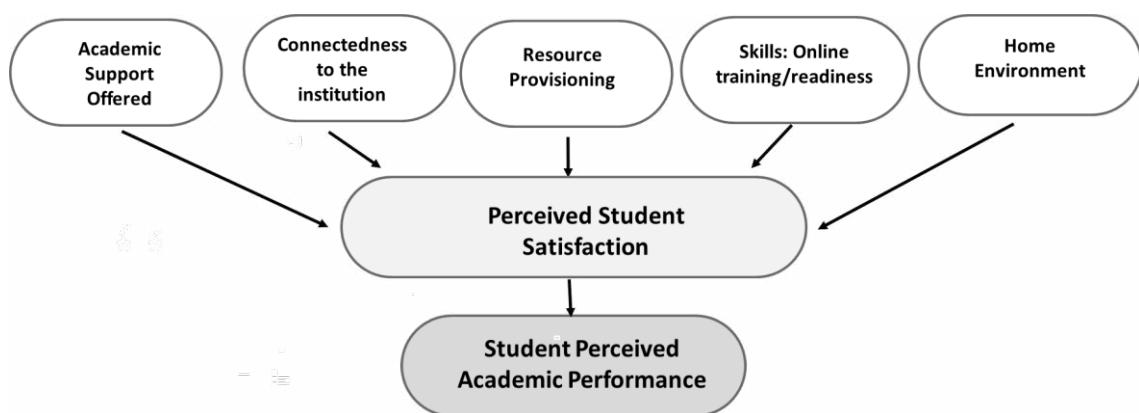
The findings of this study revealed that approximately 45% of students responded that their experiences with online learning compared to their face-to-face learning were similar. Indicating that there was no major difference in their learning experience with course content or engagement with peers or lecturers. In Bali and Liu's (2018) study on students' perceptions of online learning compared with face-to-face, they note that face-to-face learning perception was higher than online learning in terms of social presence, social interaction, and satisfaction. However, Liu's research discovered that there was no statistically significant difference in learning preference among the students. In this study, the findings revealed that close to 51% of students indicated that they felt comfortable in the online learning space as it provided them with an opportunity to be innovative by using computer technology. Curelaru, Curelaru and Cristea (2022) remark that the online learning space can be regarded as a different way of delivering learning material and content to students. But add that it is also a completely different social space in which students interact with each other and their lecturers. They caution that the online learning environment needs to be similar to the face-to-face learning space so as to avoid any potential limitations to the communication and interaction between lecturer and students. The latter was also a consideration in this study as the opportunities to collaborate with peers were found to be worse online.

Key indicators informing student perceptions during online learning

From the quantitative and qualitative data analyses the study identified several key indicators that impacted on students' online learning experience. These indicators, as seen in Figure 3 below are:

1. academic support offered by the institution to students
2. students' sense of connectedness to the institution
3. resources provided by the institution to support online learning, such as data, and laptops; provision of training to engage online
4. the influence of home environments to support online learning.

Figure 3:
Key indicators informing participants' perceptions of academic performance



A student's positive or negative online experience had an influence on their perceived satisfaction, which influenced motivation and academic performance. Motivation and self-discipline are extremely important, as students must be able to efficiently manage their time and engagement in the online learning environment. As indicated earlier, factors within the online learning environment can influence student satisfaction which will determine students' motivation to engage in online learning and students with high motivation will be more successful in the online learning environment than students with low motivation.

CONCLUDING REMARKS

This research has provided an opportunity to consider students' viewpoints on responses and responsiveness to online learning during the pandemic. The disruption of the assumed role of students and academic staff gave rise to embracing new learning opportunities, skills, and ways of engaging within the online learning space. The data on students' perceived learning experiences has brought into focus the need to ensure student connectedness to the institution, the need for resources to enhance learning, and intentional skills development to ensure a successful transition to online learning. Student motivation and student agency are also key indicators to ensuring successful online learning. The findings of this study provided insight into the future positioning of flexible learning and teaching at the institution. The data allowed the institution to drive sustainability by nurturing future possibilities in online and remote teaching and learning contexts. Using these insights, the institution followed an inclusive process to develop three new academic policies to include a more holistic approach to learning, teaching, and student success, which placed student success at the centre of the university focus. The three policies developed and adopted during the pandemic included: the Flexible, Learning, Teaching Provisioning (FLTP) Policy, Curriculum Renewal & Transformation (CRT) Policy and Assessment Policy, which was approved by Senate in 2021. Finally, the students' viewpoints brought into focus the need to consider strategies to be flexible and drive sustainable learning and teaching during challenging times and beyond.

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