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RESEARCH ARTICLE:

Online Teaching of an Undergraduate Research Module Amid COVID-19 Lockdowns: Reflections of an Academic at a University of Technology in South Africa

Khethiwe Dongwe[1] and Free-Queen Bongiwe Zulu[2]

Abstract

With the emergence of the COVID-19 pandemic in March 2020, the transition from face-to-face teaching to online teaching was enforced in higher education institutions. The study illuminates the lecturer's reflections on practices adopted whilst embarking on the trajectory to move teaching an undergraduate research module to online platforms amid COVID-19 lockdowns at a South African University of Technology. An auto-ethnographic qualitative approach was adopted, with personal reflections as data sets. Using a Community of Inquiry (CoI) framework to analyse data, findings indicate that cognitive, teaching, and social presence are crucial in an online undergraduate research module. Significant during the lockdowns was the need for communication; the lecturer had to be present as a real person; show compassion towards students; and treat students as real people online, thus adopting humanistic pedagogy. Furthermore, the findings indicate various factors enhancing or impeding the quality of online undergraduate research pedagogical practices. Hence, the study recommends the addition of "policy presence" focusing on staff development, provision of online related resources, and ensuring a conducive environment in pursuit of inspiring and enabling both staff and students to participate in impactful research.

Keywords*: undergraduate research; online teaching; reflections; COVID-19 pandemic*

Introduction

The COVID-19 lockdowns that were issued by many world leaders affected activities in all sectors. Teaching and learning, work-integrated learning, postgraduate supervision, research activities, and administrative operations were not immune to these upheavals within the higher education sector. Oparinde and Govender (2020) envisaged that academics, researchers as well South African higher institutions in general might be facing their biggest confrontation in several years with the insurgence of the COVID-19 virus. Internationally, the COVID-19 pandemic led to the suspension of face-to-face lectures and the use of remote online forms of instruction and learning at higher education institutions. Many higher education institutions transitioned to online operations. In South Africa, the COVID-19 interruptions occurred at a time when there were concerns about the declining number of students enrolled in postgraduate programmes due to a lack of interest in research and a bleak outlook for finishing qualifications within the required time frame.

As a result of the aforementioned issues, some institutions have placed greater emphasis on undergraduate research courses, and made them compulsory, as it is thought that a firm basis for research should be established at the undergraduate level. Enhancing teaching and learning in

[1]Durban University of Technology, cynthiaz@dut.ac.za
[2]University of KwaZulu-Natal, ZuluF1@ukzn.ac.za

undergraduate research modules might thereby counteract poor postgraduate enrolment, delayed progress, and a lack of research interest. Additionally, it is vital to pay attention to the online and face-to-face instruction of research modules, as this may motivate and empower students to recognise the significance of research. Through early exposure to basic research concepts and techniques, teaching research at the undergraduate level may also deconstruct what is necessary to acquire research competency. It can also inspire interest, so helping to increase the number of graduate students and broaden the pool of much-needed future academics (DHET, 2015).

Xing, Mo, and Su (2014) assert that it is worthwhile to consider how to cultivate undergraduates' research skills. Motala and Menon (2020, in Zulu, 2022) concur with the aforementioned authors that teaching and learning in higher education should prepare students with the information, skills, and traits for a fast-changing period. This paper focuses on the reflections of one academic (Author One) teaching undergraduate research modules during the transition to online delivery due to COVID-19 lockdowns. The study adopts the Community of Inquiry (CoI) Framework to shed light on the practices utilised in the transition of an undergraduate research module (Research Practices and Principles) at a South African University of Technology (SAUoT). While this study contributes to the scholarship of teaching and learning in higher education, the findings of the study could be useful in enhancing the quality of online and blended teaching of undergraduate research modules. The key research questions addressed in this paper are: (1) How are the teaching practices adopted in transitioning the teaching of an undergraduate research module from face-to-face to online amid the COVID-19 lockdowns? (2) What are the experiences of designing and teaching an undergraduate research module from face-to-face to emergency remote online amid COVID-19 lockdowns?

Undergraduate Research Module at a South African University of Technology

The research module under the Business and Information Management (BIM) qualification is emerging within a particular SAUoT. The qualification is offered on two campuses. It contains compulsory undergraduate research modules, namely Research Practices and Principles 1, 2, 3, 4, and 5. The objective of these modules is to prepare students to engage in research administration and other administrative and information management activities in any organisation. In addition, the qualification seeks to provide students with the necessary research skills to tackle issues in various contexts and at postgraduate level. These undergraduate BIM modules are organised such that four class periods are allotted on the timetable. These consist of classes and tutorials. Lectures are used to introduce concepts, and tutorials help students develop their own group research projects. The lockdowns necessitated the transition of all lectures and tutorials in all modules, including undergraduate research modules, to online systems for remote teaching and learning.

The reflections of Author One in this paper are on Research Practices and Principles 3. In 2020, 60 students were enrolled in the module at one of the campuses (where Author One teaches). As mentioned in the module brief, the objective of the module is to provide students with the research concepts related to the field of information management and business processes, research skills, and the use of various methodologies necessary for drafting a proposal. Students are expected to embark on research projects related to business and information management focus areas using a range of research approaches.

Teaching an undergraduate research module provides more advantages than disadvantages. These benefits are available to both educators and students. A research module at the undergraduate level is essential for students in laying the groundwork for postgraduate studies as well as inspiring them to pursue a research career. Furthermore, undergraduate research modules can enhance teamwork skills, communication skills, leadership, and critical thinking (Patra and Khan, 2019). These modules normally include sessions where students work on research proposals or develop a research project,

and this is assessed with feedback prioritised (Patra and Khan, 2019). The sessions can also assist students in formulating a single problem and critically analyse literature and data (Reddy, 2018). In a SAUoT context, Vahed and Cruickshank (2018) found that undergraduate research modules in Dentistry have a positive impact on reading and writing skills. Thus, these modules are essential for producing graduates with a solid research foundation prior to their participation in various undergraduate group research projects. For lecturers, teaching a research module can help to improve the link between teaching and research.

Emergency Remote Education (ERT) and Online Teaching during COVID-19 Lockdowns

Teaching at a higher education institution involves numerous strategies and practices, including traditional lecturer-dominated teaching, active (collaborative) teaching, laboratory practical sessions, problem-based or project-based learning (PBL), Work Integrated Learning (WIL), blended methods, and distance education. The introduction of ERT due to COVID-19 lockdowns meant adopting some of these strategies, whilst lecturers and students were confined to their homes. All of the aforementioned strategies, whether in person or online, require of lecturers to develop and implement appropriate pedagogical strategies. Developing effective pedagogical approaches is key and it is normally in the hands of each academic to decide which strategy is the most suitable in any given module (Saungweme, 2015). Practices adopted during teaching can be inspiring to students (Lin, Lin and Chen, 2020) and are key to inclusive education (Molbaek, 2018). The teaching practices are implemented so that all students participate in the learning activities and their needs are taken care of. Inclusive teaching adapts to different situations with the aim of moving forward (Molbaek, 2018) towards improvement. This has been termed by Biggs (2001) as quality enhancement, which is to be pursued despite any circumstances.

In higher education, computer-mediated communication (CMC) has been utilised to supplement traditional lecture approaches. Garrison, Anderson and Archer (2000) maintain that CMC is becoming more popular in the higher education sector. This is regardless of concerns associated with online learning, such as the physical distance between students and teachers (Rakes and Dunn, 2015). In 2020, the emergency transition of universities to online teaching was fast-tracked by the COVID-19 pandemic, which drove the use of online teaching in the higher education sector. Online teaching includes online live lectures, pre-recorded lectures, online videos, and chats, as well as various assessments (Khan *et al.*, 2021). This includes using tools such as learning management systems, for example, Blackboard, Moodle, Canvas, and communication platforms such as Skype, Zoom and MS Teams. These online platforms were normally blended with face-to-face teaching before COVID-19. During stressful times such as the COVID-19 lockdown, it became imperative for online teaching to take centre stage and for the incorporation of what Jama (2017) refers to as humanistic pedagogy, which incorporates values such as care, empathy, and love into teaching practices.

Ramrathan (2017) also argues for the humanistic discourse within the higher education institutions so that the biographic and experiences of students (from events such as apartheid), are not ignored. The aim is to minimise suffering and distress through compassion (Gilbert *et al.*, 2017). In addition, lockdowns called for a focus on pedagogy rather than a mere focus on technology use. The focus on pedagogy during COVID-19 lockdowns has been termed by Schwartzman (2020) as pandemic pedagogy, which takes into consideration family dynamics, interactions, and allows students to drive discussions. This is because the large shift to online learning in 2020 was an unplanned emergency, requiring of staff and students to adjust to a new environment. Other institutions of higher education devised strategies and trial periods to think and prepare more thoroughly before commencing online

instruction. This is supported by Zulu (2022: 192) that trial runs to familiarise academics and students with online teaching influence the establishment of teaching presence positively, because challenges related to the online teaching during the disruption were identified and could be addressed before the commencement of the actual online teaching.

Emergency remote education (ERT) is a temporary shift in the delivery of education to an alternative mode of delivery due to crisis circumstances such as pandemics, wars, local conflicts, and disasters (Firdoussi *et al.*, 2020: 3). ERT includes recorded or live lectures when teaching any module. Generally, ERT and online teaching are used interchangeably; yet they encompass different meanings. Bozkurt and Sharma (2020) highlight that online teaching and learning is an interdisciplinary field that has evolved over time to guide educational practices during difficult times. The literature suggests there is a need for a comprehensive view of the pedagogy of online education that integrates technology into support the teaching and learning (Carrillo and Flores, 2020; Carlon 2020; Bozkurt and Sharma, 2020) of various modules. Carrillo and Flores (2020: 467) highlight that teaching and learning online entail a specific process that is visible in the roles, competences, professional development approaches, curriculum, pedagogy, assessment, and the nature of interaction among the participants.

The Community of Inquiry (COI) Framework as a Theoretical Framework

The study adopted a CoI framework (Garrison *et al.*, 2000) as a conceptual and analytical framework to analyse the teaching practices adopted in adopting online teaching of a research module amid the COVID-19 lockdown. Carrillo and Flores (2020) suggest that the community of inquiry framework could be used to provide insight into online teaching and learning practices in the context of COVID-19. In this study, the CoI framework served not only as a lens for comprehending the phenomena, but also as an analytical framework for analysing the participants' reflections and experiences. Garrison *et al.* (2000), when developing this framework, particularly for computer mediated communication (CMC), have identified the elements that are crucial prerequisites for a successful higher educational experience when education is moved to an online environment. They highlight that the learning of students is the result of the interaction of three presences: cognitive, social, and teaching (Garrison *et al.*, 2000). Presence simply means the importance of being present.

Cognitive presence is defined as the extent to which participants "are able to construct meaning through sustained communication in a community of inquiry" (Garrison *et al.,* 2000: 89). It relates mostly to knowledge building. There are four non-sequential indicators of cognitive presence: state of dissonance, exploration, integration, and resolution (Garrison and Anderson, 2003; Garrison *et al*., 2000). The state of dissonance or feeling of unease is described as that of a triggering event or communication. The second category is that of exploration in a search for information, knowledge, and alternatives that might help to make sense of the situation or problem (Garrison *et al*., 2000). Garrison *et al.* (2000) explain that integration entails seeking insights and obtaining some comprehension of the obtained information and knowledge to make sense of the circumstance or problem and attempting to direct one's attention. The fourth category is the resolution of the issue or problem and the application of an idea (Garrison *et al*., 2000).

Social presence is defined as "the ability of participants in a community of inquiry to project themselves socially and emotionally as real people (i.e., their full personality) through the medium of communication being used" (Garrison *et al*., 2000: 103). According to Garrison *et al.* (2000), social presence features three indicators. The first indicator is the expression of emotion, which refers to an emotional response to the learning experience that can be implemented through humour and self-disclosure (Garrison *et al*., 2000). Open communication is the second indicator that is fulfilled through interactions showing mutual awareness, i.e., respect, recognition, and acknowledgement for

peer-generated contributions (Garrison *et al*., 2000). The third indicator is group cohesion, which is enhanced through "strategies targeted at making students feel like members of a learning community, which is instrumental in fostering information sharing and collaborative critical thinking" (Garrison *et al.*, 2000: 101). Carrillo and Flores (2020: 468) also relate social presence to the ability of the participants to engage effectively with the community. The community communicates purposefully in a collaborative environment and develops interpersonal relationships by projecting themselves as the people they are (Garrison *et al.*, 2000; Carrillo and Flores, 2020).

Teaching presence is a means to an end – to support and enhance social and cognitive presence for the purpose of realising educational outcomes" (Garrison *et al.*, 2000: 87). Garrison *et al.* (2000) state that the teaching presence is an act of designing, facilitating, and orienting cognitive and social processes to obtain the results foreseen according to the students' needs and capabilities. The teaching presence is "operationalized through the design of the educational experience, which includes the selection, organization, and primary presentation of course content, as well as the design and development of learning activities and assessment and facilitation" (Garrison *et al.*, 2000: 89). The teaching presence has three indicators, namely instructional management, building understanding and direct instruction. Instructional management refers to the design and implementation of the curriculum, activities, and assessment. Building understanding refers to the practices implemented to foster content knowledge acquisition (such as "creating an effective group consciousness for the purpose of sharing meaning, identifying areas of agreement and disagreement, and generally seeking to reach consensus and understanding") (Garrison *et al.*, 2000: 101).

Drawing from Garrison *et al.* (2000), a growing number of researchers (Gutierrez-Santiuste *et al*., 2015; Bozkurt and Sharma, 2020; Carlon, 2020; Waghid *et al*., 2021; Zulu, 2022) have used the Col framework to design and reflect on synchronous and asynchronous teaching and learning. A study conducted by Gutierrez-Santiuste *et al.* (2015) used the CoI framework in a Spanish context to analyse students' perceptions of communication in chats, forums, and e-mails, and find correlations among the three presences. The findings of their study indicate that in forums, the cognitive dimension of communication was explained more fully by social and teaching than in chats and e-mails (Gutierrez-Santiuste *et al.*, 2015). Interestingly, Carrillo and Flores (2020) employed the presences to analyse 134 empirical studies in their desktop study on COVID-19 and teacher education. Using the three presences, Carlon (2020: 2) investigated digital learning in foreign language teacher training in higher education by investigating students' perceptions of the teaching, social, and cognitive presences when implemented in an online foreign language teacher trainer course at an Italian university during the pandemic, while Carlon's (2020) study indicates that three presences have been implemented to a high degree in the course during emergency remote teaching. However, the social indicator scored the lowest, implying that when transitioning the course online, the instructor ended up focusing more on content and skills development, overlooking to a certain extent the necessity to foster social presence (Carlon, 2020: 239), which also requires compassionate pedagogy (Gilbert *et al.*, 2017). Parrish *et al.* (2021) also focus on feedback obtained from students and assign this feedback to the CoI framework, finding that although there is increased learning during synchronous meetings, in the form of teaching presences and social presences, online learning requires a significant amount of time.

In the South African context, Waghid *et al.* (2021) use the CoI framework to assess cognitive, social, and teaching presences during ERT at a university. They established that exposing students to the three presences enabled them to attain 21st-century skills that are important graduate attributes. Zulu (2022), also in the South African context, highlights the importance of all presences and flags the limitations of social presence in an online platform. However, reflections of academics regarding the application of the three presences in ERT have not been fully explored at different institutional

types. Utilising the CoI framework could assist in igniting quality undergraduate research modules within UoTs.

Methodology

We are two academics (Author One and Author Two) who teach research courses at two institutions in South Africa. This study draws on Author One's online teaching practices and COVID-19-related experiences. The study adopted a qualitative autoethnographic research approach (Barley and Southcott, 2019). The aim was to shed light on the personal experiences of a black academic who taught a research module to undergraduates online, as well as the practices she followed. Autoethnography combines the self with the practice to emphasise the lived experiences and challenges of specific persons. Author One had 22 years of experience teaching face-to-face, but no prior experience of teaching remotely. It is vital to examine a variety of experiences and practices addressing the teaching of undergraduate research modules in different contexts, as well as the applicability of adopting reflexivity. Importantly, this study revealed that the implemented teaching practices and experiences (both positive and negative) during the COVID-19 pandemic interruption resulted in the effective transition of modules to online delivery. Consequently, autoethnography was utilised to reflect on the online teaching and learning of a research module during the COVID-19 lockdowns. In line with Qutoshi (2015: 176) that the benefits of auto/ethnographic work include emancipating and transformation of the pedagogy our research is situated within an emancipatory paradigm. Given that engaging in autoethnography may be a transformational experience, we study our online teaching of an undergraduate research module amid COVID-19 to learn from them and thereafter transform our teaching practices. Cohen, Manion and Morrison (2011) state that the aim of the researcher within the emancipatory paradigm is the emancipation of individuals and groups.

The data were generated in 2020. A journal was used as the main data generation tool. Author One documented her reflections in her personal journal iteratively from May to November 2020. Using a reflective journal was for the purpose of documenting experiences and placing thoughts and ideas on paper related to the new ERT context. Regarding autoethnography, Qutoshi (2015) asserts that it allows the researcher to explore lived experiences as a key source of evidence and is transformational in character. The reflections were first written in a journal with the intention of recording the trajectory and the challenges associated with the transition of the undergraduate research module from face-to-face teaching to online. In November 2021, the journal's data were reviewed and, where necessary, revised for clarification. The data were then analysed deductively using the Col framework (Garrison *et al.*, 2000) by both authors. Deductive data analysis entails mapping textual experiences and practices to the framework's components (indicators). Organizing the data into a specific arrangement is to gain knowledge and an understanding of the phenomenon under study (Wong and Breheny, 2018). From the data, the indications for each presence were utilised to track the presence. This was followed by an ongoing process of refining, revising, and synthesising the acquired experiences and practices. Through continual reading and re-reading of documented experiences and practices, refining the coding into constructs of the framework, and as the analytical framework is embraced, this allowed the research questions to be addressed and strengthened the trustworthiness and rigour of the findings. Typically, autoethnography has parity between self- and other-collected data, as well as how they are used to generate meaning (Starr, 2010). However, student and other data were not included in this study. For the purposes of this research, the study centred on an academics' reflections. As part of the preparations for the DUT 2021 November SURE Colloquium, permission was secured from'the UoT to undertake this study.

Autobiographical Information of the academic (Author One)

I am a black South African academic with 22 years of experience teaching at a University of Technology in South Africa. Over the past two decades, the institution has undergone a major change in identity, from a Technikon to a University of Technology. This has meant that I also evolve and take on the identity of a university academic by first upgrading my qualifications to PhD and now developing my research publication skills. Prior to the identity change of the institution, there was no pressure to adopt a lecturer and researcher role. In addition, there was no pressure to train students on embarking on research; the focus was on employability skills. There is now coercive pressure to embark on research. Thus, obtaining a PhD in Higher Education Studies, coupled with the launch of a 'Supporting Undergraduate Research Excellence' (SURE) project across the institution, has prompted me to embark on a scholarship of teaching undergraduate research modules and on adopting scholarly teaching. I am currently teaching Research Practices and Principles II and III as well as Transformation and Change Management IV to undergraduate students, in addition to supervising and coordinating master's and PhD qualifications in my respective programmes (Business and Information Management).

When enacting these roles, I have noted that the research module is a difficult course to teach at undergraduate level and requires that the instructor reach into the teaching and learning toolkit to find innovative strategies to impart knowledge and skills related to a complex discourse (Reddy, 2018: 58). I continuously propose changes to lecturers teaching undergraduate modules based on my own experiences and challenges as a postgraduate supervisor and coordinator. I try to enhance quality in my practice. To enhance the quality of the teaching of the research module, I obtained a research grant for the SURE project in the institution. The project aims to support early researchers to focus on teaching research to undergraduate students and thereafter generate publications to inform practices. I then collaborated with Author Two. As we are both emerging researchers, we wanted to grow in parallel with the growing research passion of undergraduate and postgraduate students. A usual monthly greetings message on WhatsApp prompted an interest in writing a paper on teaching exclusively online, amid COVID-19 lockdowns, using personal reflections.

Findings

The findings show that the cognitive presence was experienced the most, followed by the teaching presence and then social presence. The findings are presented below according to each presence.

The cognitive presence

According to Garrison *et al.* (2000), cognitive presence is connected to knowledge building within a community of inquiry. This is the element that is more basic to the higher education experience and deserves attention, particularly when the medium changes (Garrison *et al.*, 2000). Hence, this presence is described first since it served as the foundation for the transfer of a face-to-face undergraduate research module to an online format during the COVID-19 shutdown. Table 1 below is the summary of the findings in relation to One's cognitive presence.

Table 1: Summary of the findings in relation to the cognitive presence

	Implemented Practices Associated with Each Presence	**Factors Enhancing or Impeding Undergraduate Research Online Pedagogy**
State of dissonance	Acknowledging the state of dissonance and deciding to attend workshops Journaling and reflecting during the transition from face-face to	Enhancer – Acknowledging the existence of a problem, staff workshops. Impeder – staff workload, no data provision to attend online workshops Willingness to learn continuously on

	online	the side of a staff member
Exploration	Deciding to attend institutional workshops even if they are voluntary. Gathering information from colleagues who have been involved in distance learning.	Open to learning from other colleagues (internal and external to the institution) Enhancer – passion and enthusiasm for teaching
Integration	Focusing on pedagogy more as compared to technical skills in the redesign of undergraduate modules to transition from face to face to online.	Enhancer – Internal motivation and initiative Impeder – data and devices for students to attend Ms Teams class
Resolution and application of an idea	Deciding on module-specific and context-specific ideas to be implemented Deciding to adopt Ms Teams and PowerPoint slides	

As depicted in Table 1, the recognition of dissonance by the first author was based on COVID-19-related uncertainties. COVID-19 lockdowns can be compared to a condition of dissonance due to the fact that they disrupted typical face-to-face activities and led to distant online teaching, supervision, coordination, meetings, and workshops. This prompted Academic Developers at the institution to quickly organise online workshops for academics on how to move from traditional classroom instruction to online instruction. All academics at the institution received e-mail invites to participate in online workshops. These workshops were not policy for all staff members to follow and were not compulsory.

Deciding to attend institution-wide workshops seems to be in line with cognitive presence (Garrison *et al.*, 2000), which refers to the state of dissonance or feeling of unease resulting from an experience as a force for pursuing guidance. This finding is consistent with Molbaek's (2018) assertion that, on occasion, professionals seek external frameworks for their practices. As academics, we were required to engage in this remote online distance teaching for the first time, which caused a great deal of unease. The online setting in which these workshops and online instruction had to take place was incomparable to the earlier usage of Blackboard as a student-assistance effort coupled with face-to-face teaching. As Ngubane *et al.* (2020) found, online pedagogies came as a shortfall for some academics during this time. The sudden and unexpected transition to online teaching affected all universities and academics. The grounding of sound pedagogy instead of focusing on technical skills was crucial during this uncomfortable period.

From the perspective of an academic, planning and preparing for ERT is in line with cognitive presence as it relates to knowledge building. Paying attention to the building of the online classroom was crucial. In addition, Garrison *et al.* (2000: 89) define cognitive presence as the extent to which participants can construct meaning through sustained reflection and communication in a community of inquiry. Other academics within the institution formed part of the community towards preparing for ERT, as depicted in this journal entry.

> I also must engage with colleagues from another campus regarding decisions I have taken in proposing amendments of the module to prepare for online teaching (Author One)

As a lecturer confronted with the COVID-19 lockout conundrum and personally recognising the need to attend online workshops, even though they were not compulsory, I had to devise a strategy for purchasing data from my own personal funds. This was never a problem for face-to-face lectures, which were always held on campus, and there is internet connection provision. In addition to the aforementioned problem, the students encountered a shortage of devices, poor connectivity, no data and, in some areas, a lack of electricity. This was clear (and continues to be the case) from the low attendance for online lectures. After two months of lockdown, the institution did share staff and student information. Prior to the supply of institutional data, I was unable to conduct a thorough search for information, knowledge, and alternatives without incurring significant financial loss. As per the second and third indicators of the cognitive presence, gathering alternatives in order to make sense of the situation or problem (Garrison, *et al.*, 2000), thus carefully plan for online teaching of undergraduate research. As stated earlier, this paper focused on teaching research practices and principles III module. Author One reflected in this manner:

> Since the study guide for 2020 and assessments were already designed and distributed to students, I must carefully consider the outcomes of the module and ensure that students still obtain the necessary skills and knowledge as per the three outcomes even during this transition to online teaching. For instance, the first outcome of the module involves testing understanding of the theoretical and conceptual frameworks. Due to transition to online, I must revise the questions to application questions and provide more elaborate instructions regarding the assessment. This revision of assessment motivated for continuous attendance of the staff development workshops as the process was parallel (Author One).

As a lecturer, attending staff development workshops was to further look for insights and to acquire information and knowledge for the purposes of making sense of the situation or problem and attempting to orient one's attention (Garrison *et al.*, 2000) towards a solution, as shown in the except from the journal entry:

> The workshops are helpful as we are watching demonstrations from academics who work in other institutions, who have been engaged in online distance learning for several years. They share with us how to package online content and assignments. Using this guidance, I need to plan and prepare study guides and work schemes for all my four modules I am responsible for teaching this year (2020) semester one. These are; Organisational Behaviour, Transformation and Change Management, Research Practices and Principles I, Research Practices and Principles III (Author One).

The realisation that online assessments and content had to be packed differently for online teaching, compared to face-to-face teaching, was crucial so that I do not lose students. In face-to-face lectures it is easy to read facial expressions of student to ascertain understanding. However, this was difficult during online lectures where videos are mostly switched off. In line with the fourth category of cognitive presence as the resolution of the issue or problem and application of an idea (Garrison *et al.,* 2000), I noted that:

> Content previously taught face-to- face will now have to be created (using story board technique as per advice from the workshop) in such a way that it will be more

> applicable in the online environment. This meant creating content which will prompt students to apply the knowledge, think critically and not just regurgitate content (Author One).

To enhance the quality and security of the online undergraduate research module, it was crucial to prompt students towards the application of knowledge, not just the demonstration of understanding of concepts.

After having completed the planning and preparations to transition undergraduate research module from face-to-face to online and revising the lecture plans and assessment dates as per the new academic calendar, the next step was to fully teach online using technology, as demonstrated below:

> I am looking forward to conducting my first online lecture on Ms Teams, as I have already witnessed demonstrations from CELT workshops on how to use this platform both as a presenter and facilitator of the session (Author One).

These findings indicate a transition from being in a state of dissonance and dilemma to looking forward to teaching online as a shift in paradigm. Thus, it was more natural to resolve to adopt technology, as I had witnessed numerous possibilities associated with the use of online platforms. This is despite the fact that preparing to teach online requires three or four times as much time as face-to-face teaching, especially for a research module in which students typically struggle with basic concept comprehension and the module itself requires teaching, guiding, mentoring, and supervision of research projects. As the concept of shifting to online platforms gained rapid traction, the laptop became an office, boardroom, workshop and conference venue, lecture venue, and student consultation room.

Adopting Ms Teams is consistent with cognitive presence, since it facilitates live lectures and communication between the lecturer and students, as well as between students. Most lecturers adopted Moodle for online teaching at this institution The decision to decouple from this norm was due to the functions available on Ms Teams which can serve as both a learning and a communication platform. At the start of online teaching of undergraduate research, adopting Ms Teams related to module timeframes and assisting students to decide on research projects to embark on for the semester. Adopting Ms Teams was in full awareness that there needed to be continuous exploration of the various features provided by the platform, in line with the nature of the undergraduate module, whilst embarking on this new online teaching trajectory.

The teaching presence

Teaching presence includes involving students by empowering them to trust themselves as part of the decision-making community, building understanding of the content, utilising technology to facilitate learning and direct instruction. Table 2 below shows the summary of findings in relation to Author One's experiences of the teaching presence.

Table 2: Summary of the findings in relation to teaching presence.

	Implemented Practices Associated with Each Presence	**Factors Enhancing or Impeding Undergraduate Research Online Pedagogy**
Building understanding	Adjusting the writing of the content and assessments previously designed for face-face only, to suit the online environment Building trust between students and lecturer.	Enhancer – communicating with lecturers teaching the same module in other compasses – provision of data by the institution.

	Building understanding of the content and knowledge	Enhancer – inviting comments from students regarding revised content and dates.
Instructional management	Using various features on the platform (e.g., Ms Teams share screed option and channels) for the purpose of enhancing the online experience of undergraduate research module. Developing leadership skills and teamwork skills Encouraging learning by doing	Impeder – knowledge of students regarding the use of the various features of the online platform – one lecturer responsible for all group projects Impeder – group dynamics one member domination Impeder – Staff workloads
Direct instruction	Facilitating acquisition of knowledge related to the discipline focus areas and research concepts. Treating students as co-creators of knowledge Providing guidance Assisting students in developing research proposals Transitioning between lecturer and supervisor role Setting up different channels on Ms Teams Asking students to form their own online groups. Providing detailed assessment feedback as part of teaching and learning Asking students to discuss their planned research proposals, posters depicting selected theoretical framework and plans for designing the research instrument to be used. Confirming understanding and diagnosing challenges Designing assessments to focus more on application of knowledge	Impeder – Staff workloads Impeder – Staff workloads Impeder – Student attendance Impeder – Staff workloads Enhancer – Students registered for computer related modules as part of the qualification. Challenges outside the module

When the national lockdown was announced and we transitioned to online teaching, the assessment had to be revised and the new arrangements communicated to students. I sought to allay student concerns, build trust by inviting their comments on the revised study guide and assuring them that

adjusted assessments could proceed well online as depicted in Tables 3 and 4, a revised work scheme (Table 4) was developed as a new plan for remote teaching and learning from the original one (Table 3).

Table 3: Example of a work scheme compiled in 2019, for 2020 face-to-face lectures prior to COVID (indicating one month only out of the four semester one months)

	Lecture	**Activity**
3 April	Writing objectives and research questions based on identified problem. Literature review Theoretical frameworks	Finalise objectives and research questions
3 April	Methodology Data collection – Reflections of a master's student who has travelled the journey	Deciding on suitable theoretical framework
10 April	Research instruments continued – examples	Analyse one research instrument in line with your focus area
17 April	Assignment Submission	

Table 4: An example of revised work scheme to transition from face-to-face teaching of an undergraduate research module to online teaching (indicating one month only out of the four semester one months)

Week	**Topic to be Discussed During Online Lectures**	**Activity to be Undertaken by Each Research Team**
3 July	Writing objectives and research questions based on the research problem identified	Each research team to finalise objectives and research questions
17 July	Literature review, theoretical framework, and methodology; as well as plans regarding designing the research instrument to be used	Review literature using key concepts and select suitable theoretical framework
30 July	Methodology	
Online Submission of the Assessment		

At this stage, it was also crucial to ascertain students' state of readiness for learning undergraduate research online. The aim was to foreground trust and compassion to mitigate suffering and distress of students (Gilbert *et al.,* 2017). Once it was made clear to students that they could trust the new mode and new plan, the next step was to build understanding. Building understanding of the content through inspiring students to start the process of planning their research group projects indicates practices associated with the teaching presence. This was evident in the following reflection:

> The next step is to assist students during scheduled online lectures, to trust themselves to use the theoretical knowledge they have learnt and thereafter conceptualise, plan and designing their own research projects as groups (Author One).

Students were asked to form their own online research groups so that they could embark on a group research project based on the identified problem. The reflections seem to suggest that asking students to formulate their own research projects in small groups is in line with Patra and Khan (2019), as they also adopt the same practice when teaching research to undergraduate students. This

team-based approach allows for developing teamwork skills and problem-solving skills, even during online teaching and learning. Furthermore, allowing students to trust themselves to drive their own research teams and projects was key to stimulating and sustaining interest and increasing student engagement as they had ownership of the projects. Providing students with the freedom and the autonomy to develop their own research questions and to conduct their own research projects stimulates them to take a leading role (Ommering *et al.,* 2020). This practice is in line with Lisa (2019), who notes that when students engage actively in the content, it enhances their learning. This is crucial in a research module as engaging with the content means allowing problem formulation discussions, literature discussions, and discussions on how the literature applies or does not apply to their chosen projects.

To build research-related knowledge online by means of assisting students to plan and design their research projects in small groups includes setting up different channels on MS Teams in line with the focus area identified by a particular group. The MS Teams channels were named using key concepts from the research projects proposed by students. This allowed for more focused online discussions on one project at a time, guided by students' questions. Whilst Garrison *et al.* (2000) maintain that sharing facilitating amongst academics is crucial in the higher education sector, the reflections indicate that Author One was the only lecturer facilitating online lectures, tutorials, and supervising undergraduate research projects on this campus during the year 2020. This is in contrast with the community led CoI framework, which prioritises collaboration. However, I tried to ensure that I was not dominant as a teacher; I am the facilitator and can provide further assistance, particularly in the selection of qualification-specific focus areas as depicted in this journal entry:

> I need to ensure students are in line with the qualification registered for, some are choosing projects outside their focus areas (Author One).

Assisting students to conceptualise, plan and design their research projects is in line with open communication and interaction (Garrison *et al.*, 2000), as the student and the lecturer have to engage and discuss the projects continuously after the teaching of key concepts. Research Practices and Principles III (2020) propose research projects in information management, security, systems, processes, and biometrics. However, I noted in the journal that,

> I regularly must transition between lecturer roles and supervisor roles when providing advice on the research projects, as they (students) also collaborate to unpack the identified problem. This is extremely difficult, as I have a huge workload (Author One).

Regular, direct instruction online, in line with the revised work scheme, had to be incorporated weekly, as per timetable with the focus of pedagogy. This included first presenting the lecture online using the share-screen option on MS Teams, and thereafter giving students tasks online and providing feedback on tasks during online lectures. These tasks included asking students to communicate their progress regarding the writing of research proposals; plans for designing a poster depicting selected theoretical framework and methodology; as well as plans regarding designing the research instrument to be used. Although I planned to allocate marks for these class tasks, as depicted in Table 2, I eventually dropped this idea due to other challenges reported by students. These challenges are discussed in the social presence section.

For formative assessments contributing to the final mark, online assessment questions required to be uploaded and then effectively explained to students during recorded live lectures. Due to the fact that teaching and learning took place online, students had to think critically regarding their research projects, and I was required to offer more detailed feedback and guide them towards areas of

improvement prior to beginning the next phase. As the teaching presence suggests, these practices were developed in order to enhance learning, create a platform for students to learn by doing, validate comprehension, and identify obstacles. However, the reflections indicate that the challenges were not only related to the module. Students indicated (during lecture time and on e-mail) that they faced numerous problems outside the module. This necessitated the accommodation of requests from students, such as extensions of submission deadlines, with the aim of demonstrating compassion during this difficult time whilst focusing on pedagogy. The focus on pedagogy during COVID-19 lockdowns has been termed by Schwartzman (2020) as pandemic pedagogy, which takes into consideration live interactions, allowing students to drive discussions during lectures and acknowledging the influence of family dynamics in teaching and learning.

The social presence

Given the diversity of the students' experiences, social presence became crucial for the module's transition to online communication and cooperation. Table 5 below shows the summary of findings in relation to Author One's experiences of the teaching presence.

Table 5: Summary of the findings in relation to social presence

Social Presence Indicators	**Implemented Practices Associated with Each Presence**	**Factors Enhancing or Impeding Undergraduate Research Online Pedagogy as Experienced by an Academic**
Expression of emotion	Showing emotions, compassion, and vulnerability online	Impeder - confidentiality in an online space
	Staff and students presenting themselves as real people in the online space.	Enhancer – willingness from an academic to enhance relationship with students.
Open communication	Demonstrating authenticity Sharing experiences and encouragements	Impeder – Staff workloads – Students sending messages at night and on Sundays.
	Encouraging consultations post formal online lecture is through Ms Teams private chats, e-mails, and WhatsApp.	Impeder – language policy excluding African languages for teaching and learning purposes.
Group cohesion	Inspiring students to understand concepts in their own language by introducing bilingual teaching and learning.	Enhancer – opening opportunities for engagement between lecturer and students.
	Encouraging students to form online research teams and collaborate online.	Enhancer – willingness to foreground compassion and care, not just institutional processes, and deadlines
	Adopting humanistic pedagogy and pedagogy of care Encouraging group cohesion between students Building a learning community	

Humanistic pedagogy required of the lecturer to be sensitive to students' feelings during this tough period, to present herself as a genuine person, and to treat them as real individuals online. According to the journal, social presence prioritises emotions.

> Today, a student informed me that her mother has COVID-19 and is admitted to hospital. The student is expressing deep emotions; I need to accommodate this request for late submission (Author One).

Developing social presence focuses on emotional and interpersonal connections (Kreijns, Xu and Weidlich, 2022). In addition, enhancing the social presence online meant opening student access to my personal experiences and challenges regarding learning research as a student. As the post-lecture journal entry reports,

> I had to connect more with students today, to express my emotions during this difficult time and share with them, my personal research journey, in surviving difficult times as a PhD student who is a second-language speaker, I had to instil in them that they can succeed, even during difficult times (Author One).

After sharing my personal journey with students and practising vulnerability, I observed that they were better able to engage socially during online lectures. Prior to lockdowns, these private chats typically occurred in corridors as students escorted me to my office while carrying a box of paper-based handouts. Having such personal discussions was prominent during COVID-19 lockdowns, as it was a period of uncertainty and frustration. Day and Gu (2007) assert that teaching is an emotional work, thus paying attention to emotions focuses on a deeper role of education. This also includes what Jama (2017) refers to as humanistic pedagogy, which incorporates values such as empathy, care, and love into the teaching practices. Empathy refers to a deeper understanding of who the students are, their similarities and differences, their abilities, fully demonstrating that they matter as human beings and that their context matters. It refers to the pedagogy of care (Motta and Bennett, 2018; Bozkurt and Sharma, 2020).

Social presence also entails attention on how online contact occurs between the lecturer and the students. Currently, English is the only official language of teaching at the university. During COVID-19 lockdowns, challenging ideas were explained using isiZulu as a second language of teaching. According to the reflection below,

> Students struggle to understand the concepts such as rationale, research gap and pilot study. Today, I had to incorporate isiZulu to explain the concepts during MS Teams combined class discussions and during Ms Teams group channel discussions. If I throw in a few isiZulu words, students also feel comfortable to ask questions in isiZulu (Author One).

Introducing bilingualism when communicating is in line with Carrillo and Flores' (2020: 468) assertion of social presence as the ability of the participants to engage effectively with the community. The community communicates purposefully in a collaborative environment and develops interpersonal relationships by projecting themselves as the people they are (Garrison *et al.*, 2000; Carrillo and Flores, 2020). This allows for enhanced online connections between staff and students who work from home and converse with their family members using mostly isiZulu. Communicating in an African language represents carrying the social identity online and unpacking the full personality. Introducing an additional language is in line with the current priorities of decolonising teaching and learning in the South African higher education sector and promoting social justice, irrespective of the mode of delivery.

Local examples of current research were shared and discussed with students. This was to alert students to the practical application of research, with the aim of solving existing problems. Encouraging the use of local examples and language was also to inspire students to view research beyond just a semester module. As per the assertion by Lin (Lin and Chen. 2020), teaching strategies can be inspiring. It was crucial during COVID-19 lockdown to adopt inclusive teaching strategies (Molbaek, 2018) that could inspire both staff and students during this difficult time to limit the already present frustrations and pave the way for postgraduate studies. Inclusive teaching adapts to different situations with the aim of moving forward (Molbaek, 2018). This allows for trust, easy communication, and more engagement.

Consulting with students (engagement) emerged from the data as a means of supporting students through providing an opportunity for them to talk (consult) with the lecturer as key in developing social presence. Affording students this opportunity was crucial, as consultations usually took place in the corridors and in the office of the academic. Consultations were conducted via MS Teams private chat, WhatsApp chat with the lecturer, and e-mails, as detailed in the journal entry below:

> I need to encourage open online consultations to indicate to students that I am fully aware that the teaching and learning is taking place during extremely difficult circumstances, thus I am available to alleviate their fears regarding the module. They need to be free to engage with me outside the classroom (Author One).

Although opening this door became too much and overwhelming because of getting countless private messages via e-mail, MS Teams and WhatsApp, it was necessary to do so. Given the number of students and the fact that it was my first time working from home during a lockdown, this was a challenging moment for me as well as for the individual working from home for the first time. Online consultations require careful planning and scheduling so that students do not bombard lecturers with messages 24/7. Consultations also included affording an opportunity for students to communicate with the lecturer before or after the start of the lecture, without switching on the Ms Teams recorder. Scholars (Vinagre, 2017; Theeleen *et al.*, 2020) assert that an effective approach to social presence includes consistent participation, prompt communication regular group discussion, timely and relevant contributions, and commitment to tasks.

As stated under teaching presence, students had to engage continuously amongst themselves in groups to conceptualise the research project. This practice also indicates cognitive presence as the extent to which participants can construct meaning through sustained reflection and communication in a community of inquiry (Garrison *et al.*, 2000:89). Team collaboration has been found to be a positive in online modules, compared to those modules without a collaborative component (Parrish *et al.*, 2021). An online course can assist in developing effective communication skills via multiple media (Rakes and Dunn, 2015). Collaboration and interaction are also a crucial part of social presence. Group cohesion at the start of the online course is crucial in developing social presence. Collaboration is part of the social presence element, as it is aimed at assisting students to unpack the avalanche of information and to differentiate between merely downloading the information and searching for its meaning whilst working in groups (Garrison *et al.*, 2000). However, in the groups that were formed, at times there was a domination of one group member during online class discussions. The extent of this problem during group discussions outside the formal MS Teams class discussions was not investigated. Social presence also incorporates social and emotional awareness during teaching. In addition, communication among students was enhanced by ensuring that assessments are structured in such a way that they encourage group cohesion and composition. For instance, a question on literature review synthesis as part of the research proposal included a requirement that all members of the group should obtain one article, communicate the article, and share the key points amongst group members. This is in line with social presence, which is about

open communication, fulfilled through interactions and showing mutual awareness (Garrison *et al.*, 2000: 101).

Conclusion

The study illuminates the practices adopted in transitioning a research module from face-to-face to online due to the COVID-19 pandemic. Using a Community of Inquiry (CoI) framework, the findings indicate the three presences (Garrison *et al.*, 2000) are adopted during teaching a research module. The adopted practices indicate the importance of academics involved in teaching during a pandemic to be present cognitively, socially, and as co-facilitators in online learning. To be cognitively present means acknowledging the state of dissonance and attending workshops to focus on pedagogy, not just technical skills. The attendance of staff workshops is a crucial step, irrespective of the number of years in academia. Molbaek (2018) suggests that sometimes professionals seek external frameworks for their practices. Social presence involves showing compassion, demonstrating authenticity, introducing bilingual teaching, and learning, adopting humanistic pedagogy, encouraging online group cohesion by means of utilising online features and consulting with students outside the scheduled lecture time. Teaching presence means allowing students to be co-creators of the module, adjusting, and adapting content and assessments to suit the online environment. In the case of undergraduate research modules, shifting between lecturer and supervisor roles is crucial, as is providing detailed assessment feedback as part of teaching and learning.

The findings in this study further indicate factors impacting the teaching of a research module online negatively and the transitioning from face-to-face to online. These include late provision of data, staff workload and the availability of IT-related infrastructure from the side of the student as shown in the cognitive presence. With undergraduate research modules, there is a need to incorporate supervision of research projects as part of the workload, as this usually takes place outside lecture time. The experiences of transitioning to online were both positive and negative. These factors, if not attended to, can impede the quality of undergraduate research modules offered online. In addition, academics continuously need to develop different approaches to teaching and learning (Ngubane *et al.,* 2020), whether online, face-to-face or within a blended mode. One's own pedagogical position is never dormant, but a growing and maturing transformation of mind, practice, and soul (Barley and Southcott, 2019: 2606). This study recommends the addition of 'policy presence' related to staff support and development, teaching guidelines, provision of resources, language policy and evaluation of quality in online teaching. For undergraduate research modules, this should be in pursuit of inspiring and enabling both staff and students to participate in impactful research. Institutions need to take into consideration the interplay between institutional culture(s), structures, and agency (Monnapula-Mapesela, 2017).

Future research may include ascertaining students' views about the online research module, face-to-face module, or blended module. The willingness of students to continue with postgraduate studies and research in the future, after being exposed to undergraduate research modules, could also be explored. This is in order to ascertain self-perceived gains (Patra and Khan, 2019) on the research module at undergraduate level.

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