8.
Editorial
DOLINA DOWLING

10.
Sustainable interactive remote teaching and online learning: a reflexivity case study
REUBEN DLAMINI, UNIVERSITY OF THE WITWATERSRAND, SOUTH AFRICA
FATIMA MAKDA, UNIVERSITY OF THE WITWATERSRAND, SOUTH AFRICA

30.
The enactment of critical digital pedagogical (CDP) practices through pedagogical reasoning
NAZIRA HOOSEN, UNIVERSITY OF THE WITWATERSRAND, SOUTH AFRICA
NOZUKO MAKHUVHA UNIVERSITY OF THE WITWATERSRAND, SOUTH AFRICA
NATASHA MUNSAMY UNIVERSITY OF THE WITWATERSRAND, SOUTH AFRICA

50.
Let's slow it down- re-imagining Life orientation education in higher education
JANET JARVIS, UNIVERSITY OF KWAZULU-NATAL, SOUTH AFRICA
SARINA DE JAGER, UNIVERSITY OF PRETORIA, SOUTH AFRICA

65.
The framing of course design tools for an online pre-service teacher training course to activate ESD in subject teaching
WILMA VAN STADEN, RHODES UNIVERSITY, SOUTH AFRICA
ROB O'DONOGHUE, RHODES UNIVERSITY, SOUTH AFRICA
HEILA LOTZ-SISITKA, RHODES UNIVERSITY, SOUTH AFRICA

79.
Emergency remote teaching during COVID-19: an examination of selected secondary school teachers' experiences on technology integration in Namibia
JOHANNA MUNYANYO, RHODES UNIVERSITY, SOUTH AFRICA
CLEMENT SIMUNJA, RHODES UNIVERSITY, SOUTH AFRICA

93.
Investigating discourse inspiring ICT integration in primary schools: the case of three teachers in Lesotho
BONNQE TAOLANE, UNIVERSITY OF THE FREE STATE, SOUTH AFRICA
THUTHUKILE JITA, UNIVERSITY OF THE FREE STATE, SOUTH AFRICA

111.
Teachers' enactment of project-based learning within the Ecubed project in Grade Four Life Skills classrooms
ELIZABETH MOKWENA, UNIVERSITY OF JOHANNESBURG, SOUTH AFRICA
DEAN VAN DER MERWE, UNIVERSITY OF JOHANNESBURG, SOUTH AFRICA
LERATO NDABEZITHA, UNIVERSITY OF JOHANNESBURG, SOUTH AFRICA

125.
Practitioners' Corner
Higher Education in Iraqi Kurdistan: Rethinking Psychological Principles in Student-Centred Learning Approach
HOZAN LATIF RAUF, KURDISTAN TECHNICAL INSTITUTE, IRAQ
ZHWAN NAMIQ AHMED, KURDISTAN TECHNICAL INSTITUTE, IRAQ
SARDAR S SHAREEF, TISHK INTERNATIONAL UNIVERSITY, IRAQ.

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Address for correspondence
Dr Brenda van Wyk
Managing Editor
The Independent Journal of Teaching and Learning
PO Box 2369
Randburg 2125
South Africa
E-mail: editor@iie.ac.za

Contents

Volume 19 (2) 2024

Notes on contributors

8
Editorial
Dolina Dowling

10
Sustainable interactive remote teaching and online learning: a reflexivity case study
Reuben Dlamini, University of the Witwatersrand, South Africa
Fatima Makda, University of the Witwatersrand, South Africa

30
The enactment of critical digital pedagogical (CDP) practices through pedagogical reasoning
Nazira Hoosen, University of the Witwatersrand, South Africa
Nozuko Makhuvha University of the Witwatersrand, South Africa
Natasha Munsamy University of the Witwatersrand, South Africa

50
Let's slow it down- re-imagining life orientation education in higher education
Janet Jarvis, University of KwaZulu-Natal, South Africa
Sarina de Jager, University of Pretoria, South Africa

65
The framing of course design tools for an online pre-service teacher training course to activate ESD in subject teaching
Wilma van Staden, Rhodes University, South Africa
Rob O'Donoghue, Rhodes University, South Africa
Heila Lotz-Sisitka, Rhodes University, South Africa

79
Emergency remote teaching during COVID-19: an examination of selected secondary school teachers' experiences on technology integration in Namibia
Johanna Munyanyo, Rhodes University, South Africa
Clement Simunja, Rhodes University, South Africa

93
Investigating discourse inspiring ICT integration in primary schools. The case of three teachers in Lesotho
Bonnqe Taolane, University of the Free State, South Africa
Thuthukile Jita, University of the Free State, South Africa

111
Teachers' enactment of project-based learning within the Ecubed project in Grade Four life skills classrooms
Elizabeth Mokwena, University of Johannesburg, South Africa
Dean van der Merwe, University of Johannesburg, South Africa
Lerato Ndabezitha, University of Johannesburg, South Africa

125
Practitioners' Corner
Higher Education in Iraqi Kurdistan: Rethinking psychological principles in student-centred learning approach
Hozan Latif Rauf, Kurdistan Technical Institute, Iraq
Zhwan Namiq Ahmed, Kurdistan Technical Institute, Iraq
Sardar S Shareef, Tishk International University, Iraq

List of Reviewers

Notes on contributors

Bonnqe Taolane is a PhD student at University of the Free State (UFS) South Africa, pursuing research in science and technology education. Her focus is on ICT integration in primary schools in Lesotho. Bonnqe is currently the Director of Assessment and Evaluation at Examinations Council of Lesotho (ECoL), the national assessment body for basic education in the country. She has presented papers at SAARMSTE 2021 virtual conference and AEAA 2022 conference. She has also presented a number of papers at UFS postgraduate student conferences.

Clement Simunja is a Senior Lecturer in the Faculty of Education at Rhodes University who has worked for the past 13 years researching the integration of digital technology into schools, universities and adult learning. His research uses critical social theories and philosophical thinking to examine 'real-life' constraints and problems faced when technology-based education is implemented. He is currently working on a research project examining the complex roles of and interplay among three main components of learning environments: content, pedagogy, and technology.

Dr Dean van der Merwe is a senior lecturer in the Faculty of Education at the University of Johannesburg, South Africa. He holds a BEd, BEd Honours, MEd, and PhD from UJ. His research focuses on teacher education, particularly the preparation of pre-service teachers. He previously taught in primary education.

Dr Janet Jarvis is a Senior Lecturer at the School of Education, University of KwaZulu-Natal, South Africa. In both undergraduate and post-graduate programmes, she lectures in Social Sciences Education and, more specifically, the social development aspects of Life Orientation Education. She holds a Master's degree (cum laude) from Stellenbosch University and a Doctoral degree from North-West University (Potchefstroom). Her research interests include teacher identity, Religion Education and Human Rights in Education. She has presented papers at many national and international conferences and published several journal articles and book chapters. She developed a research methodology, Empathetic-Reflective-Dialogical Restorying, which she has used extensively in her research, exploring human rights issues, including gender equality, gender-based violence, and xenophobia, with her students. Slow Pedagogy underpins this methodology, promoting teaching praxis that is both reflective and reflexive. Dr Jarvis will retire in 2025 after a career of 42 years dedicated to education, both in secondary and tertiary education.

Dr Lerato Ndabezitha is a lecturer in the Department of Childhood Education at the University of Johannesburg. South Africa. She holds a BEd, BEd Honours, MEd, and PhD from UJ. A participant in the nGAP program, her research emphasises teacher education, play-based learning, and teaching. She has published locally and internationally.

Dr Nazira Hoosen is an academic and educational developer at the Centre for Learning, Teaching and Development (CLTD) at the University of Witwatersrand, South Africa. She holds a PhD within the broader field of the interdisciplinary digital knowledge economy. Her research focuses on the critical use of educational technologies and artificial intelligence (AI) in learning and teaching.

Dr Sardar S Shareef completed a PhD in the Department of Architecture, Faculty of Architecture at the Eastern Mediterranean University in North Cyprus. Sardar has numerous publications on innovative methods and pedagogies applied in architectural education and teaching/learning technical courses, designing interior spaces for autistic children, and semiotics in architecture.

Dr Wilma van Staden is an accomplished educator and researcher based at Rhodes University South Africa. With a focus on Environmental Education and Education for Sustainable Development (ESD), Dr. van Staden has played a pivotal role in developing innovative learning programmes that integrate sustainability and digital transformation. Her work spans various collaborative international projects, including the Erasmus+ ProCyD and SEED initiatives, where she is involved in designing online courses that promote co-engaged active learning. Dr. van Staden's research interests include sustainable livelihoods, circular economy, and the integration of Indigenous Knowledge Systems in education. She is also the co-developer of the Amanzi for Food project, which supports water-smart agricultural practices in rural communities. With a strong commitment to transformative education, Dr. van Staden continues to influence the landscape of higher education, fostering knowledge-building for sustainable futures in both African and global contexts.

Elizabeth Mokwena is an alumna who graduated with a Master's degree from the University of Johannesburg, South Africa. Her dissertation focused on teachers' implementation of project-based learning within the E3 project. She is currently employed as an intermediate phase teacher in northern Johannesburg.

Fatima Makda is an Associate Lecturer in Educational Information and Engineering Technology at the Wits School of Education, University of the Witwatersrand, South Africa. Her research is centred on digital transformation in education, focusing on the intersection between Education and Information Technology. She investigates how the integration of digital technologies and innovative digital pedagogies can enhance educational access and create more inclusive learning environments. Through her work, she aims to promote equitable access to education.

Hozan Latif Rauf is a Ph.D. holder in architecture at the Eastern Mediterranean University in North Cyprus. She also obtained her MSc in Interior architecture at the same university. Now, she is an instructor at Kurdistan Technical Institute and previously taught several courses at Tishk International University-Sulaimani. Her main research interest is architectural education, pedagogical methods, and interior design.

Johanna Munyanyo is a PhD scholar at Rhodes University, South Africa. With a wealth of experience in teaching with digital technology in secondary schools, Joana has honed her expertise in leveraging technology to enhance the learning process. Her research focuses on the practices that facilitate or hinder the development of technological pedagogical content knowledge among rural secondary school teachers. By investigating these practices, she aims to gain a deeper understanding of the challenges faced by educators in rural areas when integrating technology into their teaching methods. Through her work, she aspires to identify effective strategies and approaches that can empower rural teachers to harness the potential of technology in their classrooms. She is passionate about narrowing the digital divide and ensuring equitable access to quality education for all students, regardless of their geographical location.

Natasha Munsamy is an educational development officer at the Centre for Learning, Teaching and Development (CLTD) at the University of Witwatersrand, South Africa. She joined Wits in 2021. She holds a PG Diploma in Higher Education and is currently completing a Master's in Education in ICT. She is passionate about using technology to enhance student learning experiences and supporting lecturers in the design of better learning experiences.

Nozuko Makhuvha is an educational development officer at the Centre for Teaching, Learning and Development (CLTD) at the University of Witwatersrand, South Africa. She holds a Master's degree in Educational Technology from Wits university. She is experienced in academic support, content development and management in the higher education space.

Professor Heila Lotz-Sisitka is a distinguished academic at Rhodes University South Africa, where she holds the Murray & Roberts Chair of Environmental Education and Sustainability in the Education Department. With an extensive career in Education for Sustainable Development (ESD), she has been a pioneering force in advancing transformative learning and sustainability education in South Africa and globally. Prof. Lotz-Sisitka's work focuses on social learning, curriculum innovation, and systems thinking, contributing significantly to policy development and educational reforms that emphasize sustainability. She has led numerous national and international research projects, including the Fundisa for Change programmes, and has published widely on sustainability, social-ecological resilience, and the role of education in transformative societal change. Prof. Lotz-Sisitka is recognized for her interdisciplinary approach, integrating critical theory and environmental education to foster collaborative learning environments. Her contributions to the field have earned her numerous accolades, making her a key figure in shaping sustainable education practices globally.

Professor Reuben Dlamini is an Associate Professor in Educational Information and Engineering Technology at the Wits School of Education, University of the Witwatersrand, South Africa. His research focus cuts across multiple disciplines Computer Science, Information Technology and Educational Technology, and involves implementation and evaluation of complex digitalisation and pedagogical integration of ICT interventions in education to improve access to quality education and reduce educational inequalities in resource-constrained contexts.

Professor Rob O'Donoghue is an Emeritus Professor at Rhodes University's Environmental Learning Research Centre, where he has made significant contributions to Environmental

Education and Education for Sustainable Development (ESD). With a PhD in Environmental Education from Rhodes University, South Africa, his work has focused on integrating Indigenous Knowledge Systems and heritage knowledge into education. Prof. O'Donoghue is renowned for his research on critical realism, sustainability education, and innovative learning platforms. Throughout his career, he has led key projects such as Fundisa for Change, developing teacher education resources like HandPrint CARE to promote sustainability in schools. His work has been recognized with several awards, including the WESSA Lifetime Conservation Achiever Award. Prof. O'Donoghue has published extensively on ESD, including recent contributions to international conferences and journals. His legacy continues to shape transformative education and sustainability practices in South Africa and beyond

Professor Thuthukile Jita is an Associate Professor in the Department of Curriculum Studies and Higher Education. She is also a Program Director for Teaching Practice and the Research coordinator for the Instructional Leadership and Curriculum Implementation Studies (ILCIS) group in the Faculty of Education at the University of the Free State (UFS), South Africa. She also serves on the Faculty of Education ethics committee and Faculty Advisory board. Prof Jita is also a previous Teaching Advancement in Universities (TAU) fellow awardee, and a Thuthuka National Research Foundation (NRF) grant-holder from 2015 to 2023. She has extensively published research articles and supervised several Masters and Doctoral candidates to completion. Her research interests include curriculum studies, pre-service teacher education, use of Information Communication and Technologies (ICTs) in subject teaching, E-Learning, Work Integrated Learning (WIL), and science education. Thuthukile is a reflective practitioner with a passion for teaching and enjoy transferring knowledge and skills to others.

Sarina de Jager is a registered Educational Psychologist and a Senior Lecturer in Humanities Education at the University of Pretoria, South Africa. With a solid commitment to enhancing the educational experience, her research focuses on well-being in education. Recently, she has explored the intricate connection between the well-being of students in higher education and their experiences of vulnerability and worthiness. Through her work, Sarina highlights the importance of emotional and psychological support in fostering a healthy learning environment. Additionally, she is passionate about integrating mindfulness into education, believing that cultivating awareness and presence can significantly improve students' academic and personal growth. Her interests also extend to concepts such as wisdom, courage, and self-transcendence, which she considers essential for developing resilient and compassionate individuals. By engaging with these themes, Sarina seeks to inspire educators and students to prioritise well-being as a fundamental aspect of the educational journey.

Zhwan Namiq Ahmed holds an MSc in Computer Science from Sulaimani University, Iraq, where she also completed her Bachelor's degree in 2014. Currently, she serves as an Assistant Lecturer at the Kurdistan Technical Institute. With six years of experience, she worked as an assistant programmer at the University of Human Development (2016–2021) and as a web developer at BAM Light Company (2014–2015). Her research interests include Data Provenance, Graph Representation, Computer Vision in IoT, and deep learning models.

Editorial

Dolina Dowling

The use of technology in education is not new. However, the plethora of advanced technologies pervading every aspect of the education journey is. The COVID-19 pandemic necessitated the abrupt closure of education organisations for face-to-face teaching and the shift to online learning. While many higher and further education institutions had already implemented online learning in programmes or some elements thereof, the pandemic accelerated this transition. In addition, the democratisation of education through MOOCs (Massive Open Online Courses) was well established, particularly in the Global North. Technological advances have increased accessibility to education. However, little had been done in the basic education sector in South Africa and the Global South more generally. (As noted in previous editorials, the digital divide is leaving more and more children behind with little prospect of catching up with their peers in well-resourced regions.)

The shift to online learning and teaching not only shows no signs of diminishing but is exponentially increasing. This can be attributed to advanced technologies (EdTech 4.0) such as Artificial Intelligence (AI), machine learning, robotics, and the Internet of Things (IoT). The use of AI in many higher education institutions helps to inform *inter alia* recruitment, student programme selection, pedagogy and assessment. AI allows for personalised learning paths through data analytics *which* track student learning styles, performance, identify learning gaps, and tailor courses to meet individual needs. Virtual Reality (VR) and Augmented Reality (AR) provide immersive engaging learning experiences. Taken together these enhance the efficiency and effectiveness of the student learning journey. The Fourth Industrial Revolution (4IR) continues at pace!

As a consequence, societal and economic needs are changing which has *inter alia* implications for educators and programme delivery. Educators need to be come agile facilitators and mentors. Pedagogical innovations are required to meet the skills required in this rapidly changing environment. Hence, educators need to keep abreast with the AI and other technologies to deliver high quality, meaningful and engaging learning programmes.

Concomitantly, people need to be lifelong learners to be competitive in the evolving labour market. Technologies are being used in industries ranging from call centres to law. Chatbots, for instance, are increasingly sophisticated and can deal with routine customer problems. While less opportunities may be available due to automation, higher level skills are needed such as critical thinking, creativity, problem solving, and emotional intelligence. As stated by the OECD

'Effective higher education is crucial to support citizens and countries with advanced knowledge and skills needed to flourish in an era of fast-paced technological change' (oecd.org/higher-education).

It is a *sine non qua* that for learners to have a successful learning journey, a number of critical features need to be present. The use of technological tools does not obviate requirements such as clear measurable learning outcomes that are aligned with programme aims and assessments; pedagogy that is engaging, interactive and which promotes reflection, critical thinking and problem solving. Crucially, underpinning any successful learning journey, access to digital resources and to an inclusive and safe learning environment are prerequisites. A brief perusal of, for instance, UNESCO and World Economic Forum (WEF) documents attest to this. For instance, UNESCO's Sustainable Development Goal 4 emphasises the need for inclusive and equitable quality education (www.unesco.org).

Of particular interest in this 2024 19(2) edition of *The Independent Journal for Teaching and Learning* (IJTL) is the use of technology in programme delivery. The focus is on pedagogy for success. The first four articles examine the use of technology in higher education, albeit from quite different standpoints.

The first provides a model for pedagogical reasoning and action. This model demonstrates how reflective practices can enhance digital teaching methods and promote inclusivity within blended learning environments. In the next paper, the use of critical pedagogical reasoning in online teaching environments is explored. Such practice is shown to be effective in supporting positive learning experiences. In the third, the authors use the conceptual framework of Slow Movement in particular Slow Pedagogy in the facilitation of a Life Orientation programmes in an HEI. They find that using Talking Circles as part of a decolonial agenda can lead to a sustainable and transformative education system. The fourth paper explores course design tools for an online Pre-Service teacher training. These provide benefits such as supporting sustainable development initiatives through practical work, and the integration of Indigenous Knowledge Systems (IKS).

The following three articles explore technology use in school education. In the first, the authors examine the gap between policy and practice in ICT pedagogy in Lesotho's education system. They identify challenges such as the need for essential technological resources and digital literacy skills. The findings of the second, echo the first albeit with a different research question. The authors investigate the experiences of secondary school teachers in Namibia due to the shift to online learning during the pandemic. Issues needing addressing include access to digital technologies, as well as professional development opportunities for teachers in digital literacy skills. The third article concerns the use of Project-Based Learning (PBL) within the Ecubed project in Grade Four Life Skills classrooms. The research shows that while teachers understood its key elements and ways to enhance implementation, challenges remain for successful implementation.

In *Practitioners' Corner*, the authors explore the use of student-centred learning, and the challenges associated with the move from teacher-centred in Iraqi Kurdistan.

Sustainable interactive remote teaching and online learning: A reflexivity case study[1]

Reuben Dlamini, University of the Witwatersrand, South Africa
Fatima Makda, University of the Witwatersrand, South Africa

ABSTRACT

A key concern in creating accessible and sustainable tertiary education is the practicalities of remote teaching and online learning in an unequal society. These complexities challenged us to reflect on our professional practices to enhance students' experiences and to better understand our actions in the use of digital learning platforms. This article is conceptual and exploratory and shares the experiences of two lecturers. A reflective practice approach was adopted, and our experiences with Microsoft Teams as a pedagogical tool are presented and analysed. Additional references were collected from reliable sources to situate this paper in relevant contemporary research and triangulate data sources. We found that Microsoft Teams as an education enabler afforded lecturer-to-student engagement, student-to-student collaboration, and student-to-content interaction. This article contributes to the literature on virtual conferencing tools, such as Microsoft Teams, and how it can be used as a learning management system and a pedagogical tool.

Keywords: digital pedagogical tool, sustainability, remote teaching, online learning, MS Teams

INTRODUCTION AND BACKGROUND

During times of disruption, like pandemics and student unrest, lecturers are challenged to continue teaching and maintain a professional presence in the digital education paradigm. The rapid shift from physical face-to-face teaching to remote teaching and online learning environments 'push education into uncharted areas', and higher education institutions (HEIs) globally must match their digital innovations to students' needs (Alenezi et al., 2023: 2). According to Hopwood (2023: 2), learning 'assumes a socially constructed process that is influenced by the learning environment and its associated norms, as well as by the interactions between the learner(s) and others within it'. The intersection of technology, in this case virtual

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platforms, with pedagogy and content is important to reach an acceptable level of pedagogical integration of digital innovations in teaching and online learning. Digital innovations create new possibilities to improve teaching and enhance learning, but one of the biggest challenges is that lecturers lack knowledge of digital technologies, digital pedagogies, and instructional design principles (Dlamini & Ndzinisa, 2020; Mhlongo et al., 2023).

The shift to digitalisation initiates the adoption of remote teaching and online learning, resulting in lecturers in HEIs globally investing time and expending effort to prepare content and learning activities conducive to a remote teaching and online educational environment. During this preparation, lecturers must ensure the design and delivery of the online course do not forgo access and inclusivity at the HEI. Yet, there is evidence that digital tools and learning platforms provide an integrated platform that supports technology-orientated education and is an enabler for active learning (Dlamini, 2022). Hence, inclusivity and epistemic access became our lens in this reflexivity case study. This meant focusing on student academic diversity and social identities in our lesson design and development and the remote facilitation of our courses. Along the reflexivity line was pragmatism 'that encourages us to seek out the processes and do things that work best to help us achieve desirable ends' (Sharma et al., 2018: 1549). Reflexivity is aimed at 'exploring the problematic issues emerging from educational practices and processes; creating connections among different educational actions; inscribing specific educational situations and experiences within a systemic frame of reference' (Striano, 2017: 184). Thus, it was imperative for us to rethink our instructional practices beyond the technocratic processes of modernisation. As a result, reflexivity became an enabler to simplify the increasing levels of complexity in equitable access to tertiary education to redress the injustices of the past. The fundamental premise, acknowledging the diversity of the students and their context, was lecturers considering a variety of tools, methods, and applications to ensure equitable access to continuous learning for all students.
In South Africa, the top priority is

> improving how digital technology is used in teaching and learning, acquiring the knowledge and abilities needed to live and work in the digital age, and enhancing education through improved data analysis and foresight (Alenezi et al., 2023: 2).

One of the tools used in the transition to remote teaching and online learning is Microsoft (MS) Teams. MS Teams is a virtual conferencing tool with high usability. Usability refers to 'the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use' (Barnum, 2020: 11). MS Teams became an education enabler by affording the continuation of the academic year during the pandemic by providing ubiquitous access to lecture sessions and seminar conferences and enhancing student-to-student and lecturer-to-students interactivity, engagement, and collaboration (Roque-Hernández et al., 2021).

According to Mahmud and Wong (2023: 385), virtual learning platforms emphasise 'collaboration, real-time interactions and discussions between educators and students, mobile-accessible online lectures, and timely feedback'. Therefore, the intersection of virtual learning platforms and virtual conferencing tools supported the transition to remote teaching and ubiquitous learning. Consequently, lecturers must plan, design, and develop online learning

experiences in an appropriate educational platform to 'address educational imbalances to create equal education opportunities' (Dlamini, 2022: 14). Importantly, digital learning platforms 'extend beyond the ideology of learning management systems and massive open online course platforms' (Mhlongo & Dlamini, 2022: 11). We initially used MS Teams only as a virtual conferencing tool to provide lectures and seminars, but while learning about the multiple affordances of MS Teams through an iterative and incremental process, it has now become an integral part of teaching and learning. In everyday lecturing, the delivery of multimodal content and ubiquitous learning has been enabled through the MS Teams platform (Ma et al., 2021).

Therefore, through self-reflexivity (Ruby, 1980), the study aimed to generate insights into MS Teams as a pedagogical tool during pandemics and student unrest to enable multimodal instruction, lecturing and student interaction, classroom organisation, and presentations. We used our practical experiences as a data generation approach and as tools for reflective practice analysis to share our digital solution to remote teaching and online learning. As lecturers responding to the complexities arising during times of disruption, we needed a reflexive approach so academic staff can position their technological knowledge to intersect with content and pedagogical knowledge. The reflexive approach served as a barometer for our classroom practices to adapt teaching because digitalisation is no longer an option imposed by pandemics but an education solution to achieve inclusivity and ubiquitous learning. The following questions guided this study:

What are some of the affordances of MS Teams?

How can MS Teams be used as a pedagogical tool in remote teaching and online learning?

How can MS Teams be used to afford disciplinary, pedagogical, practical, fundamental, and situational learning?

CONTEXT OF THE STUDY

The shutdown of South African HEIs as a result of the #FeesMustFall movement (Maringira & Gukurume, 2016; Naicker, 2016) and the COVID-19 lockdown revealed the need for flexible and resilient education systems (Ali, 2020) and a pedagogical shift from traditional teaching methods to online education (Mishra et al., 2020), in other words, a digitalised curriculum (Khoza & Mpungose, 2022). During the pandemic, educational institutions adopted remote teaching and online learning to ensure teaching continuity for both conceptual/theoretical-related and practical-related courses at undergraduate and postgraduate levels. Teaching theoretical components of a subject was perceived to be simple, but it was more complex to strike the balance between theory and practice in an online environment, specifically, the pedagogy of teaching digital education and information technology-related courses with concepts of information and communication technologies integration, programming (an algorithmic problem-solving subject), web design, and development.

Digital tools such as MS Teams and learning management systems (LMSs) became central to the transition, and according to Reddy et al. (2020), information and communication technology tools have been denoted as key drivers for achieving the United Nations' Sustainable Development Goals. MS Teams can be described as a chat and collaborative platform because

it offers chat, meeting, and attachment functionality for groups to communicate and collaborate (Poston et al., 2020). The functionality of MS Teams affords a virtual interactive teaching and learning environment, allowing lecturers to create virtual interactive environments where students learn, engage, communicate, share ideas, and collaborate to gain a better understanding and construct their knowledge (Vygotsky, 1978). Vygotsky's (1978) work is foundational in understanding social learning and knowledge construction, and its core principles remain highly relevant to contemporary educational contexts, although the specific technological area has evolved significantly since it was written. His emphasis on social interaction, social learning, and scaffolding is particularly applicable to virtual learning environments where students collaborate and construct knowledge through interaction with peers and the teacher. In addition to the consideration of social learning, the Sustainable Development Goals 'are a blueprint for addressing the global challenges like poverty, inequality, climate, environmental degradation, prosperity, peace and justice and achieving a better sustainable future' (Reddy et al., 2020: 69). While conducting this research, we were cognisant of the digital inequalities, and therefore, drew on pedagogical research and best practices to design multimodal content and engaging instructional activities.

Related literature reviewed

In recent years, the landscape of education has undergone a significant transformation with the advent of digital education (Alenezi et al., 2023). Digital education is the use of digital pedagogies and technologies to enhance teaching and learning and can be used to deliver instruction (Jha et al., 2024), provide access to resources, and facilitate communication and collaboration between students and academics (Garrison & Anderson, 2003). While published in 2003, Garrison and Anderson's work remains influential in defining the core elements of online learning environments, particularly in terms of the importance of interaction, presence, and community. Their conceptualisation of these elements continues to be relevant in understanding the dynamics of contemporary digital education. Digital education encompasses a wide range of digital pedagogical methodologies and technologies, including computers, tablets, smartphones, the internet, and LMSs, that are crucial components of modern educational systems. This shift in modern educational systems has been driven by the need for more accessible, flexible, and sustainable educational practices (Goh & Abdul-Wahab, 2020).

Digital education affords a scalable solution beyond time and space that breaks down geographical barriers using remote teaching and online learning (Dlamini, 2022; Mhlongo et al., 2023). Remote teaching can be delivered through a variety of technologies, including video conferencing and LMSs. This mode of instructional delivery has become increasingly popular due to the rise of digital technologies and the increasing demand for flexibility in education. The #FeesMustFall movement (Maringira & Gukurume, 2016) and the COVID-19 pandemic further revealed the need for flexible and resilient education systems (Ali, 2020) and the critical importance of remote teaching and online learning. These crises highlighted the resilience and adaptability of digital education, demonstrating its capacity to ensure continuity of learning in times of disruption. Remote teaching and online learning not only provide a safety net during times of disruption for instructional continuity but also offer a flexible and convenient mode of instructional delivery of education that accommodates various schedules, preferences, and circumstances, thereby reinforcing the sustainability of educational systems.

Remote teaching and online learning, enabled by virtual conferencing platforms and LMSs, can play a key role in making education more accessible and sustainable. Virtual conferencing platforms can be described as applications or systems that facilitate virtual gatherings among individuals over the internet (Al-Samarraie, 2019). Virtual video conferencing allows lecturers to create meeting sessions and groups for tutorials and to provide learning resources to their students (Ismail & Ismail, 2021; Simamora et al., 2020). The affordances of virtual conferences in the context of the remote teaching and online learning space include:

(i) accommodating interactions between large numbers of people
(ii) allowing communication with colleagues, students, and social groups
(iii) providing a platform for attendance of and engagement with lectures and seminars
(iv) providing a platform for students to consult with lecturers
(v) encouraging collaboration with peers
(vi) 'real-time' meetings
(vii) post-class lecture recordings, and (8) promoting interactive and collaborative online learning (Hacker et al., 2020; Ismail & Ismail, 2021; Simamora et al., 2020).

Pather et al. (2023: 25) defined online learning as 'learning experiences that occur in synchronous, asynchronous, and hybrid learning environments using different devices that require internet access'. During times of disruption, it is necessary to produce equitable multimodal instruction to handle the complexities of online education and meet and achieve course objectives for students to have an overall great learning experience (Mishra et al., 2020). This can be done using virtual conferencing tools.

MS Teams is an example of a virtual conferencing tool. It is a product of Microsoft and is described as an integrated virtual conferencing, communication, and collaborative platform. LMSs are an important educational innovation that offer great opportunities for social constructivist pedagogy and ubiquitous learning (Dlamini & Ndzinisa, 2020). MS Teams contains a variety of functionalities, such as online chats, meetings, and file sharing and can be used in face-to-face, hybrid, and online contexts (Martin & Tapp, 2019; Poston et al., 2020; Sobaih et al., 2021). Silva et al. (2022) found that MS Teams is used mainly as a video conferencing tool, for file sharing, and for its chat functions.

However, MS Teams offers many more affordances, and we use it to present and share teaching materials, create groups, and discuss with students through chat. Video conferencing can be used to supplement the LMS (Mpungose, 2021). MS Teams works well to complement the LMS used at the HEI, and at times, acts as a LMS as it offers functionality to share files, develop content, and foster discussions (Lusitania & Anindya, 2021; Rojabi, 2020), which promote an interactive teaching and learning environment. Some of the affordances we experienced, and use are discussed in the following subsections. The video and audio-conferencing functionality of MS Teams enables lecturers to create virtual classrooms for lectures and seminars and to mostly manage these as traditional face-to-face classrooms (Sobaih et al., 2021). Like face-to-face teaching, when there is a timetable, lecturers can use MS Teams to deliver live virtual lessons for many students during a particular time slot (Pal & Vanijja, 2020).

The virtual classrooms allow smooth interactions between lecturer and students and between students and students, and the enhanced efficient organisation and effective management add to an astounding teaching and learning experience (Olugbade & Olurinola, 2021). It allows students to participate in extensive interactions and discussions (Poston et al., 2020), and importantly, increases their social presence in an online environment (Aldosari et al., 2022). Francisco (2022) stated that it is imperative to ensure there are many opportunities for student interactions as student engagement within online environments is critical.

THEORETICAL UNDERPINNINGS

The ideological inconsistencies in digital education and online learning prompted much reflection on our part as information technology lecturers. A reflexivity approach was used as reflexivity occurs when researchers 'systematically and rigorously reveal their methodology and themselves as the instrument of data generation' (Ruby, 1980: 157). Reflexivity is an ongoing critical self-awareness of the researcher's assumptions, biases, and positionality, and how these factors may influence the research process and outcomes (Finlay & Gough, 2008). Pragmatism suits reflexivity and is based on two principles, namely '(i) education should have a social function, and (ii) education should provide real-life experience to the child' (Sharma et al., 2018: 1549). Our principle was experimentation and the adoption and appropriation of MS Teams as an enabler of interactive remote teaching and online learning.

As lecturers we have a dual role as educators and learners, and hence, it was important for us to continuously experiment with various digital technologies to restructure our instructional activities. Hence, a reflective practice approach was adopted and conceived in terms of theory and methodology to advance virtual teaching and online learning. Pragmatists 'want to construct a flexible, dynamic and integrated curriculum which aids the developing child and the changing society more and more as the needs, demands, and situation require' (Sharma et al., 2018: 1552), and therefore, we had to embrace inclusivity and an epistemic access lens that acknowledged students' diversity and context as we explored MS Teams as a virtual teaching and online learning tool.

This was premised on a reflective practice approach being based on life situations and experiences within the context of professional practice, which provides a significant means for persons to learn and promotes continuous development. Central to this value is the potential of reflective practice to enable practitioners to develop digital expertise to achieve instructional equity. Instructional equity requires education practitioners to employ intellectual standards for reasoning to devise pedagogical strategies and tools that enhance student learning and practice in a global context (Lay & McGuire, 2010). Our dual role in the transition to remote teaching and online learning was premised on Dewey's four distinct criteria for the reflection process, namely '(a) meaning making, (b) disciplined inquiry, (c) interaction, and a (d) desire for growth' (McGuire & Lay, 2020: 522). Our day-to-day interactions of incorporating MS Teams as an enabler of virtual teaching, online engagement, and social interactions allowed us to understand students' unique learning requirements, and in the process, reduced the need for physical classroom resources.

RESEARCH METHODOLOGICAL APPROACH

The current study employed the pragmatism research paradigm, which acknowledges the value of multiple perspectives and emphasises the practical application of knowledge in addressing complex research questions (Peirce, 1905). Pragmatism allows for the integration of diverse methods and encourages researchers to adapt their approaches based on the specific needs of the study (Creswell & Creswell, 2017). A qualitative reflexive approach was adopted to delve deeply into the experiences and perspectives of the authors and their use of MS Teams as a pedagogical tool. To inform the study, a scoping review was conducted to map out the existing research literature in the area. Self-reflexivity was integrated in the research process to critically examine the researchers' influence on the study and the data interpretation. This combination of these research approaches allowed for a comprehensive exploration of the research topic. The study strongly emphasised the practical application of virtual teaching and online learning to provide insights and recommendations that can directly inform the effective use of MS Teams as a video conferencing tool, LMS, and overall education enabler. By focusing on practical applications, this study aimed to offer actionable digital pedagogical strategies for academics to enhance teaching and learning experiences using MS Teams as a digital pedagogical tool.

Data for this study were primarily collected using our reflexive research diaries. The diaries served as a tool for us to record personal reflections, observations, and insights throughout the research process that relate to various experiences using different digital technologies such as MS Teams and the LMS (Fort, 2022). This method allowed for the immediate documentation of thoughts and emotions, providing a rich source of qualitative data that capture the researchers' evolving perspectives and experiences. Additional references were collected to put this study in perspective of relevant contemporary research and triangulate data sources to confirm or corroborate our experiences. This was done by searching ISI, Department of Higher Education and Training (DHET) accredited databases, and Google Scholar for the keywords 'MS Teams in education', 'affordances of MS Teams', 'learning management system', 'reflective practice', 'remote teaching', 'online engagement', 'online learning', and 'instructional equity'.

The data from previous literature identified through a scoping review and the data recorded in our diaries between February 2022 and June 2023 were thematically analysed following a process of open and axial coding (Strauss & Corbin, 1998). While published in 1998, Strauss and Corbin's approach remains a foundation of qualitative data analysis. Their framework for identifying patterns and developing theoretical constructs continues to be widely used and adapted by researchers across disciplines. This paper adopted their core principles to uncover the underlying themes within the data. The initial codes were generated through a close reading of our diary entries to identify recurrent themes, patterns, and emerging concepts. These codes were then organised into broader categories and refined through an iterative process of constant comparison. Through this paper, we share our reflections on adhering to instructional design principles and the affordances of digital tools by drawing on empirical studies and our experiences as academics and information technology practitioners to illustrate the complexities of remote teaching and online engagement.

While this methodology was designed to capture the dynamic nature of the phenomenon under study, it is important to acknowledge potential limitations, such as the subjective nature of reflective data. To ensure the trustworthiness of the findings, the quality criteria that were used

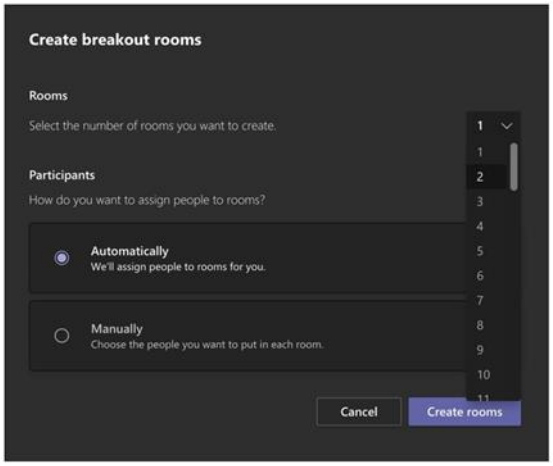
included dependability, transferability, confirmability, and credibility. To implement this criterion, the following strategies were implemented: (i) prolonged engagement and discussion between the authors, (ii) persistent observation during lesson sessions and post lesson reflections, (iii) detailed documentation through reflexive journaling, (iv) triangulation of findings against literature, (v) member checking that involved seeking feedback from students across different courses that were taught using MS Teams as a pedagogical teaching tool to validate the interpretations of the data (Lincoln & Guba, 1985), and (vi) peer debriefing that involved engaging in discussions with colleagues with diverse backgrounds, perspectives, and expertise who were not directly involved in the research but who also used MS Teams to provide a broader range of feedback so we could gain additional perspectives and insights (Creswell & Creswell, 2017). These measures aimed to ensure the rigour and trustworthiness of the findings. As data were not collected from participants but rather through reflexive journaling, the ethics considerations revolved around researcher integrity in terms of acknowledging bias and transparency. To address and mitigate these, during our prolonged engagement and discussions as authors, we regularly questioned our assumptions and interpretations and received feedback from each other on alternative perspectives.

Our journey to MS Teams as a pedagogical tool

Given the affordances discussed and demonstrations that follow, it is evident that MS Teams can be used as a pedagogical tool for virtual teaching and online learning. MS Teams provides the necessary features to achieve the four elements of online learning, namely 'interaction; social presence; structure; and satisfaction' (Ismail & Ismail, 2021: 2). It became important for us to study various studies on learners' engagement to design and develop interactive teaching resources to ensure effective facilitation. Some of the mundane activities such as attendance were automated using the 'auto-generated function of attendance list' (Ismail & Ismail, 2021: 4). The meeting room in MS Teams expanded learning opportunities, discussion, and collaboration among students that were not constrained by time and space.

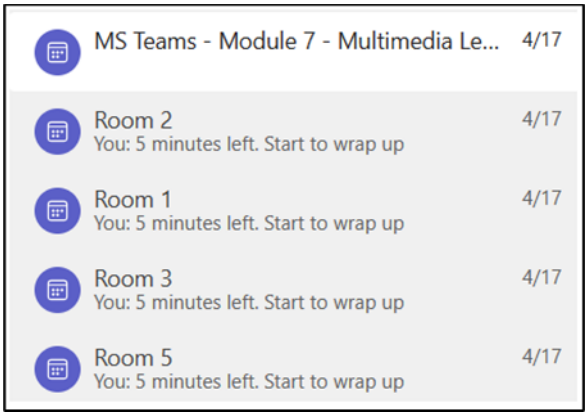
There is an opportunity to create multiple smaller private virtual areas to allow smaller groups of students to interact, collaborate, build an understanding of concepts, increase knowledge, and work on assignments (Krašna & Pesek, 2020). Roque-Hernández et al. (2021) concluded that interactive communication positively influences student engagement. When using MS Teams, the lecturer can request that it automatically creates breakout rooms with the number of suggested students per room provided by the lecturer or the lecturer can manually assign students to each of the breakout rooms, as illustrated in Figure 1. This functionality becomes applicable when strategically distributing students into groups by aligning them to their common areas of expertise or teaching subjects, thus avoiding the bystander tendency of randomly assigned students (Hopwood, 2023).

Figure 1:
The window used to create breakout rooms in MS Teams



As students work in their smaller groups, the lecturer can move between the various smaller virtual groups in their separate breakout rooms and facilitate learning by ensuring the students are moving in the correct direction. This is like a teacher walking around a conventional classroom during group work discussions and activities. The lecturer can also post announcements to all the breakout rooms at the same time. Like the chat function, posting the announcement gets stored in the chat area of each breakout room, as shown in Figure 2.

Figure 2:
An announcement sent to different breakout rooms in MS Teams



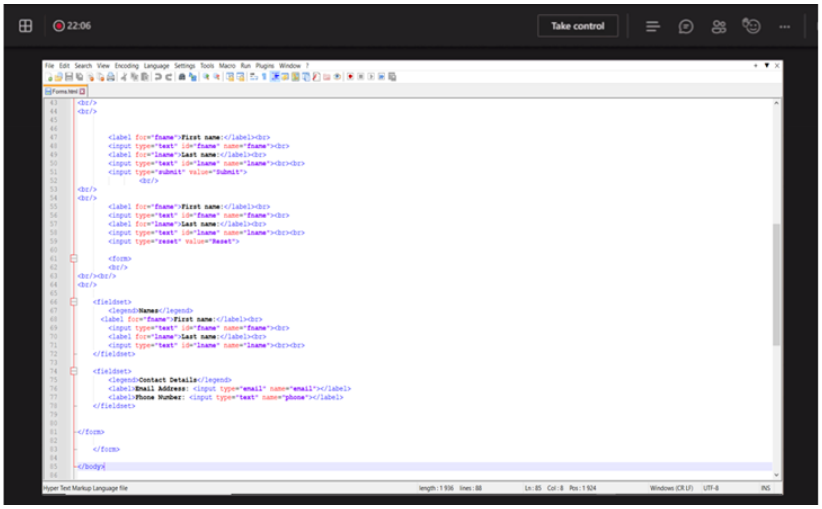
Moreover, the virtual consultations and meetings feature allows lecturers to hold virtual consultations and meetings with students. These can include providing additional 'contact' time for students to discuss content and close knowledge gaps or correct misconceptions they may have, and meetings and supervisory consultations between students and supervisors to complete research conceptualisations and reports. The consultations can either be one-on-one between the lecturer and a student or between a lecture and multiple students. Screen-sharing is used during lectures and seminars to present course materials, such as displaying an MS PowerPoint presentation, for teaching and discussing topic concepts (Figure 3). The interactive

whiteboard is used to increase interaction during explanations and discussions (Phan & Huynh, 2021).

Figure 3:
An MS PowerPoint slide displayed using screen-sharing in MS Teams

As some students are new to computers and programming/web development and require additional support, walkthroughs and demonstrations can be provided by duplicating and sharing the lecturer's entire computer screen lecturer to display the process. This makes explanations easier as students can see what the lecturer is explaining and can follow step by step, even when moving between different applications and screens (Figure 4). This is like a face-to-face demonstration where a projector displays a screen at the front of the computer lab and students learn and work on their computers.

Figure 4:
Use of screen-sharing for a demonstration in MS Teams



Lecturers and students can share information and learning resources, such as files, images, notes, and links (Pal & Vanijja, 2020), by adding files to certain folders and subfolders and

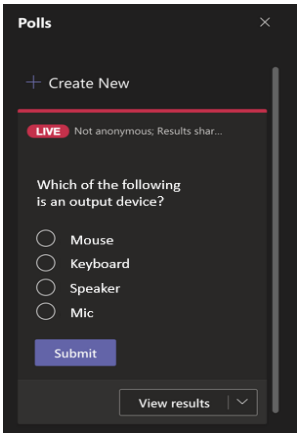
sharing the location with participants of the course. It is also possible to share a link to access cloud storage (Krašna & Pesek, 2020). Participants can then access information and learning resources shared by their lecturers and fellow students during and outside of class times, which has a good impact on knowledge construction and a positive learning experience (Sobaih et al., 2021). In other words, it is accessible both synchronously and asynchronously and works well in both these modes (Pal & Vanijja, 2020). In addition, shared documents can be accessed and updated by multiple participants at the same time, thus encouraging knowledge construction through interactive and collaborative activities.

Other critical features in MS Teams are recordings, the chat functionality, assessment, and attendance. MS Teams allows the host and other participants to record the session, depending on how it is set up. Lecturers can record sessions for their students to engage with the lecture recording after the session (Pal & Vanijja, 2020). These recordings are saved in an audio-video file like a podcast or vodcast, which participants can access after the session is complete should they need to watch it repeatedly or revise a certain concept, or even if they missed the session due to other commitments or disruptions such as load shedding or poor network connectivity (Gumede & Badriparsad, 2022; Sevnarayan & Mohale, 2022). Students who are unable to attend an online class because of load shedding and/or poor network connectivity can access the recording and engage with the session content as soon as it is convenient.

The chat functionality allows one-on-one communication between students and between the lecturer and students (Krašna & Pesek, 2020). One of the more prominent functions is that all chats are stored in a central place and that the chat history can be accessed, allowing lecturers or students to access previous communications and important points. This is advantageous to summarise key points that students can access when they are revising the covered content.

MS Teams provides an assessment functionality. Assessments can be developed for the participants, and MS Teams can automatically mark the assessment based on predefined criteria and parameters (Pal & Vanijja, 2020). While we have not used the full functionality of the affordances of assessments in MS Teams, we conducted quick concept checks and asked questions through the chat function using the poll functionality (Baker & Spencely, 2020). This can be seen in Figure 5.

Figure 5:
Using polls in MS Teams



The poll functionality allows for real-time responses and results, allowing the lecturers to identify any misconceptions or misunderstandings that students have of concepts being taught and to immediately resolve them. Moreover, this function is used for evaluation purposes for the lecturer to improve their pedagogical practices or the course design. Occasionally, we also used third-party apps, such as Slido, MS Forms, or Google Forms, to conduct quick assessments or for question-and-answer scenarios. A link to the third-party apps can be shared with the students through the MS Teams chat platform to allow them to access the apps. MS Teams creates a digital footprint for a timestamped attendance log containing all participants' movements to and from the virtual online session (Leonardi, 2021). It contains a summary of the virtual session's details, the participants in attendance, and their movement within the virtual session itself (Figure 6). This information can be downloaded into an MS Excel spreadsheet.

Figure 6:
Extract of a MS Teams attendance log

1. Summary					
Meeting title	MS Teams - Module 7 - Multimedia Learning				
Attended participants	27				
Start time	4/17/23, 3:42:50 PM				
End time	4/17/23, 7:30:05 PM				
Meeting duration	3h 47m 15s				
Average attendance time	2h 6m 41s				
2. Participants					
Name	**First Join**	**Last Leave**	**In-Meeting Duration**		
Lecturer	4/17/23, 3:59:21 PM	4/17/23, 5:01:22 PM	3h 39m 3s		
Student 1	4/17/23, 3:55:16 PM	4/17/23, 7:29:55 PM	3h 34m 37s		
Student 2	4/17/23, 3:55:23 PM	4/17/23, 7:29:44 PM	3h 34m 13s		
3. In-Meeting Activities					
Name	**Room Type**	**Room Name**	**Join Time**	**Leave Time**	**Duration**
Lecturer	Main meeting		4/17/23, 3:59:21 PM	4/17/23, 7:30:05 PM	3h 30m 44s
Lecturer	Breakout room	Room 2	4/17/23, 4:44:11 PM	4/17/23, 4:46:04 PM	1m 53s
Lecturer	Breakout room	Room 5	4/17/23, 4:47:05 PM	4/17/23, 4:48:35 PM	1m 29s
Lecturer	Breakout room	Room 6	4/17/23, 4:52:20 PM	4/17/23, 4:53:47 PM	1m 26s
Lecturer	Breakout room	Room 2	4/17/23, 4:59:01 PM	4/17/23, 5:00:07 PM	1m 6s
Student 1	Main meeting		4/17/23, 3:55:16 PM	4/17/23, 4:39:42 PM	44m 25s
Student 1	Breakout room	Room 1	4/17/23, 4:39:42 PM	4/17/23, 5:23:21 PM	43m 39s
Student 1	Main meeting		4/17/23, 5:23:21 PM	4/17/23, 7:29:55 PM	2h 6m 33s
Student 2	Main meeting		4/17/23, 3:55:23 PM	4/17/23, 4:39:42 PM	44m 18s
Student 2	Breakout room	Room 7	4/17/23, 4:39:45 PM	4/17/23, 5:23:20 PM	43m 35s
Student 2	Main meeting		4/17/23, 5:23:23 PM	4/17/23, 7:29:44 PM	2h 6m 20s

The spreadsheet in Figure 6 is helpful for attendance registers for students to help determine their Due Performance/Satisfactory Participation or even for attendance registers on various research projects. Our experience is that students log into a session and then multitask. Therefore, in addition to using the attendance log to measure attendance, students are provided with interactive and/or collaborative activities during the sessions that must be completed to contribute towards their understanding of concepts and their attendance status. Lastly, MS Teams is a multi-device application that allows for timely communications (Roque-Hernández et al., 2021) and interactions with the lecturer and other participants in the course, enhancing interactions between course participants.

DISCUSSION

As we considered the challenge to educate students beyond the physical spaces bounded by time, we realised that although we have been explicit about our use of MS Teams, we have not fully articulated how we aligned with the five types of learning, namely disciplinary, pedagogical, practical, fundamental, and situational learning (DHET, 2015). The reflexive practice required us with our dual identity of educators and lifelong learners to go beyond the well-researched technological affordances and to focus on the students' context and institutional practices. This was possible because reflexivity 'involves the ability to understand how one's social locations and experiences of advantage or disadvantage have shaped the way one understands the world' (Landy et al., 2016: 1). Hence, when exploring the affordances of MS Teams, it became important to look at the dynamic interplay of instructional delivery in online environments with the five types of learning, which collectively provide comprehensive categories for the various dimensions of learning, ultimately shaping the effectiveness and experience of education in virtual modalities.

Disciplinary learning

Disciplinary learning refers to disciplinary or subject-matter knowledge that looks at the acquisition of knowledge, skills, and competencies within a specific academic discipline. This involves having a thorough comprehension and mastery of subject-specific methodologies or techniques and content. Within this sphere of learning, MS Teams can be used to provide online lectures and content delivery through synchronous lectures, the provision of asynchronous recordings or videos, and teaching materials that cover the core subject content through screen-sharing, slides, and other related shared content. We were able to conduct live coding sessions during which we wrote programs in real-time while explaining the concepts and breaking down and describing each part of the code in the program for the students. As we taught, the MS Teams polls functionality was integrated to assess students' understanding of the subject content. We also used breakout rooms to facilitate smaller group discussions or complete collaborative activities, allowing students to delve deeper into the topic or module-specific content.

Hopwood (2023) found that it is necessary to create smaller student groups using breakout rooms because it is more conducive to debate and discussion. She also stated that students working with randomly assigned students create bystander tendencies as the students are not familiar with each other, leading to students being intimidated and uncomfortable. Therefore, it is important to invest time in planning lessons and designing the content, activities, and groups

in such a manner that it enables interaction and engagement. In addition to the breakout rooms, we also created online discussion forums through our university's LMS that allow students to engage in in-depth conversations about a specific module or topic.

Pedagogical learning

Pedagogical learning focuses on the principles, techniques, and strategies related to teaching and learning. It involves understanding how to effectively deliver information, engage learners, and facilitate their understanding (DHET, 2015). The importance of pedagogical content knowledge (Shulman, 1987) is highlighted here. Within the sphere of pedagogical learning, MS Teams can be used to provide virtual workshops on effective online teaching techniques and pedagogies, including classroom management, student engagement, curriculum design, assessment strategies, and teaching methods. These can also be displayed or taught to students through the lecturer's teaching while demonstrating some teaching techniques or displaying effective practices while conducting their class. While we teach our students, we demonstrate how effective methods can be used to teach programming concepts using live demonstrations.

Furthermore, through our Teaching Methodology courses, we engage in discussions on teaching strategies, lesson planning, and assessment methods applicable to programming. Students are also given the opportunity to present their lessons during virtual sessions where both lecturers and fellow peers can observe and provide constructive feedback on their techniques. Additionally, students can create videos of themselves teaching that can be shared with the lecturer and peers for asynchronous review and feedback. Either method can lead to a deep discussion of strengths and developmental areas in the student's teaching.

Practical learning

Practical learning emphasises the application of theoretical knowledge in real-world contexts (DHET, 2015), and includes acquiring practical skills, problem-solving capabilities, and the capacity to apply knowledge in real-world scenarios. Within this sphere of learning, MS Teams was used by leveraging screen-sharing and interactive tools to share code snippets or projects for review and to debug code together as a class. We also used simulations of coding environments using online integrated development environments or platforms like Eclipse or NetBeans for practical questions and activities. In courses like science, this can be used to implement virtual labs and simulate experiments that allow students to conduct virtual experiments or engage in online practical activities. Students can work together in their assigned groups and virtually solve problems. Breakout rooms can again be used to facilitate group work, collaborative assignments, or practical assignments.

In instances where students need to meet face-to-face for surgery practice or a lab practical, for example, mixing chemicals for a chemical reaction, a blended approach is advised to allow students to use the virtual simulation to see which components should be mixed, which reactions should occur, and what could happen. This will allow students to be better prepared for the experiment and to better understand the result of the experiment when they conduct it. We provided opportunities to students to conduct code reviews and pair programming sessions by working together in pairs or groups. The presentation and discussions of case studies of real-life instances were done using shared documents and the whiteboard feature in MS Teams;

these tools can also be used during brainstorming sessions. Other collaborative digital tools and applications like Google Docs were also used.

Fundamental learning

Fundamental learning refers to the development of foundational skills that are essential for academic success and lifelong learning and includes 'learning to converse competently in a second official language, the ability to use information and communication technologies competently, and the acquisition of academic literacies' (DHET, 2015: 13). Again, it is important to plan and design lessons well in this sphere of learning.

We used MS Teams breakout rooms or third-party discussion forums to facilitate language exercises during which learners analyse and discuss concepts. Digital technologies like Google Docs, Google Slides, or Jam Board afford real-time collaborative editing, fostering the use of information and communication technologies and promoting information literacy. Our students also shared language-specific code snippets for analysis, emphasising fundamental programming concepts like if statements, loops, and data structures.

Situational learning

Situational learning acknowledges that learning takes place outside traditional classroom environments, and includes the knowledge gained from everyday experiences, work, and life circumstances (DHET, 2015). MS Teams affords interactions and communication across time and space, meaning that lecturers can invite guest speakers or have webinars with experts in the field who can provide advice and share best practices in the industry, and even practical applications of theoretical knowledge. A practical example of this is us inviting a guest lecturer who specialises in the module's content for a topic taught in the Digital Education programme. There were no extra travel expenditures or too much time spent on organising the event because the guest lecturer was able to conveniently log in at the time of her presentation to present the content and leave her details should any student have questions or wish to engage further, and once done, she effectively left the session.

Furthermore, virtual networking events or discussions can be facilitated to help students connect with industry professionals and other peers in the field. We provide students with coding projects and assignments that mirror real-world scenarios or are part of current or previous case studies as it requires them to use problem-solving skills commonly used in the industry. There are also instances where students can locate virtual opportunities for freelance work or make contributions to open-source projects or questions asked by others on the internet. For subjects like science, third-party applications and screen-sharing can be used to create virtual trips or visit relevant sites.

CONCLUSION

There is evidence that digital innovation facilitates social pedagogy and fosters a deeper integration of digitalisation in higher education, 'leading to the modernization of educational content, pedagogical technologies, and the learning environment' (Chernysh et al., 2023: 164). Despite the many challenges in the adoption and appropriation of digital technologies in HEIs, integrating new technology and adopting new educational approaches enable skills revolutions that are underpinned by digital innovations to ensure inclusive and equitable quality education

(African Union, n.d.). Therefore, the capacity for reflexivity is critical in the improvement of teaching and various dimensions of learning in the digital education paradigm. MS Teams as an integrated virtual conferencing, communication, and collaborative platform can be used for online, hybrid, and blended courses. The features we see as important in MS Teams is its integration with the MS Office suite, such as Word, Excel, PowerPoint, and OneNote, file sharing, grouping, and real-time meetings.

MS Teams is an education enabler with a fully interactive learning environment that affords a variety of lecturer-to-student communications, interactions, and engagement. It offers student-to-student collaboration and communication, increasing overall social presence in an online environment. It allows lecturers to synchronously and asynchronously present course content to students in small or large numbers across multiple locations in different time zones. Given its affordances, it can be used as a pedagogical tool in virtual teaching and online learning for both conceptual/theoretical-related and practical-related courses at undergraduate and postgraduate levels, covering all five types of learning, namely disciplinary, pedagogical, practical, fundamental, and situational learning.

Digital technologies have led to transformative pedagogy that helped HEIs overcome teaching complexities, particularly with the use of virtual conferencing platforms. During the COVID-19 lockdown, the use of virtual conference platforms in remote teaching and online learning became the *modus operandi* to reduce the loss of teaching and learning time. Thus, MS Teams was used as it supports a student-centred remote teaching and learning environment. It is an appropriate tool for ubiquitous teaching and also expands learning opportunities for students not bounded by time and space. Importantly, the recording feature allows students to have continuous access to presentations and pedagogical activities beyond the scheduled time and promote active learning.

REFERENCES

African Union. (n.d.). *Linking Agenda 2063 and the SDGs*. https://au.int/agenda2063/sdgs

Aldosari, A. M., Alramthi, S. M. & Eid, H. F. (2022). Improving social presence in online higher education: Using live virtual classroom to confront learning challenges during COVID-19 pandemic. *Frontiers in Psychology, 13*, 7048.

Alenezi, M., Wardat, S. & Akour, M. (2023). The need of integrating digital education in higher education: Challenges and opportunities. *Sustainability, 15*(6), 4782.

Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *Higher Education Studies, 10*(3), 16-25.

Al-Samarraie, H. (2019). A scoping review of videoconferencing systems in higher education: Learning paradigms, opportunities, and challenges. *International Review of Research in Open and Distributed Learning, 20*(3), 122-140.

Baker, L. A. & Spencely, C. (2020). Blending Microsoft Teams with existing teaching environments to increase access, inclusivity and engagement. *Journal of the Foundation Year Network, 3*, 3-20.

Barnum, C. M. (2020). Usability testing essentials: Ready, set... test!. Burlington, MA: Morgan Kaufmann.

Chernysh, V., Melnyk, A., Konotop, O., Meljnyk, K. & Matkovska, N. (2023). Integration of the latest information and communication technologies into pedagogical practice: Impact analysis, effectiveness and challenges on the way to sustainable implementation in higher education. *Cadernos de Educação Tecnologia e Sociedade, 16*(1), 163-172.

Creswell, J. W. & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Department of Higher Education and Training. (2015). *Policy on the minimum requirements for teacher education qualifications*. PretoriaL Government Gazette.

Dlamini, R. (2022). *Towards a critical perspective on digitalisation and initial teacher education: Moving beyond the brick and mortar*. Proceedings of the 14th Annual AIS SIG GlobDev Pre-ICIS Workshop, Copenhagen, Denmark, Saturday December 10, 2022. https://aisel.aisnet.org/globdev2022/14

Dlamini, R. & Ndzinisa, N. (2020). Universities trailing behind: Unquestioned epistemological foundations constraining the transition to online instructional delivery and learning. *South African Journal of Higher Education, 34*(6), 52–64.

Finlay, L., & Gough, B. (Eds.). (2008). *Reflexivity: A practical guide for researchers in health and social sciences*. John Wiley & Sons.

Fort, E. (2022). Managing our personal traits in the field: Exploring the methodological and analytical benefits of mobilizing field diaries. *International Journal of Social Research Methodology*, *25*(3), 345-356.

Francisco, M. J. R. (2022). Perceptions on the use of Microsoft Teams as a platform for learning English in terms of interaction and learning environment: A quantitative study. *International Journal on Integrated Education, 5*(4), 16-30.

Garrison, D. R. & Anderson, T. (2003). *E-learning in the 21st century: A framework for research and practice*. Routledge.

Goh, P. S. C. & Abdul-Wahab, N. (2020). Paradigms to drive higher education 4.0. *International Journal of Learning, Teaching and Educational Research*, *19*(1), 159-171.

Gumede, L. & Badriparsad, N. (2022). Online teaching and learning through the students' eyes–Uncertainty through the COVID-19 lockdown: A qualitative case study in Gauteng province, South Africa. *Radiography, 28*(1), 193-198.

Hacker, J., vom Brocke, J., Handali, J., Otto, M. & Schneider, J. (2020). Virtually in this together–how web-conferencing systems enabled a new virtual togetherness during the COVID-19 crisis. *European Journal of Information Systems, 29*(5), 563-584.

Hopwood, I. (2023). Peerless? How students' experience of synchronous online teaching can disrupt the development of relationships to peers, teachers, subject and self. *Research and Practice in Technology Enhanced Learning, 18*, 007.

Ismail, S. & Ismail, S. (2021, May). Teaching approach using Microsoft Teams: Case study on satisfaction versus barriers in online learning environment. *Journal of Physics: Conference Series, 1874*(1), 012020.

Jha, S., Jha, M. & Xu, J. (2024). Teaching and Learning in the Digital Era: Opportunities and Challenges. *Teaching and Learning in the Digital Era: Issues and Studies*, 51-85.

Khoza, S. B. & Mpungose, C. B. (2022). Digitalised curriculum to the rescue of a higher education institution. *African Identities, 20*(4), 310–330.

Krašna, M. & Pesek, I. (2020). Influence of Moodle and MS Teams on teaching-learning-studying (TLS) processes. In *2020 43rd International Convention on Information, Communication and Electronic Technology (MIPRO)* pp. 612-616. IEEE.

Landy, R., Cameron, C., Au, A., Cameron, D., O'Brien, K., Robrigado, K., Baxter, L., Cockburn, L., O'Hearn, S., Oliver, B. & Nixon, S. (2016). Educational strategies to enhance reflexivity among clinicians and health professional students: A scoping study. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 17*(3), 1-24.

Lay, K. & McGuire, L. (2010). Building a lens for critical reflection and reflexivity in social work education. *Social Work Education, 29*(5), 539-550.

Leonardi, P. M. (2021). COVID-19 and the new technologies of organizing: Digital exhaust, digital footprints, and artificial intelligence in the wake of remote work. *Journal of Management Studies, 58*(1), 249.

Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.

Lusiyani, R. & Anindya, W. D. (2021). Choosing and using learning media during remote teaching: Teachers' thought. *Journal of English Language Teaching and Linguistics, 2*(6), 407-423.

Ma, X., Azemi, A. & Buechler, D. (2021, October). Integrating Microsoft Teams to promote active learning in online lecture and lab courses. *In 2021 IEEE Frontiers in Education Conference (FIE)* (pp. 1-9). IEEE. Mahmud, M. M. & Wong, S. F. (2023).

Through the lens of students: MS Teams as a sustainable pedagogical tool. In *2023 11th International Conference on Information and Education Technology (ICIET)* (pp. 385-390). IEEE.

Maringira, G. & Gukurume, S. (2016). 'Being Black' in #FeesMustFall and #FreeDecolonisedEducation: Student protests at the University of the Western Cape. In M. Langa (Ed.) *#Hashtag: An analysis of the #FeesMustFall Movement at South African universities* pp.35-48. Centre for the Study of Violence and Reconciliation.

Martin, L. & Tapp, D. (2019). Teaching with teams: An introduction to teaching an undergraduate law module using Microsoft Teams. *Innovative Practice in Higher Education, 3*(3), 58-66.

McGuire, L. E. & Lay, K. A. (2020). Reflective pedagogy for social work education: Integrating classroom and field for competency-based education. *Journal of Social Work Education, 56*(3), 519-532.

Mhlongo, S. & Dlamini, R. (2022). Digital inequities and societal context: Digital transformation as a conduit to achieve social and epistemic justice. In *Innovation Practices for Digital Transformation in the Global South: IFIP WG 13.8, 9.4, Invited Selection* pp.1-15. Springer International Publishing.

Mhlongo, S., Mbatha, K., Ramatsetse, B. & Dlamini, R. (2023). Challenges, opportunities, and prospects of adopting and using smart digital technologies in learning environments: An iterative review. *Heliyon*, 9(6), e16348.

Mishra, L., Gupta, T. & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open, 1*, 100012.

Mpungose, C. B. (2021). Lecturers' reflections on use of Zoom video conferencing technology for e-learning at a South African university in the context of coronavirus. *African Identities, 21*(2), 1-17.

Naicker, C. (2016). From Marikana to #feesmustfall: The praxis of popular politics in South Africa. *Urbanisation*, *1*(1), 53-61.

Olugbade, D., & Olurinola, O. (2021). Teachers' perception of the use of Microsoft Teams for remote learning in South-western Nigerian schools. *African Journal of Teacher Education, 10*(1), 265-281.

Pal, D. & Vanijja, V. (2020). Perceived usability evaluation of Microsoft Teams as an online learning platform during COVID-19 using system usability scale and technology acceptance model in India. *Children and Youth Services Review, 119*, 105535.

Pather, S., Lawack, V. & Brown, V. (2023). Key indicators informing students' perceptions of online learning and academic performance during the COVID-19 pandemic. *The Independent Journal of Teaching and Learning, 18*(1), 22-38.

Peirce, C. S. (1905). What pragmatism is. *The Monist,* 161-181.

Phan, T. N. T. & Huynh, T. N. D. (2021). Improving non-majored students' fluency in the English speaking skill in the online environment via MS Team. In *Proceedings of the AsiaCALL International Conference* (Vol. 533, pp.97-105). AsiaCALL.

Poston, J., Apostel, S. & Richardson, K. (2020). *Using Microsoft Teams to enhance engagement and learning with any class: It's fun and easy*. https://encompass.eku.edu/pedagogicon/2019/guidinggrading/6/

Reddy, P., Sharma, B. & Chaudhary, K. (2020). Digital literacy: A review of literature. *International Journal of Technoethics, 11*(2), 65-94.

Rojabi, A. R. (2020). Exploring EFL students' perception of online learning via Microsoft Teams: University level in Indonesia. *English Language Teaching Educational Journal, 3*(2), 163-173.

Roque-Hernández, R. V., Díaz-Roldán, J. L., López-Mendoza, A. & Salazar-Hernández, R. (2021). Instructor presence, interactive tools, student engagement, and satisfaction in online education during the COVID-19 Mexican lockdown. *Interactive Learning Environments, 31*(2), 1-14.

Ruby, J. (1980). Exposing yourself: Reflexivity, anthropology, and film. Semiotica, 30(1-2), 153 179.

Sevnarayan, K. & Mohale, N. E. (2022). Overcoming transactional distance through implementing podcasts and vodcasts: Perceptions from an open distance and e-learning university. *International Journal of Pedagogy and Teacher Education, 6*(2), 116-125.

Sharma, S., Devi, R. & Kumari, J. (2018). Pragmatism in education. *International Journal of Engineering Technology Science and Research, 5*(1), 1549-1554.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-23.

Silva, S., Fernandes, J., Peres, P., Lima, V. & Silva, C. (2022). Teachers' perceptions of remote learning during the pandemic: A case study. *Education Sciences, 12*(10), 698.

Simamora, R. M., De Fretes, D., Purba, E. D. & Pasaribu, D. (2020). Practices, challenges, and prospects of online learning during COVID-19 pandemic in higher education: Lecturer perspectives. *Studies in Learning and Teaching, 1*(3), 185-208.

Sobaih, A. E. E., Salem, A. E., Hasanein, A. M. & Elnasr, A. E. A. (2021). Responses to COVID-19 in higher education: Students' learning experience using Microsoft Teams versus social network sites. *Sustainability, 13*(18), 10036.

Strauss, A. & Corbin, J. (1998). *Basics of qualitative research techniques*. Sage Publications.

Striano, M. (2017). Reflexivity and educational professions. *Pedagogia Oggi, 15*(2), 175-186.

Vygotsky, L. (1978). Interaction between learning and development. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind and society: The development of higher psychological processes* (pp.79-91). Harvard University Press.

The enactment of critical digital pedagogical (CDP) practices through pedagogical reasoning[1]

Nazira Hoosen, University of the Witwatersrand, South Africa
Nozuko Makhuvha University of the Witwatersrand, South Africa
Natasha Munsamy University of the Witwatersrand, South Africa

ABSTRACT

This study explores how facilitators' pedagogical reasoning influences critical digital pedagogy (CDP) in online teaching environments at a Centre for Learning, Teaching and Development (CLTD) dedicated to supporting academics. Using an expanded transformative learning theory and the model for pedagogical reasoning and action as the theoretical framework, this research aligns with a qualitative paradigm. Pedagogical reasoning in CDP practices is examined through a reflective journal, serving as the primary research instrument and data source. Thematic analysis revealed key themes, including digital creativity, safe-ish spaces, selecting and tailoring activities, co-creation, self-awareness, and transcending knowledge boundaries. The study underscores the importance of deep reflection through pedagogical reasoning grounded in phronesis, illustrating how critical practice in CDP fosters the development and implementation of inclusive teaching settings in blended learning (BL) environments.

Keywords: critical digital pedagogy, pedagogical reasoning, expanded transformative learning theory, reflective practice, reflective journal

INTRODUCTION AND BACKGROUND

Apart from the various calls for a transformative higher education (HE) learning and teaching (L&T) practice (Bucklow & Clark, 2000; UNESCO, 2015), this study is relevant because it is important for academics to engage in reflective teaching practice through pedagogic reasoning (the invisible and cognitive aspects that under labour L&T practices). Invisible aspects relate to reflecting on that which cannot be observed but may be demonstrated within a specific context. Pedagogic reasoning is important because academics possess content knowledge that needs to be transformed into more accessible forms which require deep reflection. Since such practices remain important pedagogically, we believe that research on it is needed because it provides for adjusting and responding to L&T complexities such as questioning societal norms, inclusivity

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and promoting social justice in South African HE, while raising facilitator and participant awareness of underlying L&T beliefs and assumptions. More so, in the online space, one way of promoting inclusive teaching practices is to engage in critical digital pedagogies (CDP), which is the epistemic contribution that this study addresses within the context of a Global South research intensive university. Drawing from critical pedagogy, CDP emphasises the critical and reflective use of educational technology (Edtech) in HE. In conceptualising CDP practice, there is no singular definition that exists as it is an emerging field. However, for sense-making, we align to Stommel (2014), Rowe (2018), Morris and Stommel (2018a), Stommel et al. (2020), Masood and Haque (2021), Lunevich (2022), Rowell (2022) and Köseoğlu et al. (2023) in Hoosen's (2023: 33) view of CDP as follows

> The alignment of critical pedagogical principles to online L&T in various contexts albeit with overt focus on social relations. This involves deep critical pedagogic principles when employing digital tools, systems, and practices in L&T, while challenging power dynamics and social oppression through enacting a humanising pedagogy (an approach where teachers influence students through fostering critical consciousness).

Hence the key principles of CDP practice such as critical engagement with Edtech, empowerment, inclusivity, accessibility, collaboration, community, reflection and ethical use of Edtech demonstrate how CDP differs from other forms of pedagogy since its addresses the complex role of Edtech in HE L&T practices.

This study constitutes phase one of two phases in the enactment of CDP practices against the background of the Facilitating Online course, a professional learning course for academics, modelled on CDP philosophy and based on an Open Educational Resource (OER). The course spanned eight weeks and was offered twice a year with each iteration being distinctive, due to continuous reflection and action within a rotating group of co-facilitators and consideration of participant feedback, which were documented. From our literature scan, we noticed that there has been growing interest in CDP practices due to the move to blended or fully online L&T environments. We also noticed that scholarly literature in this area is emerging, and a diversity of voices remains insufficient within the Global South context.

In the first phase of this study, we chose to focus on our reflexive and reflective[2] practices (Hoosen, 2023) through pedagogical reasoning, as facilitators of the Facilitating Online course. Our approach to reflection builds on Birmingham's (2004: 314) pedagogical reflection theory founded on phronesis, a quality which Aristotle embodied as a 'unifying and essential habit of the mind'. Our attraction to this model of reflection suggests reflective practice that is regular and holistic, instead of a once-off reflective attempt. To understand our experiences and how social and other structures shape these perceptions, we aligned with the expanded transformative learning theory (Mezirow, 1991; Cranton, 2016). Our reflective approach,

[2] Reflexive practice aligns to ways that we question our own thinking, values, attitudes, assumptions, partialities, and habits to understand the complexity of our roles in terms of others. Reflective practice relates to our epiphany about something not thought about in time but rather after the event.

closely aligning with this theory, and Birmingham's (2004) distinction between reflexive, reflective practice and phronesis, are explored in detail within the theoretical framework section.

RESEARCH PROBLEM AND QUESTION

The problem is that pedagogical reasoning remains invisible and cannot be visually observed in both contact and online environments. At the same time, there are a few examples, more so in the Global South, demonstrating how CDP is enacted in practice in today's increasingly digital HE systems. For examples, in Brazil, there are initiatives through programmes involving teaching digital skills and critical thinking about media and technology which empower students to become creators rather than consumers of digital content. India engages in mobile platforms that facilitate educational content to students in remote marginalised regions through the EduKart programme. In Egypt, CDP has been employed to encourage students to critically evaluate the role of digital tools in ensuring social justice. Universities in South Africa have integrated CDP by focusing on increasing digital literacy while concomitantly, through curricula, encouraging students to employ these skills and address community issues, like inequality and historical injustices. However, there remains limited research on the pedagogic reasoning within these examples since there is more focus on structural initiatives. This gap raises a significant concern because it is a challenge for academics to transfer critical theoretical ideas to critical digital practice as an emerging and intersectional practice. To mediate this gap, we engaged in research on our deep reflections around pedagogic reasoning that demonstrates one of the ways that CDP can be actioned in contact and digital learning contexts. To address the problem, this research posed the question: How did facilitators' pedagogical reasoning influence CDP practice?

SIGNIFICANCE OF THE STUDY

This research is significant because it demonstrates the power of academic pedagogical reasoning in enacting CDP practices. The pedagogical significance is that first-hand accounts of the pedagogical reasoning, which often remain invisible practices, are provided through reflective journalling. 'One of the key debates within the critical pedagogy field is whether it is even possible to enact 'true' critical pedagogy within higher education' (Smith & Seal, 2021: 476). We are of the view that there is no perfect or 'true' critical pedagogical enactment and therefore no need for an ideal enactment but rather that we all strive to encourage criticality, through pedagogical reasoning regarding all forms of knowledge. The extent to which our pedagogical reasoning is considered 'critical' depends on several factors, like the depth of our reflections, the frameworks and theories guiding our reflections, and the outcomes or actions that result from such reflection. What was important was that we remained aware of not just how to facilitate but also how our L&T practices empowered or marginalised course participants. Our reflections were action-oriented since it not only involved thinking critically about our pedagogy but also implementing changes based on these reflections. For us, this transformational aspect remained a key marker of criticality, as it demonstrated a commitment to continuous improvement and social justice in L&T. Our iterative evaluations and going back to improve the course are testament to how critical we were of the course, our roles and our pedagogy. These aspects are weaved in the narratives that follow. Hence, this project was conceptualised to showcase our understanding of being critical through pedagogical reasoning.

The facilitation and modelling of professional learning courses

One of the focus areas in the University of the Witwatersrand's Learning and Teaching Plan (2022-2024) is enhancing academics as university teachers. This responsibility is mandated to the CLTD which offers a variety of continuous professional learning (CPL) courses. These educational development courses aim to support the enhancement of L&T practices of academic staff who are experts in their various fields. The CLTD through these courses employs evidence-based approaches, to enact and model pedagogical practices to inspire staff to do the same in their own practices. Every course ideally has a digital component to cater for the diverse participant needs. Some courses are offered asynchronously to cater for participants who prefer learning in isolation and at their own pace. The courses are modelled on critical pedagogy (CP) and CDP philosophy depending on whether they have a digital version.

LITERATURE REVIEW ON THE ENACTMENT OF CP AND CDP THROUGH PEDAGOGICAL REASONING

Critical pedagogy is a transformation-based approach to education sometimes referred to as a movement, it is rooted in critical theory and originated from Paulo Freire in Brazil (Abrahams, 2005; Hoosen, 2022, 2023). Freire believed that education needs to go beyond the transfer of knowledge and training but should develop critical consciousness and bring change that will transform the individual, learning environment and society (Abrahams, 2005; Hoosen, 2022; Hoosen, 2023). We align to these conceptualisations since enacting CDP makes sense because the intention is to influence change within participants themselves, their students, environments and their institutions – facilitating change that leads to the transformation of thoughts and actions. CP and CDP are concerned with the change that takes place in both teachers and students as they learn from one another.

The Facilitating Online course, in this study aims to empower academic staff with skills that will enable them to comfortably facilitate courses online. In this course, as facilitators, we enacted CDP principles through the notion of knowledge as being socially constructed, being responsive to complexities that participants identify in their lived experiences and critical conscientisation. The participants in this course were fellow colleagues, whom we supported with care, learned together with interactions that were cordial, safe and respectful. We engaged in a way that poses a problem, more like a dialogue which engaged participants cognitively and resulted in thoughtful reflection which led to action, similar to Freire's (1970) approach of dialogue and problem-posing education. This is the approach all CLTD courses take where transformative pedagogies are intentionally enacted. For this study, as facilitators, we kept reflective journals to document how we employed pedagogical reasoning in the enactment of CDP. Reflection enables facilitators to direct their actions with foresight (Ashwin et al., 2015: 44). The ultimate goal for reflection is transformation that is linked to action which is the ultimate goal of learning too. There is no point in learning if it is not going to bring about change. However, action would mean very little if one does not identify forms of 'oppression' or 'constraint':

> 'to no longer be prey to its force one must emerge from it and turn upon it. This can be done only by means of the praxis: reflection and action upon the world in order to transform it' (Freire, 1970: 36).

Similarly, reflection akin to pedagogic reasoning are cognitive processes that take place invisibly within the mind, these processes inform teachers and facilitators to act in certain ways. Dewey (1930: 9), who was viewed as a founding figure of the concept of reflection stated

> active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends, constitutes reflective thought.

The implication is that reflection requires dialogue for expressing it and experiencing it. We intersect reflection with pedagogical reasoning since we view both as mental and cognitive ways of thinking around CDP practices.

Pedagogical reasoning and action are the enactment of teacher knowledge (Shulman, 1987). It is what informs the teachers' actions that leads them to pursue certain questions or comments (dialogism) by participants which lead to learning moments. Shulman (1987) viewed pedagogical reasoning as the enactment of the decisions made by teachers in their planning. Teachers possess various forms of knowledge from which they draw, based on their experience, expertise, and their pedagogical reasoning from which Shulman identified six of these knowledge domains. To understand how teachers' reason pedagogically, we need to understand what takes place in their minds as they plan the facilitation. Using the transformative learning theory lens and our understanding of Shulman's pedagogic reasoning as a framework helped us analyse our reflections. These reflections in our reflective journals provided insights to our pedagogical reasoning to establish what led to the enactment CP and CDP.

THEORETICAL FRAMEWORK

Transformative learning (TL) theory explains how individuals (adults), make sense of their experiences and how social and other structures influence how these experiences are construed. The theory focuses on how, dynamics involved in reconstructing meaning (through experience, reflection and action), ensure transformation when individuals locate themselves in dysfunctional situations (Mezirow, 1991). However, Mezirow's theory of TL focuses more on the educator and less on the social context. Therefore, Crantons (2016) expansion of Mezirow's theory is employed because we are of the view that, as agents, we transform and thereby influence the social context.

> We see the world through a lens constructed in our interaction with our social context. We also make decisions related to our perceptions in our own way. We are individuals living in and influenced by our social world, and we are individuals with important differences among us in the way we live, learn, work and develop (Cranton, 2016: 62)

Cranton (2016) expanded on Mezirow's (1991) work by emphasizing the practical aspects of fostering transformative learning in educational settings and focusing on the holistic nature of the process. This expansion of TL theory involved:

- personal growth and development which highlighted that transformative learning is not just about changing cognitive perspectives but also about emotional and psychological growth.

- Authenticity in L&T whereby TL is more likely to occur in environments where facilitators and participants are authentic and genuine. This aspect of the expanded theory resonates well with us since the importance of us as facilitators being true to ourselves thereby fostering a trusting and open L&T environment is highlighted.
- Relationship and community building is emphasised through supportive, collaborative relationships among participants and between facilitators and participants that create a safe-ish (Sykes & Gachago, 2018) space for critical reflection and discourse.
- Cranton (2016) highlighted various forms of TL, such as epistemic transformation that focuses on changes in understanding how knowledge is constructed. Psychological transformation that looks at changes in self-understanding and self-concept and behavioural transformation that focuses on changes in actions and behaviours resulting from new perspectives.

We align with Cranton's (2016) expanded and more comprehensive version of TL theory that includes emotional, social, and psychological aspects of L&T because there is emphasis on authenticity, relationship building, and practical strategies, which for us makes TL theory more accessible and applicable in real-world L&T environments now more so due to engaging in blended L&T. The online space can serve as a new and dysfunctional context that precipitates complexity for both students and facilitators. Therefore, the expanded form of TL theory appeared useful since it is geared for transforming individuals and its aim is to help 'individuals challenge the current assumptions on which they act and if they find them wanting, to change them' (Christie et al., 2015: 11). It employs 'rational and non-coercive' dialogue to bring about change and is based on the belief that 'better individuals will build a better world' (Christie et al., 2015: 11). This is because sustainable transformation needs to stem from within, through continuous reflexivity and reflectivity thereby revising L&T practices within the context in which the individual is located.

A transformative learning theory lens assists in bringing about not only a mental shift to academics but a behavioural change as well, which results from challenging assumptions on which they act and to change these if they appear unsatisfactory. As stated earlier, our approach to reflection also builds on Birmingham's (2004) pedagogical reflection theory founded on phronesis or practical wisdom (a paradigm of reflection that connects to contemporary practices of reflective L&T). Deeply rooted in phronesis, we are of the view that reflection in L&T is viewed as a moral virtue and not just a technical skill. Birmingham (2004) draws on Aristotle's notion that phronesis involves reasoning about and acting upon what is good or not so good for humans, suggesting that this type of practical wisdom is crucial for dealing with complex situations in L&T. During interactions (experience) with participants either through professional learning courses or mentoring, opportunities to reflect and revise (critical reflection and action) pedagogic practices (reflective discourse) are encouraged. Facilitators make explicit the practices that promote cognitive diversity and highlight 'human and social justice' aspects of L&T with Edtech.

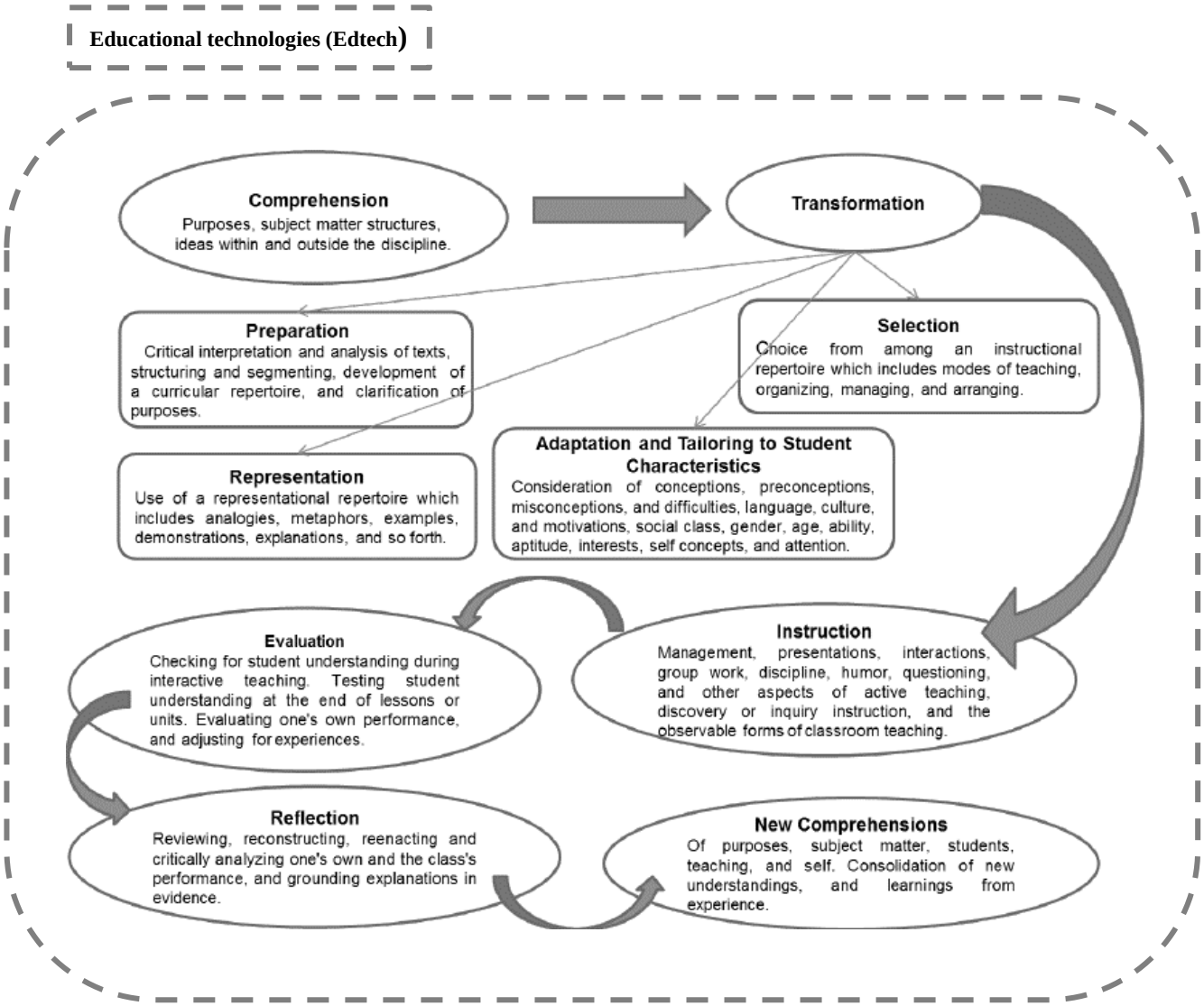
Reasoning assumes a significant role in one's adjustment in any environment. Apart from it determining one's cognitive activities it also influences behaviour and personality. Contemporary Piagetian theories of cognitive development demonstrate that variability in

reasoning and associated development stem from increasing working memory capacity, speed of processing, and forward-thinking functions and collaboration (Mascolo, 2015). It appears that increasing self-awareness is important when reasoning. In aligning to Birmingham's (2004) notion, reflective practice in Birmingham's context demands deeper consideration and deliberation, where the facilitator examines underlying assumptions, values, and contexts of their actions. This reflective practice is central to transformative learning, which relies on critically examining and challenging previously held beliefs and assumptions. Phronesis involves not just reflection but also an active deliberation about what is good or not so good, which is crucial for transformative learning. This type of reflection involves evaluating not just the efficiency of an action but its moral and ethical implications, which encourage facilitators to think about the broader impacts of their teaching on students' lives.

By framing phronesis as a higher form of reflection that encompasses moral and ethical dimensions, we align closely with transformative learning theory, which values the role of reflection in achieving deeper, more meaningful changes in understanding and behaviour. This connection underscores the importance of facilitators not only questioning their pedagogy but also considering broader impacts on the ethical and moral development of students. Such reflective practices are transformative in that they can fundamentally change educational practices and philosophies, aiming for an education that is not only informative but also formative in a moral sense. For us, CDP enactment required phronesis that results in changes in behaviour which assist in conscientising the 'self' first and then students (participants) as critically conscientised citizens and graduates who contribute positively to society.

To understand pedagogic reasoning, a knowledge base (knowing how to teach) was useful as a starting point. In this regard we employed Shulman's (1987) model of pedagogic reasoning and action (MPRA) which encapsulates the cognitive processes that facilitators undergo to transform content knowledge into pedagogically powerful forms that are adaptable for L&T to examine how our pedagogic reasoning influenced our enactment of CDP in the Facilitating Online course.

Figure 1:
Shulman's (1987: 15) model for pedagogical reasoning and action (MPRA) (adapted by Fernandez, 2014: 82).



We adapted the MPRA to include Edtech which we integrated at each stage of the model (depicted by the dashed perimeter in Figure 1) to augment our L&T practices through our deep reflections that led to new comprehensions. Concomitantly, as a habit, we remained cognisant of our CDP practices. This translated that we considered enriching at each stage of the MPRA, and not only incorporating Edtech, but also fostering critical reflection on the use and influence of Edtech in our L&T practices.

The phases of the MPRA aligned to our reasoning and remained a useful way for us to interpret our reflections on our pedagogic practice. As depicted in Figure 1, pedagogic reasoning begins with a cycle of pedagogic activities that includes *comprehension* where facilitators understand and comprehend the subject matter. At the *transformation* phase, facilitators plan how to

present the content to students. Integrating Edtech here meant that transformation might include creating or employing digital simulations, interactive models, and multimedia presentations.

At the *instruction* phase (*which we refer to as facilitation*), facilitators engage in the facilitation and Edtech can play a critical role here thought the employment of interactive whiteboards and response systems. The *evaluation* phase involves assessing student understanding and the effectiveness of the facilitation. Edtech can aid in evaluation through digital assessments that provide instant feedback or the employment of learning analytics to track participant progress (which is what we engaged in often). The *reflection phase* is when facilitators reason around what worked or did not work in the class. Edtech can support this through ePortfolios where facilitators collect and review materials and assessments. Based on reflections, facilitators enter the *new comprehension* phase where they can reframe their interpretations and approaches. Various Edtech tools can be employed to experiment with new pedagogical methods.

These phases were used as variables of interest that provided a direction to this research in terms of how we engaged in CDP practice as the model had been adapted to include the use of Edtech. However, 'Due to the pressures associated with blended learning, it becomes appropriate to consider the relevance of the model in the context of the digital age' (Hoosen; 2023: 3). Some of the pressures include limited technological capabilities, limited time for curriculum redesign that leads to imbalance in workload and management thereof, assessing and providing feedback in various formats and ensuring that all participants have equal access to Edtech among others.

RESEARCH METHODOLOGY AND DESIGN

This study aligns with the qualitative paradigm and is set within a Centre for Learning, Teaching and Development that is mandated to provide professional learning support to academics at Wits University. According to Denzin & Lincoln, (2002), qualitative research permits a description of the complexities of phenomena due to its focus on the qualities of the phenomena which cannot normally be quantitatively measured. The qualitative research design appealed to us because we engaged in first-hand accounts of reflective practice through pedagogical reasoning which were documented and provided in-depth insight in relation to the research question. Specific ethical requirements were applied for and acquired as per protocol number HRECNM23-09-091 from the university ethics committee.

The reflective journal as a data collection instrument

Since this research is part of a larger study, phase one engaged in 'researcher as reflexive and reflective facilitator' through reflective journalling that served as a data collection instrument. The authors kept reflective journals which were used to draw up reflective vignettes from their own practice to demonstrate how a critically framed approach promoted the enactment of CP and CDP practices across blended learning contexts. Journals employed by researchers in real settings serve as a source of narrative research (Connelly & Clandinin, 1990) since they make up a crucial part of processes that are documented. The advantage of employing reflective journals by facilitators is that it strengthens their learning and pedagogic practices while improving the learning processes of course participants (Moon, 2006; O'Connell & Dyment, 2011). Another strength of employing reflective journals is that they are a means of collecting data to be used more so in the social sciences and viewed as an effective way to document

information about one's feelings (Cohen, Manion & Morrison, 2002). We interpreted the reflection phase of Shulman's MPRA as inclusive of 'feelings', opinions and assumptions. We believe these are important in the being and becoming of the self. Our intention in this study was to hear our own voices and learn more about our pedagogic practices through the reflective journal as an instrument since it appeared to develop our meta-cognitive skills and promoted our self-orientation and accountability as a collective in the L&T process. According to Phelps (2005: 37), 'the data of the journals provide significant insights not always achieved through other ways of data collection' and it is a good way to solicit information about one's feelings (Cohen, Manion & Morrison, 2002). Besides our feelings about events or decisions made, reflection required deep introspection about our underlying, and possibly unconscious, assumptions and opinions. We engaged in reflexive practice, where we were challenged by our own honest reflections, to make different decisions or conduct ourselves differently, if given the chance. A narrative inquiry involved looking at our own journals in a collective reflective manner to challenge our assumptions about our facilitation practices and why we engaged in ways that we did in L&T experiences that integrated Edtech. This meant that we noted our individual reflections via journal entries. As a collective, we discussed these reflections, and interrogated each other's reflections, and underlying assumptions. We were then challenged to reconsider our practices and decisions. Hence, in this study, our journals became our point of departure in terms of our experiences and reflections thereof; as well as a point of return due to the journals transformative nature since it influenced how we constantly reframed our pedagogic practices through reasoning in each week of the course.

The reflective journal and research rigour

As a collective, we checked on our recollection or details about specific participants at specific moments. This feedback from a 'co-facilitating peer' intersected with our methods that increased the trustworthiness and rigor of our study. Jasper (2005: 250) is of the view that reflective journals permit the researcher to

> own centrality of their research process, which contributes to the legitimacy of the knowledge claims…. provides an audit trail which clearly indicates the procedural steps that enhance the transparency of process.

The data that we collected from our journals can be viewed as a traditional way of data collection, however as critical pedagogues, we eschewed the term 'data' in lieu of perspectives relating to criticality as our perspectives allowed us to give meaning to our reasonings around pedagogy. Hence, we employed similar headings to guide our reflections as follows (refer to Appendices A, B and D):

- Summary of a specific lesson (our self-observation, what happened? why? what have I learned?)
- Description of our mindset and perspectives that we anticipated addressing in the lesson (reflection on action, what works with these participants?)
- Future impact on insights to transition our facilitation based on our reasoning (planning the next time, what can be incorporated from the reflections? should I try something new?)

While our reflections were readily available in our journals, we used introspective questions in the form of Shulman's six phases from the MPRA to review our reflections. This was because we constantly reflected on our pedagogy in a logical yet systematic manner in relation to the research question. The MPRA phases begin with comprehension, transformation (in terms of content and knowledge) and moves to instruction (which we refer to as facilitation), evaluation, reflection and finally ends with new comprehensions. These phases are further elaborated on, in the visualisation presented in Figure 1.

DATA ANALYSIS, FINDINGS AND DISCUSSION

Our reflective journals served as the data source for this project with deep perspectives. Journal entries regarding our feelings, ideas and experiences as facilitators on the course, as mentors to participants and as holistic reviewers of the course were analysed. We engaged in thematic analysis because we sought to establish, scrutinise and interpret our meaning-making through a process of systematically generating themes using Shulman's (1987) MPRA as dimensions to our thematic data analysis which made visible, common themes (in italics) that were extrapolated, analysed and sorted as depicted in Table 1.

The analysis process involved meticulously reading and re-reading each other's journals to identify consistencies, inconsistencies, and neutral language, ensuring consensus in our interpretations. This process also encouraged us to critically reflect on our biases and assumptions. During the re-reading process, we highlighted and annotated sections of the text relevant to Shulman's Model of Pedagogical Reasoning and Action (MPRA) and the research question, assigning colour-coded labels to these sections. Each code was descriptive of the data segment's essence, aligning with specific elements of the MPRA. We grouped similar codes together to identify broader patterns within the data. This involved organising the codes into coherent clusters. We critically reflected on our own biases and assumptions during this process, ensuring that the themes emerged from the data rather than our preconceptions. The identified patterns were then mapped onto the MPRA framework and the expanded transformative learning theory. This helped us to align our codes with specific theoretical constructs. We defined themes based on the grouped codes, ensuring that each theme captured a significant aspect of the data. We reviewed the themes to ensure they accurately represented the data and were distinct from each other. Through discussions and further reflection, we refined the themes, merging or splitting them as necessary to better encapsulate the underlying data. The colour-coded system helped us organise and visualise the data, facilitating a clear and coherent analysis.

This process was informed by perception and reflection. For example, data related to our digital competency and comprehension of online tools were aligned with the theme of digital creativity, coded in green. Our reasoning on how knowledge is transformed into teachable content with appropriate facilitation strategies corresponded to the theme of creating safe-ish spaces (Sykes & Gachago, 2018), coded in orange, and the theme of selecting and tailoring activities, coded in purple. Reflections on learning from one another and from participants were aligned with the facilitation phase and the theme of co-creation, coded in blue. The evaluation phase was linked to our self-awareness of pedagogy, coded in yellow. The reflection phase extended to phronesis and deep reflection, addressing the challenges of CDP, including what worked, what

didn't, and why, coded in red. Finally, we searched for evidence of how our reflections led to new learning, related to new comprehensions, and aligned with the theme of transcending knowledge boundaries, coded in pink.

Table 1:
An example of some findings leading to common themes in alignment to Shulmans pedagogic reasoning phases

Pedagogical Reasoning phases	Findings leading to themes
Comprehension	*Digital creativity* through experiencing the process of the course and not only the product: Understanding what we engage in currently and the facilitating online course is geared toward digital creativity because of the portfolio and not prescribing what is to be engaged in by participants. Levels of digital competence that are augmented further through interacting with the course and its participants. We also augmented our academic agency with digital agency to ensure that we were digitally literate to a large degree. In doing so, we attempted to create a safe space for our participants and us. We agree with Sykes & Gachago (2018) that it is not possible for a space to be 'safe' for everyone. The safety of spaces is relative and is determined by each individual participant. As facilitators we could only attempt to create learning environments where participants felt emotionally supported, treated with respect and where confidentiality and dignity are maintained (Sykes & Gachago, 2018). Which is what is referred to as 'safe-ish' spaces.
Transformation	Through creating the online space as a *safe space* that upheld democratic participation, we engaged, through empathy, while preparing, representing *selecting and tailoring* activities to participants' needs. The course was developed and included many activities that participants were supposed to understand and complete. After engaging with the participants, understanding their complexities and lived experiences, and through the mentoring sessions, we understood how certain activities may need more scaffolding, or extended timelines, or softer deadlines, and we changed them as needed. We looked at these aspects through an empathetic lens because we reasoned through previous iterations of the course that each of the participants entered the course with their own lived experiences. Most participants possessed disciplinary knowledge since they were professionals in their own fields

	where much complexity resided. We were entangled in the L&T complexity, and this resulted in participants opening up to their vulnerabilities.
Facilitation	*Co-creation*: This is how we ended up facilitating the course as we learned from the participants. As we mentored them, we learned from them in as much as they learned from us. The reflexive practice entailed us questioning our comfort in the space in terms of participants' discomfort. Participants felt that their input would be a catalyst to transform certain aspects of the course. This is exactly what we intended in our transformation phase.
Evaluation	*Self-awareness* due to our reflections and the conceptualisation of terms that we employed. this reflexive practice was reasoned further at later stages through reflective practices. This awareness informed how we approached mentorship, facilitation and being attuned to the ethic of care.
Reflection	On-going critical reflexive practice. Our reflections were critical. Critical meant that we were critical of ourselves through awareness of our actions and the need for transformation which was due to reflexive practice. We also had to decipher healthy boundaries so that participants could also place themselves in the seats of their students. This specific aspect led us to thinking about the *challenges of CDP* practices. We note that our journals did not include explicit headings for ambiguities, issues and concerns around power dynamics and socio-political structures. However, as critical pedagogues who are passionate about social justice, it is ever-present in our engagements with participants and among one another. Each seemingly simple incident, request, or decision was traced back to the wider social justice issue as they appeared.
New Comprehensions	*Transcending knowledge boundaries:* We reasoned around what we learned through our interactions with participants. This informed new ways of what and how we learned. It could only be achieved as a result of our interactions with participants and foregrounding their views while we remained in the background. We did not undermine the views of participants as we believed that their assumptions and views would help us grow as academics and facilitators through collaborative practices. By not undermining participants we reframed the powers at play by encouraging participants to augment their academic agency.

As depicted in Table 1, our findings demonstrated that pedagogic reasoning is a complex and multi-dimensional way of being that integrates with reframing of practice as further narrated in the sub-themes below.

Digital creativity and safe spaces

Due to the rapid evolution of online tools and methods of work, a flexible approach that allows participants to experiment with new technologies is preferable to a prescriptive one. After creative exploration, critical reflection led to reflexive practice and a journey of continuous learning. Our reflections depicted fostering a caring and empathetic attitude with clarity. Through reflection we realised that we had adopted a maternalistic approach to care. Facilitator B reflected at a specific moment:

> Participant x would like to have buttons on her homepage that link the various elements to their pages. So, I suggested we try it out since I know my way around uLwazi. So, we started figuring it out ourselves, we tried different ways of embedding the links until we got it right. We had fun learning together creatively, collaborating in a way that felt comfortable.
> No one felt they knew more than the other, we were simply exploring something we had both never done before. I was using my prior knowledge of the LMS, and participant x was using her existing technology knowledge to find a way of solving the problem.

In a similar vein, Facilitator C reflected as follows:

> One of the participants taught Human Computer Interaction and experienced a few navigational challenges in the design of our course on the LMS. She suggested a few ways to improve the navigational experience. I noted her suggestions were which will be forwarded when the course is reviewed for the next iteration. Improvement and learning is continuous, and we can learn much from our participants.

Selecting and tailoring activities

When educators engage in pedagogical reasoning during facilitation, planning, and implementation, they transform their understanding of the subject matter into pedagogically effective forms that are adaptable to the diverse abilities and backgrounds of their students (Shulman, 1987: 15). While Shulman focused on schoolteachers, we understood this to be relevant in our context as well. The mentoring of a diverse group of participants with varying backgrounds, technological skills, and life experiences resulted in an array of adaptable mentorship models, evident in our collective reflections. As facilitators, we realised the need for different ways of mentoring, since each mentee had a different lived experience that needed to be considered. This consideration of lived experiences resulted in the humanisation of L&T practices, which serves as a catalyst for change. Such change meant that, as facilitators, we reflected on creating more meaningful interactions with course participants in the future.

Transcending knowledge boundaries and co-creation of knowledge

One of the issues that stood out when reflecting on what worked and did not work during the facilitation of the course was the negotiation and meeting of deadlines. Deadlines remain important aspects in any learning environment to manage expectations from both facilitator

and participant perspectives. Deadlines are set to hold one another accountable. Amongst the basic principles of CDP is that 'education is a human process' and that 'knowledge should relate and develop from the lived experiences' (Rowell, 2022: 3) of both the facilitators and participants. Humanising the education process meant considering the needs of participants first by ensuring that set deadlines were reasonable, negotiated and agreed upon by all involved to create a democratic learning environment. Knowledge is socially produced and acquired in a specific context while possessing properties that take it beyond boundaries that were initially constructed. This transcendence is precisely what led to co-creation of knowledge since the pedagogical structure of the course was focused on co-creating with course participants. This translated to allowing open-ended and student-centred activities and discussions. Often, we used our personal time to assist participants in their online facilitation journey. According to Facilitator A,

> My mentees would send WhatsApp messages in the evenings to inquire about some activities, more so around navigating in the online space and tool usage. I understood that many of them have heavy workloads and would normally get into the course in the evenings. I would then take their calls or messages and guide them accordingly while discussing other aspects that did not relate directly to the course but rather around their ontologies. Subsequently, these moments collectively led to other digital moments and took the role of collective critical reflection.

Similarly, through the embodiment of the dialectic (looking both ways) via negotiation and time management, balanced boundaries appeared somewhat established and transcended. However, these structural forces intersect with and potentially shape the transformative/reflexive learning process of this study. Our reflexive practices around issues such as constant online communication, the proliferation of Edtech, and the neo-liberalisation of education remained, but they informed our practice toward a deeper understanding of the complex socio-political contexts in which L&T occurs. This meant that we reflected on the dynamics of constant online interaction, considering both the opportunities for increased accessibility and engagement and the challenges such as communication overload and the potential for miscommunication. This reflexivity led to more thoughtful communication strategies, like setting clear expectations about response times, type of language used to communicate and using asynchronous forums to mitigate the intensity of constant communication. In terms of proliferation of Edtech, we considered how each tool influenced learning. This reflection assisted us in choosing appropriate tools that align with learning objectives and are inclusive of all participants' needs. By reflecting on these influences, we tried to balance these pressures with the goal of fostering critical thinking. This led to co-creation of knowledge of the course and other forms of knowledge as well. Facilitator B reflected as follows:

> What have I learned?
> I have learned how much we learn from each other, whether you are a mentee or mentor - we all have something we can learn from each. Co-creation is a beautiful thing when it happens.

Facilitator C felt that

> Feedback is important for continuous improvement. When a participant experienced difficulty navigating the LMS, a suggestion was to include a more detailed component on use of the LMS in future. We shouldn't take for granted that everyone is familiar with the system.

Self-awareness and reasoning

Through reflection and understanding of the self, our motivations, strengths, skills and values allowed us to identify and recognise certain areas of our pedagogy that needed development to improve. Possessing this ability meant that we critically analysed our own behaviours to improve our students understanding.

> This interaction to me revealed the true meaning of peer learning and learning situated within the community. No one felt they knew more than the other, we were simply exploring something we had both never done before.

In hindsight we made ourselves vulnerable within our pedagogy. Our reflective journals had in fact forced us to look at pedagogic events and analyse them further within a collective. This in turn opened up the conversation to improved ways of teaching.

Critical reflexive practice and reframing powers at play

To reframe means to step back and reconsider how an experience can be viewed from a different perspective. Reasoning through meaning-making (discussed previously) is often viewed as a shared process based on co-creation of knowledge. However, a crucial political dimension of critical pedagogic practice is the reflective and democratic process that views the humanisation of L&T as both an aim and reference for pedagogical praxis. This aligns to hooks (1996: 14) who stated that 'there is the need for a cycle of action and reflection upon the world in order to change it'. For us, pedagogical praxis in critical digital pedagogy was the outcome of our facilitations based on critical reflective practice. Reflection assisted us to make sense of complex situations. Through the weekly reflective reviews and meetings between facilitators, collective action was fostered in our efforts to create conditions whereby all our participants could be heard, together with us.

Challenges in enacting CDP

As much as we wanted to assist participants with reaching deadlines, some did not reach them, and this impacted on our deadlines as well. We were dialogic around these challenges. We were of the view that, in trying to consider and cater for the diverse range of experiences of the participants, and each participants personal circumstances, the flexibility of deadlines and requirements may be viewed as unfair to those who met the deadlines and requirements. This was mediated by allowing those participants who met the original deadlines to review and resubmit their outputs, if they wished to do so, in line with extended deadlines. Additionally, we remained aware of one aspect of enacting critical digital pedagogy since sometimes the enactment of CDP can be made to appear as though it is utopian in nature and that it can resolve various social challenges (Bartlett, 2005). Another assumption is that enactors of CDP tend to assume self-righteous positions with the assumption that theirs is the best practice (Popkewitz,1993). This is specifically the practice that we refrained from engaging in throughout our CDP enactment and our reflective practices. We engaged in reflexivity around our practices

and reflected on contextual dynamics too. For an example issues like online communication strategies and increased accessibility and engagement were constantly concerning us. We worried about bandwidth and looked at challenges like communication overload, communication strategies. There is a session in the course that deals with managing lurkers for instance. The proliferation of digital technologies was another one where participants were given a choice in which technologies are aligned with their needs. We dealt with the political nature of technology and participants were always conscientised about these and other broad structural issues as discussed further up.

Achieving reliability and validity

To enhance validity, we engaged in member checking by sharing our journals with one another to seek feedback while allowing us to verify the accuracy of our recorded experiences. We also reflected on our own biases and assumptions when interpreting our journals while engaging in lengthy discussions. This process assisted us in maintaining validity of our data at all times. We were also cognisant of consistency in one another's journals in that we took time to identify patterns or inconsistencies and when there were significant fluctuations, we explored the reasons behind them. This aspect also related to our inter-rater reliability since we analysed data and aimed for agreement among our interpretations. We tried our best to mitigate biases in self-reporting through the use of neutral language.

Strengths and limitations of this study

One of the strengths of this study was that we engaged in constant pedagogical reasoning through reflective and reflexive processes. What was reflected on in one session was implemented in the next session. Another strength was that the influence of CDP practices through reasoning became inherent in our L&T practices. These strengths would also benefit the scholarly community. One limitation of the study was its focus on a single course with a small sample size and only three facilitators. Another limitation was that the enactment of CDP was foregrounded on a professional learning course that was facilitated to academics. However, the learning from this course could be scaled to students.

Implications and recommendations

One recommendation would be for us to now move to observing our course recipients in their L&T practices. Our intention would be to ascertain if they are enacting CDP through pedagogical reasoning in their teaching practice. This would be important due to the complex nature of integrating educational technology with limited consideration of the lived experiences of students. Similarly, another implication that would be a recommendation is that if our facilitation led to course participants enacting CDP practices in their L&T, then what would be the influence on the holistic learning experience of students? Would educational technologies be mere grounds for content distribution or employed in a critical manner?

CONCLUSION

Our aim in this study was to investigate how our pedagogical reasoning influenced the enactment of CDP when facilitating a course. Criticality for us was a commitment to understanding ourselves and the world better through connections with course participants as this remained a self-reflective and dialogic experience. These two qualities of critical pedagogy

made it apparent why it is difficult to prescribe a specific method of enacting critical pedagogical practice in digital contexts. Like Bolton & Delderfield (2018: 13), we engaged in ongoing inquiry into our 'attitudes, thought processes, values, assumptions, prejudices and habitual actions'. Since our view of pedagogy is always reflective, CDP appeared to be constantly under construction as we transcended knowledge boundaries among other boundaries more often than not.

REFERENCES

Abrahams, F. (2005). The application of critical pedagogy to music teaching and learning. *Visions of Research in Music Education*, *6*(1), 6.

Ashwin, P., Boud. D., Coate, K., Hallett, F. & Keane, E. (2015). *Reflective teaching in higher education*. Bloomsbury Publishing.

Bartlett, L. (2005). Dialogue, Knowledge, and Teacher-Student Relations: Freirean Pedagogy in Theory and Practice. *Comparative Education Review*, *49*(3), 344-364. Retrieved 13 November 2023 from https://doi.org/10.1086/430261

Birmingham, C. (2004). Phronesis: A model for pedagogical reflection. *Journal of teacher education*, *55*(4), 313-324.

Bolton, G. & Delderfield, R. (2018). *Reflective Practice: Writing and Professional Development*. (5th ed.) Sage. London.

Bucklow, C. & Clark, P. (2000). The Role of the Institute for Learning and Teaching in Higher Education in Supporting Professional Development in Learning and Teaching in Higher Education, *Teacher Development*, *4*(1), 7-13.

Christie, M. et al. (2015). Putting transformative learning theory into practice. *Australian journal of adult learning*, *55*(1), 9-30.

Cohen, L., Manion, L. & Morrison, K. (2002). *Research methods in education*. (5th ed.) Routledge. London.

Connelly, F. M. & Clandinin, D. J. (1990). Stories of Experience and Narrative Inquiry. *Educational Researcher*, *19*(5), 2-14. Retrieved 5 December 2023 from https://doi.org/10.3102/0013189X019005002

Cranton, P. (2016). *Understanding and promoting transformative learning.* (3rd ed.) Sterling, VA: Sense Publishing.

Denzin, N. K. & Lincoln, Y. S. (2002). *The qualitative inquiry reader*. Sage.

Dewey, J. (1930). *Democracy and education: An introduction to the philosophy of education*. Macmillan New York. Retrieved 9 November 2023 from https://iwcenglish1.typepad.com/Documents/dewey_democracy_and_education.pdf

Fernandez, C. (2014). Knowledge base for teaching and pedagogical content knowledge (PCK): Some useful models and implications for teachers' training. *Problems of Education in the 21st Century*, *60*(1), 79-100. Retrieved 9 November 2023 from 457-1421876658.pdf (oaji.net).

Freire, P. (1970). *Pedagogy of the oppressed*. Continuum.

Hodges, C. B., Moore, S., Lockee, B. B., Trust, T. & Bond, M. A. (2020). The difference between emergency remote teaching and online learning. *Educase Review*, Friday, March 27, 2020.

Hooks, B. (1996). Teaching to transgress: Education as the practice of freedom. *Journal of Leisure Research*, *28*(4), 316.

Hoosen, N. (2022). The praxis of critical digital pedagogic practices in initial teacher education. In J. P. Makonye & N. S. Ndlovu (Eds.) *Innovations in online teaching and learning: Case studies of teacher educators from South Africa during the COVID-19 era,* 43-64. AOSIS Books. Cape Town.

Hoosen, N. (2023). A critical review of academic practice and integrated edtech use at a South African University: the 'real' level'. PhD thesis, University of Witwatersrand, Johannesburg. Retrieved 7 February 2024 from https://www.wits.ac.za/media/wits-university/faculties-and-schools/humanities/research-entities/link/documents/theses-amp-dissertations/Hoosen%202023%20-%20PhD%20Thesis.pdf

Jasper, M. A. (2005). Using reflective writing within research. *Journal of Research in Nursing*, *10*(3), 247-260. Retrieved 13 October 2023 from https://doi.org/10.1177/174498710501000303

Mascolo, M. F. (2015). Neo-Piagetian theories of cognitive development. International Encyclopedia of Social & Behavioral Sciences, (2nd ed.) Major Reference Works. Elsevier. https://dx.doi.org/10.1016/B978-0-08-097086-823097-3

Masood, M. M. & Haque, M. M. (2021). From critical pedagogy to critical digital pedagogy: a prospective model for the EFL classrooms. *Saudi Journal of Language Studies*, *1*(1), 67-80. Retrieved 4 November 2023 from https://doi.org/10.1108/SJLS-03-2021-0005

Mezirow, J. (1991). *Transformative dimensions of adult learning.* ERIC, Jossey-Bass. San Francisco.

Moon, J. A. (2006). *Learning journals: A handbook for reflective practice and professional development*. Routledge, London.

O'Connell, T. S. & Dyment, J. E. (2011). The case of reflective journals: is the jury still out? *Reflective Practice*, *12*(1), 47-59. Retrieved 13 October 2023 from https://doi.org/10.1080/14623943.2011.541093

Phelps, R. (2005). The potential of reflective journals in studying complexity in action. *Complicity: An international journal of complexity and education 2*(10), 37-54.

Popkewitz, T. S. (1993). *Changing patterns of power: Social regulation and teacher education reform*. State University of New York Press. Retrieved 14 November 2023 from https://books.google.com/books?hl=en&lr=&id=Q1DWOgtHlMoC&oi=fnd&pg=PR7&dq=popkewitz+thomas+1993&ots=sEc4Mq-Mr_&sig=aOQmzWPw4ZBoHVKyE88pBKVT5qM

Rowell, C. (2022). *Blog posted on Wednesday 06 April 2022. What is Critical Digital Pedagogy?* Retrieved 21 October 2023 from https://totallyrewired.wordpress.com/2022/04/06/what-is-critical-digital-pedagogy/

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard educational review*, *57*(1), 1-23.

Smith, A. & Seal, M. (2021). The contested terrain of critical pedagogy and teaching informal education in higher education' *Education Sciences*, *11*(9), 476.

Sykes, P. & Gachago, D. (2018). Creating 'safe-ish' learning spaces - attempts to practice an ethics of care. *South African Journal of Higher Education*, *32*(6), 83-98.

UNESCO (2015). *Position Paper on Education Post-2015*, Retrieved 9 October 2023 from http://unesdoc.unesco.org/images/0022/002273/227336E.pdf 10.5040/9781849666275

Let's slow it down- re-imagining life orientation education in higher education[1]

Janet Jarvis, University of KwaZulu-Natal, South Africa
Sarina de Jager, University of Pretoria, South Africa

ABSTRACT

This article proposes a paradigm shift in teaching and learning within the context of neoliberal universities that increasingly emphasise the commercialisation of knowledge, student throughput, and performativity. Drawing from the conceptual framework of the Slow Movement, specifically Slow Pedagogy, this article argues that teaching-learning in higher education should not be merely assessment driven, nor simply a technicist activity facilitated irrespective of context. Teaching differently, or against the grain, implies humanising the curriculum and creating time and space for brave and courageous conversations that are empathetic and reflective, with the possibility of being transformative. Talking circles are an indigenous pedagogical approach that serves a decolonial agenda by promoting situated relatedness, respectful listening and reflective witnessing. The relationality enabled by this teaching-learning methodology presents the possibility for a sustainable and transformative education system. Two academics from higher education institutions in South Africa present and discuss vignettes of their observations and experiences facilitating Life Orientation in this way. This teaching praxis is both reflective and reflexive.

Keywords: decolonisation; life orientation, Slow Pedagogy, Talking Circles, Teaching Praxis

INTRODUCTION

In a neoliberal university setting, the approach to teaching and learning is marked by performativity and a growing emphasis on student participation and productivity (Nussbaum, 2010; Kidd, 2021; Mahon, 2021). When embracing neoliberal principles, higher education institutions may see consumers more than learners. Maldonado-Torres (2007) argues that one of how colonialism persists is reflected in the criteria used to evaluate academic performance. Teaching primarily to assess perpetuates this pattern. This stance contrasts starkly with humanistic and critical teaching philosophies, which perceive learning as situated within a nurturing and compassionate environment. Berg and Seeber (2016) urge an approach to

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scholarship in higher education that honours ethical, intellectual, and pedagogical values and is resistant to the corporate university. A university education should function in a way that contributes to a flourishing democracy, providing a love of learning, self-expression and self-creation that finds inclusive expression (Llanera & Smith, 2021). Bearn (2000) refers to this as a University of Beauty that is characterised by pointlessness, in the sense that there are countless points that should be explored. In such a scenario, pedagogy is improvised with both lecturer and student engaged in interactions that do not delineate whether the lecturer or the student is enabling learning to take place (Le Grange, 2020). In this context pedagogy is imagined differently.

This article promotes an inclusive and transdisciplinary approach to knowledge production and dissemination within the framework of post-postmodernism (Vermeulen & Van den Akker, 2010, 2015; Abramson, 2015; Žižek, 2017). Post-postmodernism has emerged as a response to the limitations and contradictions of postmodernism. The article emphasises embracing diversity, difference, and relationality while questioning oppressive structures. It advocates for sincerity and authenticity and a balance between idealistic aspirations and a pragmatic understanding of the challenges we encounter as human beings (Vermeulen & Van den Akker, 2010, 2015).

THEORETICAL FRAMEWORK - SLOW PEDAGOGY

Drawing from the conceptual framework of the Slow Movement that started in the 1980s in Italy (Petrini, 2001), Slow Pedagogy (Holt, 2002), or eco-pedagogy, is rooted in thoughtfulness, values, and intentionality. Contrary to its name, slow does not refer to reduced speed but instead emphasises the depth of engagement (Berg & Seeber 2016; Collet et al., 2018; Leibowitz & Bozalek, 2018), requiring thoughtful and attentive interactions to generate new meanings. Slow pedagogy emphasises what matters and what is meaningful rather than what is convenient or economically efficient (Leibowitz & Bozalek, 2018). It is not unproductive but differently productive (Ulmer, 2017), focusing as it does on the curriculum as lived (Pinar, 2015). It encourages pausing or dwelling in spaces for more than a fleeting moment, providing the opportunity for a thoughtful, value-driven, intentional approach to education.

Slow Pedagogy as an approach to teaching and learning emphasises a deeper, more meaningful understanding of the subject matter. A slower pace, more reflection, and a greater focus on dialogue and collaboration between students and teachers characterise it. It aims to create an environment where students can think deeply about the topics, they are studying rather than simply memorising and regurgitating information. It is often contrasted with fast-paced, standardised forms of education that prioritise efficiency and productivity over deep thinking and understanding. Students are encouraged to slow down, take their time, and truly engage with the material they are studying, simultaneously developing critical thinking skills. Slowing it down can help students develop a deeper understanding of the world around them and a greater sense of agency and empowerment in their lives.

Going beyond the boundaries of individual course modules, this approach opens the possibility of re-imagining education, with profound implications for personal, professional, and societal spheres. Acknowledging the significance of the lived curriculum and endorsing a decolonial agenda,slow pedagogy actively challenges conventional teaching and learning methods. Often

described as teaching against the prevailing neoliberal and colonial grain (Batchelor & Sander 2017; Reyes et al., 2021), Slow Pedagogy employs teaching and learning strategies that have the potential to foster transformative classroom praxis (Hargreaves & Fullan, 2012; Quinlan, 2014). In contrast to classroom practices that are driven by technical outcomes, praxis emphasises reflection (deliberation rather than superficial acceptance) and reflexivity (contemplating the practical implications for potential changes to inform new attitudes and practices). It promotes a pedagogical approach centred on the participants' well-being, transformation, and healing (Batchelor & Sander, 2017).

Talking circles as an embodiment of slow pedagogy

In response to the increasing recognition of the need to incorporate decolonial practices into educational settings (Battiste, 2013), there has been a growing adoption of indigenous pedagogies and methodologies to address the enduring impacts of colonisation on the field of education (Kimmerer, 2021). It is incumbent upon educators to engage in this transformative work while remaining conscious of their positionality and acknowledging how privilege has been shaped by historical colonisation and other power dynamics influenced by their personal experiences and histories.

Indigenous pedagogies and methodologies serve as tools for re-evaluating the elevation of certain knowledges over others (Kovach, 2009) and strive to offer alternatives to the conventional educational practices that dominate higher education. Within indigenous methodologies, one notable example is using talking circles to foster communication, comprehension, and learning. These circles represent an alternative pedagogical approach that encourages individuals to actively listen to various viewpoints and perspectives, even those that may diverge from their own (Kaminski 2011; Di Lallo, Graham & Arian, 2018).

Talking circles are a form of communication and group process used for centuries by various indigenous cultures worldwide. While talking circles have historically been used in indigenous settings, more recently, they have been adapted and utilised in non-indigenous contexts as a powerful tool for communication, community building, and personal development (Barkaskasi & Gladwin, 2021). Pedagogical talking circles provide supportive spaces for participants to engage in reciprocal and relational learning. They successfully decolonise Eurocentric educational systems by centring indigenous epistemologies and pedagogies, highlighting indigenous ways of knowing and being (Barkaskasi & Gladwin, 2021). Students are offered a safe space to feel supported while expressing themselves about challenging concepts, topics, or histories (Zizka, 2017). As suggested by Kovach (2021), this methodology is built upon relationality, emphasising the process of meaning-making among groups rather than as isolated individuals. It prioritises knowing one another. The roots of oppression, such as othering and binary oppositions, are challenged by creating meaning through relationships rather than individualistic paradigms that reinforce hierarchical power. Relationality is foundational to decolonising and indigenising education (Braidotti, 2019). Pedagogical talking circles establish relational and educational spaces that encourage trust, empathy, awareness, support, and, ultimately, transformative change (Cote-Meek, 2020).

Numerous effective approaches to conducting talking circles have been identified in the literature (Granillo et al., 2010; Haozous et al., 2010; Kaminski, 2011; Wilken & Nunn, 2017;

Zizka, 2017; Brown & Di Lallo, 2020). However, this article specifically focuses on the utilisation of talking circles that are rooted in three core principles: situated relatedness (Johnston, 2018), respectful listening (Johnston, 2018), and reflective witnessing (Clark, 2016; Hunt, 2018). Situated relatedness necessitates that all participants within the circle consider and remain mindful of their unique lived experiences and how these experiences inform their perspectives, particularly concerning other individuals in the circle who may bring different histories and life experiences to the conversation. Respectful listening represents an active practice that requires individuals to concentrate deeply on the words and intentions of the speaker while quieting their internal reactions and responses that may disrupt the communication process. This practice allows the listener to create a genuine space for the speaker and their viewpoints, devoid of judgment or defensiveness (Gladwin, 2021).

Moreover, respectful listening fosters compassion and empathy by acknowledging another person's subjectivity within an extended temporal and spatial context. Reflective witnessing encourages participants to hold space for an individual's perspectives and subsequently reflect on the emotions and thoughts that may emerge from engaging with someone sharing their lived experiences. Employing these principles, talking circles provide a safe and respectful space for individuals to share their thoughts, feelings, and experiences without interruption or judgment and to listen deeply to others. They offer a supportive environment where participants can explore essential topics, gain new insights, and strengthen connections with others.

METHODOLOGY

In response to the imperative to decolonise teaching and learning (Pardy & Pardy, 2020) and embody the concept of Slow Pedagogy in higher education, two academics from two different higher education institutions (HEIs) in South Africa (SA) implemented talking circles (Chilisa, 2012) in their respective Life Orientation classes. Life Orientation is a subject that was introduced to South African schools by the Department of Basic Education at the beginning of the democratic era (Department of Education, 2011). It aims to teach learners knowledge, skills, attitudes and values to prepare them for the challenges associated with playing a meaningful role in a democratic society.

This article delves into the role of talking circles in promoting a slow pedagogy approach within the context of Life Orientation, thereby reshaping power dynamics within an educational system historically rooted in colonialism. Grounded in an ethic of care, these circles provide students with a figuratively dignity safe space, as defined by Callan (2016), where individuals can engage without reasonable anxiety about being treated as inferior, ensuring that all contributions hold legitimacy. Furthermore, this space also embodies the concept of a brave space (Arao & Clemens, 2013), where participants are encouraged to challenge their pre-existing beliefs, often deeply entrenched in prejudices. Talking circles foster opportunities for reciprocal exchanges, which are characterised by tolerant and empathetic understanding. As Barton and Garvis (2019) described, an empathetic approach involves comprehending and responding to others with a heightened awareness of their perspectives and concerns, recognising their significance. This approach is infused with Mbigi's Collective Fingers Theory (1997), which empowers participants to voice their lived experiences and agency. According to Ramphele (2012, 2017), the act of sharing personal stories holds immense potential for promoting healing and empathy, establishing common experiences, and acknowledging both

strengths and weaknesses. It facilitates an inclusive and collaborative environment within social contexts like a university, where individuals can actively address and resolve issues.

In each higher education institution (HEI) classroom setting, the participants sat in a circle or, in some cases, more than one circle. The circular formation represents equality and the absence of hierarchy. Typically, within the circle, a talking piece, such as a stone or a feather, is passed from person to person, granting the holder the exclusive right to speak (Granillo et al., 2010; Haozous et al., 2010; Kaminski, 2011; Wilken & Nunn 2017; Zizka, 2017; Brown & Di Lallo, 2020). This structure ensures that each individual can be heard, preventing one person from dominating the conversation. However, we did not employ a symbolic talking object in our implementation of talking circles. Instead, we facilitated the process, with participants consenting to participate in the talking circle. In both institutions, ethical clearance was obtained (UKZN - HSS/0297/017; UP - EDU101/19).

Vignettes

We present two vignettes of talking circles in Life Orientation in higher education. It is important to understand the vignettes as a form of literary non-fiction, capturing the affective qualities of specific tangible moments. In the realm of research on sensitive topics, Gourlay et al., (2014) assert that vignettes, which are short stories depicting observations and experiences, can wield significant influence. They are focused creations that lack explicit boundaries (Eloff, et al., 2023). Vignette methodology presents an innovative phenomenological framework for empirical research in educational settings. They are developed based on the researcher's comprehension of the participants' lived experiences (Agostini, 2015). Once crafted, vignettes serve as the primary source of analysis in phenomenological research (Schratz, Westfall-Greiter & Schwarz, 2014; Agostini, 2015). They depict the critical subtleties at play during courageous conversations on themes in Life Orientation; the vignettes specifically focus on themes such as othering and consent. When crafting the vignettes, careful attention was paid to poignant elements such as the atmosphere, facial and bodily expressions, and the tone of voice exhibited by the students. These nuanced details served as the foundation for constructing the vignettes.

Both colleagues wrote and analysed the vignettes retrospectively. Vignette 1 emanates from the School of Education at the University of KwaZulu-Natal (UKZN). BEd Honours students participating in Vignette 1 focused on inclusivity and othering. All the students are South African citizens. Aware of prevailing aggressive attitudes by nationals towards non-South Africans, particularly those from the African continent, the talking circles focused on xenophobic attitudes (Jarvis & Mthiyane, 2022). Visual clips were employed as catalysts for discussions, each illustrating instances of xenophobic attacks in South Africa. The first clip depicted migrants being accused of various transgressions, including job theft, criminal activities, involvement in prostitution, and illegal drug trade. The prevailing sentiment conveyed in this clip was a call for punitive measures against the migrants. The second clip captured scenes of xenophobic violence, featuring migrants facing aggressive threats and demands to return to their countries of origin. In contrast, the third clip delved into the possibility of learning from and engaging in collaborative efforts with skilled migrants.

Vignette 2 emanates from the Faculty of Education at the University of Pretoria, involving third-year BEd students as active participants. The vignette revolves around sex and sexuality

education, which was introduced after a comprehensive exploration of human rights education and democratic citizenship during the preceding semester. The intention behind sequencing these topics was to prompt students to approach sex and sexuality education from a human rights perspective. The classroom discussion revolved around the media uproar reported by News24 in 2019 (News24, 2019), centring on the contentious comprehensive sex education curriculum. Students were encouraged to engage with and comment on the criticisms and opposition to the curriculum, particularly from parents, community groups, and religious organisations. Furthermore, the conversation involved sharing recent teenage pregnancy statistics in South Africa, underscoring an ongoing crisis.

In the vignettes, confidentiality is upheld by anonymising personally identifiable data using pseudonymous identifiers (Bhandari, 2021). Once the vignettes were crafted, they became the primary data for phenomenological analysis, a process referred to as vignette reading (Eloff et al., 2022). In reading a vignette, we engaged in the experience as readers, adding layers of understanding to what is given and highlighting the experienced phenomena. Vignettes support the notion of slow pedagogy by pausing to consider the lived experience relationally and reflectively (Braidotti, 2019). We are mindful of the limitation that although vignettes are filled with depth and emotion, they do not necessarily fully encapsulate all the elements of experiences (Erfanian et al., 2020).

Talking Circles reflected in vignettes

The vignettes are presented and then read.

Vignette 1

Seated in a talking circle, there was a buzz when the participants were asked to respond to the question, 'Who is my neighbour?' with specific reference to migrants. The atmosphere in the class became tense, with most of the class expressing distinct xenophobic views, using 'us' and 'them' and 'we' and 'they' in reference to migrants. Voices were raised, and the tone was disdainful and aggressive, using even the derogatory term '*amakwerekwere*'. Thabile's response was reasonably representative of the overarching sentiment:

> [M]ost of them [migrants] are here in SA illegally, and others, their passports being expired. They have occupied most buildings of an area, selling drugs, making South Africa's women prostitutes. Killings and crime rate reportedly have increased.

Zanele was eager for her turn to contribute to the conversation, saying she is unhappy with migrants living in SA. She vehemently stated that since the arrival of migrants,

> … the unemployment rate increased in our communities. Local employers, particular Indians, are no longer interested in employing local South Africans but are employing migrants because they are cheap to hire.

After several participants made additional contributions in the same vein, the participants watched video clips depicting violence against migrants and video clips illustrating legal immigrants' challenges. They also listened to the audio-recorded testimony of a Rwandan refugee living in SA. This powerful disrupting testimony brought the lived experience of a migrant who is now a legal immigrant virtually into the classroom space. The mood started to

change as the participants' facial features, by and large, began to soften, and their body language was less tense. They began to adopt a more reflective and empathetic response. Bongani, visibly moved by what he had seen and heard, recounted what had happened to his friend's father, a legal immigrant, who had his clothing shop raided. He was left destitute. Lindo said that some people where he lives 'took it into their own hands to break in and demolish migrants' shops and stole stock and gave them a beating'.

Jerome, who had been listening attentively to the conversation without contribution, raised his hand and commented on the role played by social media in promoting the polarity that underpins xenophobic attitudes. He said:

> Social media has a power to influence a community whether the report is valid or just a propaganda. This then creates an image or conclusion about what is being said in a report, video, or magazine about foreigners. I have seen many videos circulating on social media where foreigners being involved on many evil acts…this has then led me not trusting foreigners anymore, especially African foreigners.

Other participants acknowledged his input as valid by nodding and making affirmatory sounds. Amanda concurred and added that social media seldom, if ever, records any positive contribution made to South African society by migrants. She said:

> …[t]he media always projects us with what we seek for, to feed our mind set. We always seeking someone to blame with regards the challenges we face and not own up to our own mistakes. For example, the media will show us the drugs trafficked by a Nigerian to South African borders but will not show you the number of foreign doctors who [save] lives in our hospitals and clinics.

The participants then questioned what caused xenophobic attacks. A few participants concluded that a probable cause could be that South Africans see migrants as hardworking and are jealous that many immigrants succeed in business. Amanda said that, in her opinion,

> migrants are equipped with skills that us South Africans do not have. They are cognitive well-developed and they can turn what we consider as trash into a product…they seem to be doing well for themselves because of the long hours they put in their work.

Participants were encouraged to imagine stepping into the shoes of a migrant and, by doing so, reflect on the plight of many migrants. Zanele, in particular, was visibly affected and shed tears. She concluded that, ultimately, 'we are all foreigners somewhere'. Participants initially held attitudes started to shift. Led by Lawrence, they came to the collective opinion that people do not always leave their countries to engage in illegal activities in SA.

Vignette 2

On a chilly winter morning, a group of third-year BEd students gathered for a lecture on sex and sexuality education. As the module's lecturer, I prefer facilitating topics in Life Orientation through conversational methods. To create a more personal and inclusive atmosphere, I positioned myself in the middle of the class, and the students rearranged their seats to form a circle around me, fitting for the sensitive content we were about to discuss. Before delving into

the day's topic, I provided a brief overview of our previous lecture, which focused on teaching sex and sexuality education from a human rights perspective, building on the concepts covered during the last semester concerning human rights education and citizenship. The class was brimming with anxious excitement as students joked and laughed, showcasing their anticipation.

To kickstart the lesson, I asked the students about recent news on sex education, prompting Tshepo to raise his hand and say: 'Mam, I read that people are very angry about the Comprehensive Sex Education Curriculum'. Acknowledging the relevance of the topic, I inquired if others were familiar with it, to which some heads nodded in agreement while others looked unsure. Melinda voiced her perspective, saying,

> …people are conservative, especially our parents. They never talked about these things to us, and I think they are scared that discussing sex with kids will make them curious, and they might try it out for themselves.

A few heads nodded in agreement, showing consensus. Curious to gauge their thoughts further, I asked, 'Do you really think that teaching kids about sex will make them have more sex?' Responses were mixed, but the overall engagement in the group seemed to increase. Even those who seemed disengaged earlier were now paying attention. Jamie raised her hand and expressed her concern:

> Mam, I don't think we can teach kids things that their parents are not in agreement with. I don't want to lose my job by insisting on teaching things to kids that their parents are not comfortable with. Seeking input from the whole class, I asked, "Do you think you will be able to accommodate everyone when you teach sex education?"

Some students replied with a straightforward *no*, while others remained quiet. Tshego chimed in with her perspective:

> I think if we look at the number of girls in school that are falling pregnant, we can't be nervous about teaching kids about safe sex. Some of these girls are as young as eleven or twelve. I see the girls from my village, they are ignorant, and that gets them into trouble. We need to also protect them by teaching them, right?

Her viewpoint triggered a response from Sibusiso, who interrupted, saying,

> I see them walking in the streets here in Sunnyside. But girls are in trouble because they are promiscuous, ne? It is not because they know too little. It is because they know too much!

His statement sparked strong reactions in the group, prompting Nene to speak up:

> Mam, I have to disagree with Sibusiso. That is such a male thing to say. Turning to him, she continued, so tell me, Sibu, these girls of eleven and twelve that are so promiscuous and getting pregnant, are they doing that by themselves? Because the last time I checked, it takes two people to make a baby, hey?

The group laughed, expressing both agreement and disagreement. Charlotte raised her hand and contributed:

> Nene, don't forget the girls who fall pregnant, who then have to be taken out of school and face societal ostracisation. They are pressured into raising their babies, and what happens to the dad?

Several voices declared loudly: 'Nothing!' Bongiwe shared her perspective:

> I don't think we can allow parents to dictate what we teach kids. Some parents don't even know themselves what is going on in this area. They just avoid the topic, and then when their child gets pregnant, she is blamed for all sorts of things.

The class showed audible agreement. Peter raised his hand and added:

> Mam, I agree with what Bongiwe just said. When I was at a school in the city centre during WIL [work integrated learning] earlier this year, I had to teach a lesson in sex education to Grade 9 learners. Mam, it was terrifying, to be honest. These kids had questions about things I knew nothing about. Eventually, I persevered and tried to teach a good lesson on safe sex and using a condom correctly. The learners were laughing and whistling, and it was a crazy class, mam. But then, at the end of the lesson, one girl put up her hand and asked what she must do because she has a boyfriend who is pressuring her into sex that she does not feel ready for. Mam, at that moment, I realised that sex education is about more than just sex; it is about helping kids be safe. It is about consent. After that, I never looked at it the same again.

As his words sunk in, a shift occurred in the classroom, leaving everyone silently contemplating the significance of the discussion.

Vignette reading

The vignettes present distinct experiences that highlight the individuality of personal participatory encounters. In contrast to the technicist nature of neoliberal education, which prioritises measurable outcomes and efficiency, the vignettes underscore the importance of considering lived experiences within relational contexts. Teaching against the grain, aligning with the principles of Slow Pedagogy, offers valuable opportunities to delve into meaningful explorations of the issues considered in the vignettes. Although critical issues (namely othering and consent) form the vignettes' substance, this article employs talking circles to engage students in empathetic and reflective dialogue within a metaphorically safe space. Over time, they felt increasingly comfortable expressing themselves openly, free from marginalisation or academic failure concerns. This transformative teaching-learning approach supported a decolonisation of the learning environment. This is characterised by teaching against the grain, focusing on student agency in participation, and a willingness to challenge prevailing societal discourses, necessitating courageous conversations that are both reflective and reflexive.

In Vignette 1, the talking circle created an ideal setting to explore the concept of othering, explicitly concerning the othering of migrants. Following the talking circle interaction captured in the vignette, further discussion revealed to the participants that the historical foundation of

colonialism is built upon a process of othering. The participants recognised the significance of delving into the dichotomy between those who engage in othering and those who are subjected to othering. The talking circle provided a relational and potentially transformative platform for them to deepen their understanding of this issue. Within the safe space of the talking circle, participants felt comfortable enough to open up and share their personal stories. This created possibilities for a shift in their attitudes. As they considered stepping into the shoes of the other, they began to reassess their previously held viewpoints, which social media narratives had primarily influenced. By the end of the interaction, there was a shift from the initial tension and aggression, which had led to the identification of migrants derogatorily as '*amakwerekwere*' (Kinge, 2016; Ngwane, 2016). It became evident that anecdotal accounts and social media portrayals, rather than their own lived experiences, had shaped the perspectives of several participants.

Vignette 2 presents examples of prevailing notions concerning sex and sexuality, shedding light on predominant myths, patriarchal constructs that perpetuate the oppression of women, and the crucial issue of consent. The discourse surrounding the implementation of a comprehensive sex education curriculum reveals a notable division of perspectives. Those adopting a more conservative stance tend to avoid discussions, often resorting to victim-blaming to rationalise teenage pregnancy. A key finding is the significant influence of individual students' background and upbringing on their perspectives regarding sex education. The prevailing cultural and religious ideals are evident among some group members. One notable factor fostering a change in mindset for specific individuals is their exposure to schools and the classroom environment that confront the stark reality of social ills such as rape and abuse. Additionally, the openness to accommodate diverse viewpoints and opinions provides a potential catalyst for transformative shifts in attitude. The classroom interaction foregrounds the importance of addressing the multifaceted nature of sex education, recognising the impact of cultural and religious beliefs, and fostering an environment that encourages empathy and openness to diverse perspectives.

The analysis of both vignettes reveals principles of situated relatedness, respectful listening, and reflective witnessing (Clark, 2016; Hunt, 2018). In Vignette 1, the participants engage in a dialogue within a talking circle (Chilisa, 2012), fostering a sense of connectedness while discussing who their neighbours are concerning migrants. Initially expressing xenophobic views, they transition to a more empathetic response as they watch videos and hear testimony about the struggles migrants face. Respectful listening (Johnston, 2018) is evident as they share their diverse perspectives and emotions without interruption, allowing for a collective exploration guided by the facilitator. The principle of reflective witnessing emerges as the participants' attitudes transform, critically examining their initial assumptions and stereotypes. In Vignette 2, though explicitly situated relatedness is not evident, the students forming a circle and engaging in a conversational approach convey a sense of connectedness during the discussion on sex education. Respectful listening is apparent as students share their views and experiences, facilitated by the lecturer, promoting open dialogue and considering diverse viewpoints. Reflective witnessing is present as students shift from disinterest to active engagement, exemplified by Peter's realisation about the broader importance of sex education beyond mechanics. The class's silent contemplation showcases introspection and reflection. These principles fostered inclusive and transformative learning environments, enabling the

participants to examine their beliefs and perspectives critically and better understand complex social issues, expressing their views without judgement or defensiveness (Barkaskasi & Gladwin, 2021).

CONCLUSION

Slowing down the educational process creates an opportunity to engage with what truly matters, leading to possible sustainable and transformative outcomes (UNESCO, 2018). This transformative potential extends to healing a fractured society by fostering understanding, reducing prejudice, and promoting tolerance (Chidester, 2008) while upholding all individuals' dignity and human rights (Gupta & Vegelin, 2016). Such transformation can have lasting effects beyond the confines of a module, influencing personal, professional, and social spheres, starting from the classroom and extending to the broader community. Pedagogical talking circles embody the principles of slow pedagogy, providing spaces for sharing ideas and perspectives, whether similar or divergent, with a deliberate commitment to meeting each individual at their point of learning. These circles are one example of many that educators can use to decolonise their pedagogical practices. They offer a respectful avenue for integrating indigenous epistemologies, methodologies, ontologies, and pedagogies, leading to transformative learning experiences and a shift in teaching approaches (Hargreaves & Fullan, 2012; Quinlan, 2014). Educational talking circles are a praxis-based approach (Jarvis 2021, 2023) that nurtures relational learning environments (Braidotti, 2019). They empower students to voice their perspectives and contribute to a lived curriculum that is contextually relevant, fosters consciousness-raising, and is critically informed, all in alignment with a relational ontology (Braidotti, 2019). As demonstrated in the presented vignettes, teaching against the grain by slowing it down proposes a paradigm shift within the teaching-learning context towards a more humanising curriculum that serves a decolonial agenda and creates space for transformative conversations.

REFERENCES

Abramson, S. (2015). Ten basic principles of metamodernism. *Huffington Post*. Retrieved 8 May 2023 from http://www.huffingtonpost.com/seth-abramson/tenkey-principles-in-met_b_7143202.html

Arao, B. & Clemens, K. (2013). From safe spaces to brave spaces. In L. Landreman (Ed.) *The art of effective facilitation*, 135-150. Stylus Publishing.

Agostini, E. (2015). The many facets of "creating": A phenomenological investigation of "creating" in the learning process. *Procedia – Social and Behavioral Sciences*, *191*, 2494-2499.

Barkaskasi, P. & Gladwin, D. (2021). Pedagogical Talking Circles: Decolonizing Education through Relational Indigenous Frameworks. *Journal of Teaching and Learning*, *15*(1) 20-38.

Barton, G. & Garvis, S. (2019). Theorising compassion and empathy in educational contexts: What are compassion and empathy and why are they important? In G. Barton & S. Garvis (Eds.) *Compassion and empathy in educational contexts,* 3-14. Palgrave Macmillan.

Batchelor, K. & Sander, S. A. (2017). Down the rabbit hole: Using the matrix to reflect on teacher education. *Studying Teacher Education*, *13*(1), 68-86.

Battiste, M. (2013). *Decolonising education: Nourishing the learning spirit*. Purich Publishing.

Bearn, G. F. C. (2000). Pointlessness and then University of Beauty. In P.A. Dhilon & P. Standish (Eds.) *Lyotard: Just Education*, 230-268. Routledge.

Berg, A. & Seeber, B. K. (2016). *The slow professor: challenging the culture of speed in the academy*. Toronto: University of Toronto Press.

Bhandari, P. (2021). *Ethical Considerations in Research | Types & Examples*. Retrieved 11 May 2023 from https://www.scrobbr.com/methodology/research-ethics/

Braidotti, R. (2019). *Posthuman knowledge*. Polity Press.

Brown, M. & Di Lallo, S. (2020). Talking circles: A culturally responsive evaluation practice. *American Journal of Evaluation*, *41*(3), 367-383.

Clark, N. (2016). Red intersectionality and the violence-informed witnessing praxis with Indigenous girls. *Girlhood Studies*, *9*(2), 46-64.

Cote-Meek, S. (2020). From colonised classrooms to transformative change in the academy: We can and must do better! In S. Cote-Meek & T. Moeke-Pickering (Eds.) *Decolonizing and Indigenising education in Canada,* xi-xxiii. Canadian Scholars.

Collett, K. S., van den Berg, C. L., Verster, B. & Bozalek, V. (2018). Incubating a slow pedagogy in professional academic development: an ethics of care perspective. *South African Journal of Higher Education*, *32*(6), 117-136.

Di Lallo, S., Graham, L. & Arian, M. (2018). *The Stollery Awasisak Indigenous health program: Community engagement talking circles phase II*. Alberta: Alberta Health Services.

Callan, E. (2016). Education in safe and unsafe spaces. *Philosophical Inquiry in Education*, *24*(1), 64-78.

Chidester, D. (2008). Unity in diversity: Religion education and public pedagogy in South Africa. *Numen*, *55*(2-3), 27.

Chilisa, B. (2012). Decolonising transdisciplinary research approaches: An African perspective for enhancing knowledge integration in sustainability science. *Sustain Sci*, *12*, 813-827.

Department of Education. (2011). *Curriculum and Assessment Policy Statement (CAPS)*. Pretoria: Government Printers.

Eloff, I., Mathabathe, K., Agostini, E. & Dittrich, A. (2022). Teaching the Global Goals: Exploring the Experiences of Teacher Educators in an Online-Environment through Vignette Research. *Environ. Sci. Proc.*, *15*(1), 5.

Eloff, I., Agostini, E., Dittrich, A.K., & Mathabathe, K. (2023). Vignettes of Equality, Wellbeing and Teaching. In C.H. Mayer (Ed.). *Women's Empowerment for a Sustainable Future*. Springer. https://doi.org/10.1007/978-3-031-25924-1_38

Erfanian, F., Roudsari, R. L., Haidari, A. & Bahmani, M. N. D. (2020). A Narrative on the Use of Vignette: Its Advantages and Drawbacks. Journal of Midwifery & Reproductive Health, *8*(2), 2134-2145.

Gladwin, D. (2021). *Rewriting our stories: Education, empowerment, and well-being*. Cork: Cork University Press.

Gourlay, A., Mshana, G., Birdthistle, I., Bulugu, G., Zaba, B. & Urassa, M. (2014). Using vignettes in qualitative research to explore barriers and facilitating factors to the uptake of prevention of mother-to-child transmission services in rural Tanzania: a critical analysis. *BMC medical research methodology*, *14*, 1-11.

Granillo, B., Renger, R., Wakelee, J. & Burgess, J. L. (2010). Utilisation of the Native American talking circle to teach incident command system to tribal community health representatives. *Journal of Community Health*, *35*, 625-634.

Gupta, J. & Vegelin, C. (2016). Sustainable development goals and inclusive development. *International Environmental Agreements*, *16*, 433-448.

Haozous, E. A., Eschiti, V., Lauderdale, J., Hill, C. & Amos, C. (2010). Use of the talking circle for Comanche women's breast health education. *Journal of Transcultural Nursing, 21*(2), 377-385.

Hargreaves, A. & Fullan, M. (2012). *Professional capital: Transforming teaching in every school*. Teachers College Press.

Holt, M. (2002). It's time to start the slow school movement. *Phi Delta Kappan*, *84*(4), 264–271.

Hunt, S. (2018). Researching within relations of violence: Witnessing as methodology. In D. McGregor, J-P. Restoule, & R. Johnston (Eds.) *Indigenous research: Theories, practices, and relationships*, 282-295. Canadian Scholars.

Jarvis, J. (2021). Empathetic-reflective-dialogical re-storying: A teaching–learning strategy for Life Orientation. *The Journal for Transdisciplinary Research in Southern Africa*, *17*(1). Retrieved 11 November 2021 from https://doi.org/10.4102/td.v17i1.1077

Jarvis, J. (2023). Re-storying human rights education: A dialogical exploration of teacher identity. In Becker, A., Ter Avest, I., Roux, C. (Eds.). *Human Rights education in South Africa and the Netherlands: Conversations in place-space-time,* 155-178. Leiden: African Studies Centre.

Jarvis, J. & Mthiyane, N.P. (2022). Using empathetic-reflective-dialogical re-storying as a teaching-learning strategy to confront xenophobic attitudes in a context of higher education. *Journal of Education*, *88*, 107-126.

Johnston, D. (2018, May). Disrupting normative legal education through decolonial resistance Pedagogy [Workshop on Legal Pedagogy]. Peter A. Allard School of Law, University of British Columbia, Vancouver.

Kaminski, J. (2011). Talking circles. First Nations Pedagogy. Retrieved 5 February 2020 from https://firstnationspedagogy.com/talkingcircles.html

Kidd, I. J. (2021). Character, Corruption, and 'Cultures of Speed' in Higher Education. In A. Mahon (Ed.) *The Promise of the University: Reclaiming Humanity, Humility, and Hope,* 17-28. Springer.

Kinge, W. (2016). *International dimensions of xenophobic attacks on foreign nationals in South Africa*. Doctoral dissertation, North-West University, South Africa.

Kimmerer, R. W. (2021, January). A conversation with Dr. Robin Wall Kimmerer [video]. Forestry and Simon K.Y. Lee Global Lounge and Resource Centre. University of British Columbia, Canada.

Kovach, M. (2009). *Indigenous methodologies: Characteristics, conversations, and contexts*. Toronto: University of Toronto Press.

Kovach, M. (2021, March). In good relations: Ethics, and reciprocity within Indigenous research [Video webinar]. Learning Circle, University of British Columbia. Retrieved 20 January 2020 from https://learningcircle.ubc.ca/2021/02/margaret-kovach-in-good-relations-ethics-and-reciprocity-within-indigenous-research

Le Grange, L. (2020). Sustainability Higher Education in the Context of Bearn's University of Beauty. Sustainability, *12*, 10533. Retrieved 20 August 2022 from https://doi:10.3390/su122410533

Leibowitz, B. & Bozalek, V. (2018). Towards a slow scholarship of teaching and learning in the South. *Teaching in Higher Education*, *23*(8), 981-994.

Llanera, T. & Smith, N. H. (2021). A culture of egotism: Rorty and higher education. In A. Mahon (Ed.), *The Promise of the University: Reclaiming Humanity, Humility, and Hope,* 55-66. Springer.

Mahon, A. (Ed.). (2021). *The Promise of the University: Reclaiming Humanity, Humility and Hope*. Springer.

Maldonado-Torres, N. (2007). On the coloniality of being. *Globalisation and the Decolonial Option*, *21*(2-3), 240-270.

Mbigi, L. (1997). *Ubuntu: The African dream in management*. Knowledge Resources.

News24. (2019, November 14). See for yourself: The Comprehensive Sexuality Education curriculum is here. Retrieved 18 January 2020 from https://www.news24.com/life/archive/see-for-yourself-the-comprehensive-sexuality-education-curriculum-is-here-20191114

Ngwane, B. L. (2016). *Home is where the heart is…or is it? An explorative study on lived experiences of immigrants working as educators at a tertiary institution in South Africa*. Master's dissertation. University of KwaZulu-Natal, South Africa.

Nussbaum, M. (2010). *Not for profit: Why democracy needs the humanities*. Princeton University Press.

Pardy, L. & Pardy, B. (2020). Decolonising non-Indigenous faculty and students: Beyond comfortable diversity. In S. Cote-Meek & T. Moeke-Pickering (Eds.) *Decolonizing and Indigenising education in Canada,* 229-246. Canadian Scholars.

Petrini, C. (2001). *Slow food: The case for taste*. Translated from the Italian by William McCuaig. Columbia University Press.

Pinar, W. (2015). *Educational experience as lived: Knowledge, history, alterity. The selected works of Pinar*. Routledge.

Quinlan, O. (2014). *The thinking teacher*. Independent Thinking Press.

Ramphele, M. (2012). *CONVERSATIONS with My Sons and Daughters*. Penguin Books.

Ramphele, M. (2017). *Dreams, Betrayal and Hope*. Penguin, Random House.

Reyes, G., Aronson, B., Batchelor, K., Ross, G., & Radina, R. (2021). Working in solidarity: An intersectional self-study methodology as a means to inform social justice teacher education. *Action in Teacher Education*, *43*(3), 353-369. Retrieved 20 May 2021 from https://doi.org/10.1080/01626620.2021.1883149

Schratz, M., Westfall-Greiter, T. & Schwarz, J. (2014). Beyond the reach of teaching and measurement: Methodology and initial findings of the Innsbruck vignette research. Pensamiento Educativo. *Revista de Investigación Educational Latinoamericana*, *51*(1), 123-134.

Ulmer, J. B. (2017). Writing Slow Ontology. *Qualitative Inquiry*, *23*(3), 201-211.

Vermeulen, T. & Van den Akker, R. (2010). Notes on Metamodernism. *Journal of Aesthetics & Culture*, *2*(1), 56-77.

Vermeulen, T. & Van den Akker, R. (2015). *Misunderstandings and clarifications. Notes on Metamodernism*. Retrieved 9 May 2023 from http://www.metamodernism.com/2015/06/03/misunderstandings-and-clarifications/

Wilken, M., & Nunn, M. (2017). Talking circles to improve diabetes self-care management. *The Diabetes Educator*, *43*(4), 388-395.

Žižek, S. (2017). *The Courage of Hopelessness: Chronicles of a Year of Acting Dangerously*. Allan Lane.

Zizka, L. (2017). From campfire to classroom: An application of talking circles and storytelling in hospitality management education. *Journal of Hospitality & Tourism Education*, *29*(1), 44-50.

The framing of course design tools for an online pre-service teacher training course to activate ESD in subject teaching[1]

Wilma van Staden, Rhodes University, South Africa
Rob O'Donoghue, Rhodes University, South Africa
Heila Lotz-Sisitka, Rhodes University, South Africa

ABSTRACT

This study explores developing and implementing an online course to integrate Education for Sustainable Development (ESD) into the South African Curriculum Assessment Policy Statement (CAPS). The course design process emphasises the inclusion of Indigenous Knowledge Systems (IKS) and Sustainable Livelihoods as core components, fostering a transformative learning experience for teachers. Leveraging a Vygotskian action learning schema and expansive learning cycles, the course supports a co-engaged design research methodology to enhance teacher capacity in ESD. A 'theory of change' evaluation framework assesses the course's impact on curriculum strengthening. Key findings indicate that online teacher capacity-building programmes can effectively engage teachers, promote curriculum-activated ESD initiatives, and facilitate deeper integration of IKS and sustainable practices in school teaching. The hybrid design, combining online and face-to-face interactions, fosters a Professional Learning Community (PLC), which enhances teaching practices and learner engagement through real-world sustainability challenges.

Keywords: online learning, curriculum strengthening, course design, Indigenous knowledge systems, Education for Sustainable Development

INTRODUCTION

Like many other countries, South Africa faces severe impacts of climate change, water, energy, and food insecurity, among other critical issues (Carter & Gulati, 2014: 5). Aligned with the National Development Plan, the South African government is implementing the Sustainable Development Goals with all national policies orienting towards sustainable development (National Planning Commission, 2012). Foundational knowledge, competencies, and values are critical to South Africa's sustainable development, hence the need to strengthen Education for Sustainable Development (ESD) in the national curriculum (UNESCO, 2021: 4). The

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National Curriculum Statement in South Africa mandates that all subjects address human rights, social justice, inclusivity, and a healthy environment (Department of Basic Education, 2020: 22).

ESD addresses these matters of concern. It also empowers learners to make informed decisions and take responsible actions for environmental integrity, economic viability, and a just society for present and future generations while respecting cultural diversity (UNESCO 2021: 23). Therefore, it is essential to capacitate and prepare our teachers for the inclusion of ESD in the CAPS curriculum. The authors identified Indigenous Knowledge Systems (IKS) and Sustainable Livelihoods as ESD-related cross-cutting concerns that address the above principles that teachers and subject curriculum specialists need to work with to develop a relevant and sustainable curriculum that addresses actual sustainability matters of concern. To ensure the successful uptake of ESD competencies and knowledge in the CAPS curriculum, teachers must be prepared to teach for a sustainable future (Janse van Rensburg & Lotz-Sisitka, 2000: 45).

Responding to the urgency, including ESD-aligned work within the curriculum and teacher training programmes, teacher trainers and educators found themselves at a crossroads in the development process of online course design frameworks for pre- and in-service teacher capacity building. The paper aims to describe the iterative process of developing and applying such an ESD-aligned pre-and in-service teacher online course framework to support the Department of Basic Education (DBE) initiatives.

This article and the associated research are integral components of the Fundisa for Change programme, a national initiative to enhance teacher education for sustainable development in South Africa. The programme focuses on building the capacity of educators to integrate ESD into the curriculum effectively. By aligning with the Fundisa for Change framework, this study contributes to the broader goals of promoting sustainability practices and empowering teachers with the necessary skills and knowledge. The insights and outcomes from this research are intended to support and advance the objectives of the Fundisa for Change programme, fostering a more sustainable educational environment.

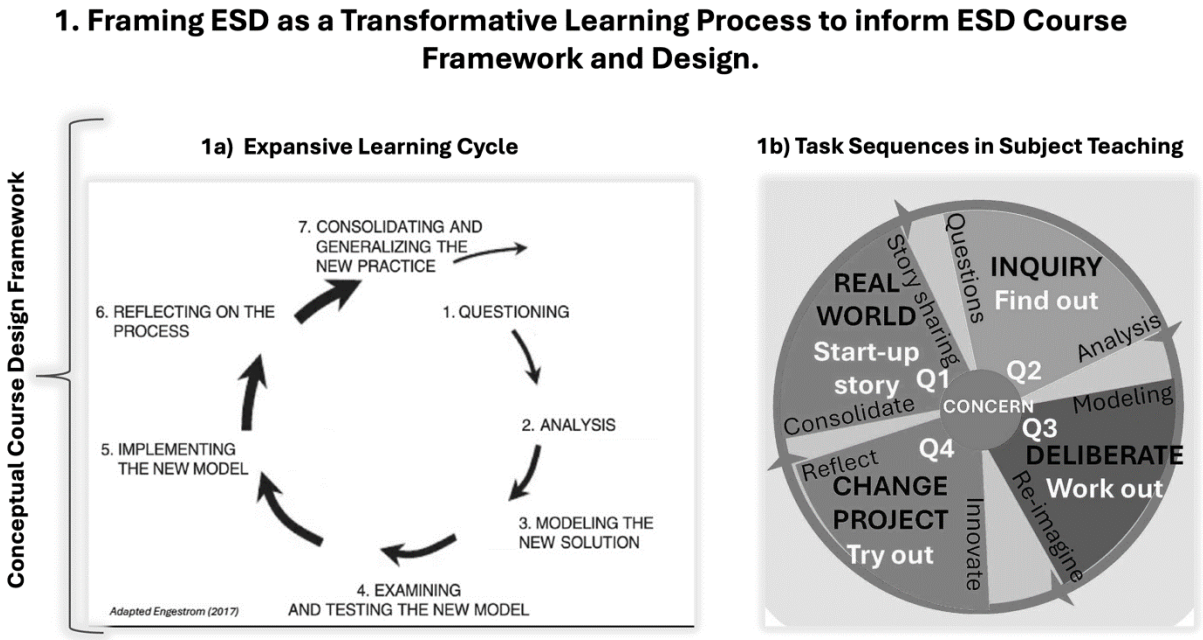
In this article, the authors propose an online course design framework as a course-activated process with teachers to integrate the cross-cutting areas of ESD, namely IKS and Sustainable Livelihoods, to strengthen the CAPS curriculum. This paper outlines a course framework for developing and evaluating a course for pre-and in-service teacher training for ESD curriculum activation in diverse subject fields to strengthen the CAPS curriculum. Therefore, our main research design questions are:

- Can an online course-mediated teacher intervention be developed to support ESD as a curriculum-strengthening process with the inclusion of IKS and Sustainable Livelihoods as integral concerns?
- Can an online teacher capacity-building programme engage teachers in ways that include curriculum-activated Education for Sustainable Development (ESD) initiatives in school subject teaching?

THEORETICAL FRAMEWORK

This paper is underpinned by a theoretical framework that integrates several educational theories to support the development of an online course to activate ESD in teacher training. The framework combines Vygotskian action learning principles, expansive learning cycles, the theory of change, and cultural-historical activity theory, creating a comprehensive approach to transformative learning (Figure 1).

Figure 1:
Phase One: Conceptualising the course design, emphasising the integration of ESD as a transformative learning process



Vygotskian action learning principles

Lev Vygotsky's theories emphasise the social context of learning, highlighting the importance of interactions between learners and more knowledgeable others. This action learning schema informs the design of the ESD-aligned teacher capacity online course framework, promoting collaborative learning and co-construction of knowledge. By engaging teachers in a process where they actively participate and reflect on their practice, the course design aims to foster a deeper understanding and application of ESD principles in diverse educational contexts (Vygotsky, 1978: 56).

Expansive learning cycles

Engeström and Sannino's concept of expansive learning is central to the framework consisting of cycles of questioning, analysing, modelling, examining, implementing, reflecting, and consolidating (Figure 1). This approach is particularly suited to addressing complex, contextual matters of concern faced during the framework and course design process. It allows course designers and participants to go beyond their existing knowledge and practices to develop innovative solutions (Engeström & Sannino, 2010: 15).

Theory of change

The theory of change framework is employed to structure and evaluate the course's impact. This approach involves mapping the desired outcomes and working backwards to identify the necessary pre-conditions and objectives (Figure 3). In this study, the theory of change helps clarify how the ESD-aligned teacher capacity online course framework can strengthen the uptake of IKS and sustainable livelihoods in the curriculum through teacher training (Weiss, 1995: 77).

Cultural-historical activity theory

The ESD-aligned online course framework design is also informed by cultural-historical activity theory, which views learning as a dynamic process mediated by cultural artefacts and social interactions. This perspective aligns with the course's emphasis on contextualising learning within the sustainability matters of concern and leveraging Indigenous knowledge and Sustainable Livelihoods as a valuable resource. The course can make ESD more relevant and impactful by situating the learning process within the teachers' and learners' cultural and historical contexts (Engeström, 2001: 34).

METHODOLOGY

Through this study, a pre-service teacher[2] course and five in-service teacher courses[3] were developed. This article reports on the pre-service teacher capacity-building programme. The project was divided into four phases that provide a comprehensive overview of the iterative methodological process of developing and implementing an ESD course framework for pre-service teacher training.

Phase One: Conceptualisation

The process began with Phase One, the foundational phase of conceptualising the course design, emphasising the integration of ESD as a transformative learning process (Figure 1). This initial step involves framing ESD within a theoretical model that supports knowledge-mediated learning, ensuring that the course design aligns with educational objectives and sustainability goals. The conceptual framework is informed by expansive learning cycles and Vygotskian action learning principles, which provide a well-balanced structure to support course development (Vygotsky, 1978: 56; Engeström & Sannino, 2010: 15).

LITERATURE REVIEW ON COURSE DESIGN

To clarify a suitable online course design, recent environmental education online courses and their designs were reviewed including the UNESCO Sustainability Starts with Teachers (UNESCO SST), the Fundisa for Change Education for Sustainable Development collaboration, and the recent production of a Handprints Teacher Education Handbook produced for ESD in school curriculum settings (O'Donoghue, Misser & Snow-Macleod, 2021: 15; van Staden & O'Donoghue, 2023: 23; van Staden & Lotz-Sisitka, 2023: 45). All the above-reviewed courses were initially face-to-face programmes that, with the advent of the COVID-19 pandemic, had

[2] https://courses.fundisaforchange.co.za/courses/foodgarden/

[3] https://courses.fundisaforchange.co.za/

to shift to a virtual e-learning approach. These teacher education initiatives in southern Africa have developed ESD to be included as school-in-community initiatives that incorporate indigenous heritage knowledge (IKS) and activate change projects in curriculum settings (van Staden & O'Donoghue, 2023: 23). The development of these types of ESD-aligned online courses has informed this study on the design and development of online frameworks for interactive, situated learning that seeks to support sustainability practices and the engagement of teachers and teacher educators (van Staden & O'Donoghue, 2023: 45; O'Donoghue, Misser & Snow-Macleod, 2021: 15).

An additional in-depth literature review of models for online learning was conducted to strengthen this study. Specific models examined Blending with the Pedagogical Purpose model (Bosch, 2016: 3), the Multimodal Model for Online Education (Picciano, 2017: 48), and the Community of Inquiry framework developed by Garrison, Anderson, and Archer (2000: 88). Additionally, the work of Gogus (2023: 4), which adopted the Activity System Theory Framework to support effective online learning experiences, resonated with this research as it focuses on creating and enhancing online cognitive, teaching, and social presence through a cultural-historical approach.

CONCEPTUAL FRAMEWORK DEVELOPMENT

A sound conceptual framework for the online course design was established, informed by Vygotskian action learning principles and expansive learning cycles articulated by Engeström and Sannino (2010: 15). This framework and the task sequence in subject teaching guided the subsequent development and application of the course, supporting the process of framing ESD as a transformative process of knowledge-mediated learning (Figure 1) (Vygotsky, 1978: 56; Engeström & Sannino, 2010: 15).

Phase Two: Design research - Development of online learning platform and resources

Following the conceptualisation, the process moves into the design research phase. This phase was characterised by a co-engaged approach where teachers actively develop and refine the course. The design research process included deliberative workshops to surface IKS and Sustainable Livelihoods as matters of concern and incorporate them into curriculum topics. Start-up stories and lesson plans were developed to create engaging and contextually relevant content. This collaborative effort ensured that the course material was theoretically sound and practically applicable in real-world teaching scenarios (Weiss, 1995: 77).

Development of online learning platform and resources

The design team comprised three main members, each with distinct roles. The course designer and developer were responsible for the overall course structure and development. The two-course presenters, who also co-developed the materials, focused on delivering the course content. Together, they worked on two main aspects of development:

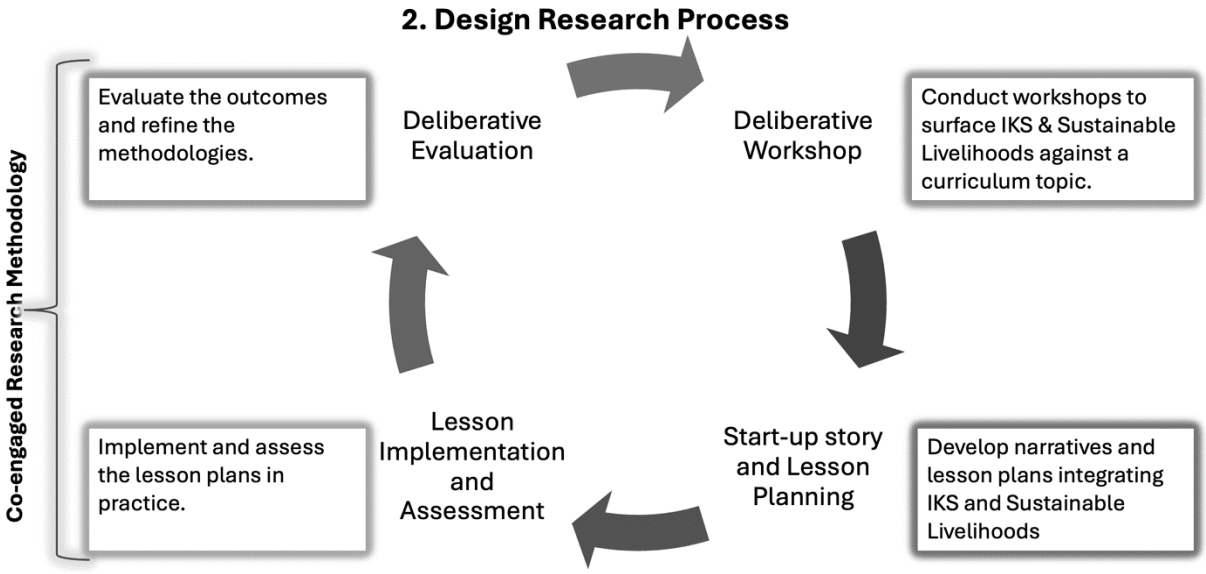
- Creation of an Online Learning Platform: Facilitated interactive and situated learning experiences.

- Development of Resources: Compiled start-up activities and materials, providing case evidence on African Heritage Knowledge uncovered and recovered by researchers at an environmental learning research centre (Schudel & Lotz-Sisitka, 2021: 48).

Theoretical framework application

The theoretical underpinnings of the course were applied to develop practical, situated learning sequences that facilitated transformative learning. These sequences included questioning, inquiry, modelling, analysis, and application phases, all aimed at engaging teachers with real-world matters of concern (Edwards, 2014: 18; Engeström, 2010: 15).

Figure 2:
Phase 2 - the Design Research Phase



Phase 3: Pilot course implementation

The implementation phase, depicted in Figure 2, showcased the practical application of the developed course materials and involved a five-week pilot programme focused on Heritage Food Gardening. This phase included the actual teaching and learning activities, where the course was delivered to participants through a hybrid model of online and face-to-face sessions. This programme included practical contact sessions and curriculum-activated learning activities designed to promote sustainable livelihood practices through school-in-community ESD projects. Teachers participated in co-engaged lesson design research processes, enhancing their capacity to integrate ESD into their teaching practices (Schudel & Lotz-Sisitka, 2021: 33). The teachers engaged with the content, participated in hands-on activities, and implemented the lesson plans in their classrooms. This stage was crucial for gathering feedback and observing the practical impacts of the course design on teaching practices and learner engagement.

Phase Four: Evaluation and iterative improvement

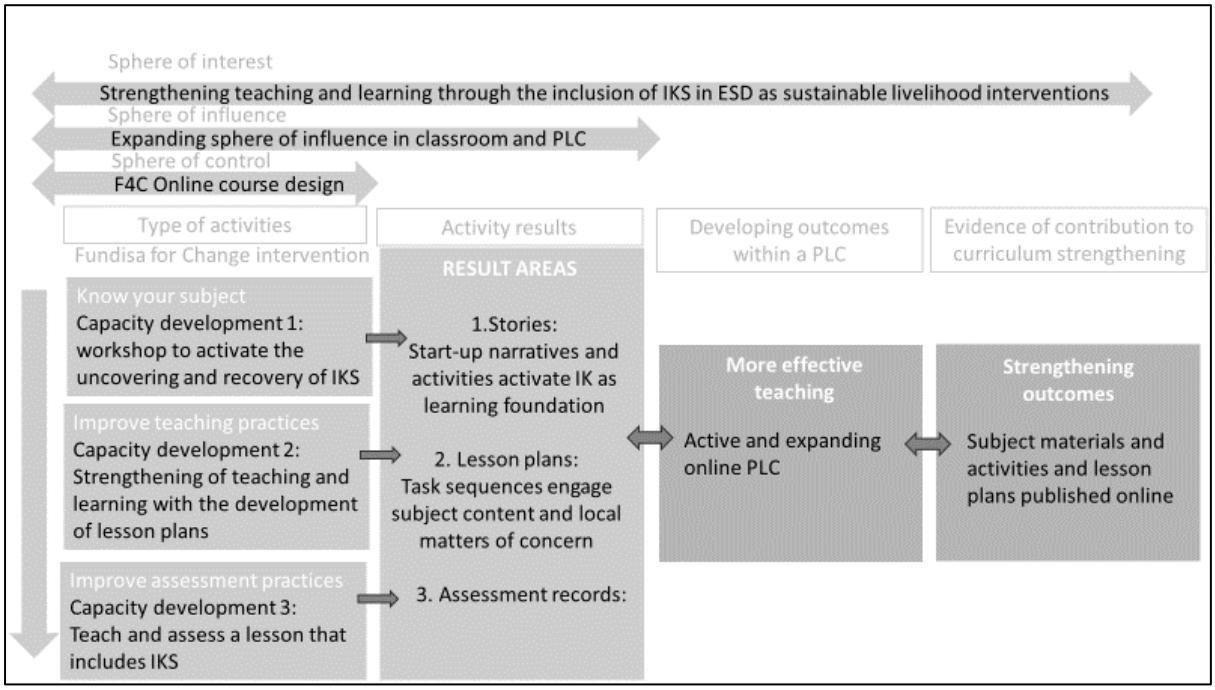
Finally, the evaluation and iterative improvement phase is highlighted in Figure 3. This involved continuous monitoring and assessment of the course's effectiveness, utilising a theory of change

framework. The evaluation process included collecting data on teacher and learner outcomes, analysing the effectiveness of the teaching methods, and refining the course materials based on feedback. The course design was continuously evaluated and refined based on feedback from participating teachers and the Professional Learning Community (PLC). The evaluation process utilised a theory of change framework to assess the course's impact on strengthening the CAPS through ESD integration. This iterative cycle ensured that the course remained relevant and practical, continuously adapting to the needs of teachers and the educational context. Figure 3 depicts this dynamic and collaborative process, emphasising the importance of co-engagement, practical application, and continuous improvement in developing a successful ESD course framework (Engeström, 2001: 34).

Final course analysis and rollout

Based on the iterative development process, the final course design incorporated the theoretical and practical insights gained. The course included both online and face-to-face interactions, providing a hybrid learning model supporting teacher capacity building and ESD curriculum activation.

Figure 3:
Implementation Phase - Applying Theory of Change for ESD Course Framework



RESULTS

Phase 1: Framing ESD as a transformative process of knowledge-mediated learning

To design the ESD-aligned pre-service teacher capacity online course framework, we framed ESD as a transformative process of knowledge-mediated learning. Drawing on Vygotsky (1978: 86) and Engeström (2001: 133), we mapped out ESD as a transformative learning process

through the application of the Expansive Learning cycle, which is a model for understanding and facilitating transformative learning (Figure 1).

Firstly, the expansive learning cycle was applied as an iterative process to map our course design and track the course framework and design development. A schematic model of the process (Figure 1) was developed as a learning sequence for knowledge-mediated social change. This model also enabled the conceptualisation of action learning progressions in school curriculum settings as co-engaged task sequences (Figure 1). This process informed a simplified task sequencing lesson planning progression developed for the Handprint CARE Teacher Education Handbook (Sarabhai et al., 2022: 45). The co-engaged task sequences focus on how ESD principles can be integrated into lesson planning and teaching. The key components of the co-engaged task sequences include:

1. Inquiry: Engaging students in finding out information through questions and investigations.
2. Analysis: Analysing the information gathered to understand the underlying issues and concepts.
3. Modelling: Creating models or representations of the new solutions or concepts learned.
4. Deliberate: Reflecting and re-imagining how these new solutions can be implemented in practice.
5. Change Project: Implementing small-scale curriculum-activated change projects to apply the new knowledge and solutions.
6. Real World: Using real-world scenarios and start-up stories to contextualise learning and make it relevant.
7. Reflect and Consolidate: Reflect on the outcomes of the curriculum-activated change projects and consolidate the learning to stabilise the new knowledge.

This schematic model of the process was developed as a learning sequence for knowledge-mediated social change, enabling the conceptualisation of action learning progressions in school curriculum settings as co-engaged task sequences. This model includes the analytical lenses for learning-led change provided by Engeström and Sannino (2010: 4). In course development and facilitation with pre-service teachers, the expansive learning cycle for transformative learning was integrated with curriculum task sequences as outlined by Edwards (2014: 22).

From this design, we developed the ESD-aligned online course framework for a Foundation Phase pre-service course in Food Gardening, effectively providing teachers with possibilities to integrate IKS and Sustainable Livelihoods into the curriculum and their lessons by utilising the expansive learning process and task sequence methods. Through a structured approach, the course encouraged teachers to reflect on past teaching practices, assess current food security issues, and develop action plans that harmonise traditional knowledge with modern sustainability practices. This process included stages such as questioning existing practices, analysing current conditions, modelling new solutions, and implementing and reflecting on these solutions in real-world scenarios. Each course module was structured according to the curriculum task sequence linked to expanding the past to the present towards the future. This

reflective and iterative process enabled teachers to understand the value of IKS and its application in promoting sustainable livelihoods.

The model closely combines a cultural-historical approach to dialogical processes of social learning (Engeström & Sannino, 2010: 6) with Vygotskian action learning task sequences (Edwards, 2014: 25). This combination facilitated the engagement of sustainability matters of concern within curriculum settings by culturally situating curriculum and learning. Through a formative collaboration process, pre-service teachers developed materials that activated learning via real-world stories, including integrating IKS and Sustainable Livelihoods. This method encouraged participants to raise questions about matters of concern, co-engaged learning, change project interventions, evaluation, and reflection.

Informed by this body of theory and schematic starting points for lesson design, the course was developed as a situated process activated around the acquisition of subject knowledge as a foundation for ESD as a deliberative process of transformative learning that can be activated and supported in school curriculum settings through lesson design research with teachers.

Development of online learning platform and course materials

A co-engaged research methodology was developed for the online learning process to engage teachers in ESD. This began with a workshop where participating teachers surfaced and deliberated on IKS and Sustainable Livelihoods related to a curriculum topic. The aim was to generate 'start-up stories'[4] that would frame the teaching topic, fostering inquiry and data generation for later analysis and potential change projects. This methodology centred on story sharing to raise questions, gather data on concerns and explore possible interventions.

Pilot course implementation

During the pilot implementation, student teachers applied the 'teacher-as-researchers' approach (Stenhouse, 1975: 143). They developed and assessed lesson plans integrating IKS and Sustainable Livelihoods as ESD topics. These lesson plans were then offered for in-depth analysis and feedback to clarify ESD methodologies for including intergenerational heritage in curriculum settings. This phase emphasised collaborative learning and the iterative development of teaching materials, ensuring that the integration of IKS and Sustainable Livelihoods was practical and effective.

Evaluation

The evaluation phase involved analysing the start-up stories, lesson plans and assignments created by the course participants, pre-service teachers. This analysis aimed to refine ESD methodologies for incorporating IKS and Sustainable Livelihoods into the curriculum. Feedback from this phase was crucial in identifying the strengths and areas for improvement in the teaching materials and strategies developed during the pilot implementation. The evaluation focused on both the content and the pedagogical approaches used.

[4] Click here to access an example of one of these start-up stories:

Co-engaged methodological approach

The design research process was approached as a co-engaged deliberative process involving teachers in generative pedagogical interventions towards the inclusion of IKS and Sustainable livelihoods in teaching and learning settings within the CAPS curriculum. This collaborative approach ensured that the research was grounded in real classroom experiences and responsive to the needs and insights of teachers. The co-engaged methodology fostered a supportive environment for experimenting with and refining new teaching strategies.

Applying theory of change to course development

The theoretical framework for ESD and the lesson design research schema for professional development work with teachers had to align with the DBE policy for strengthening the CAPS Curriculum, so we developed a theory of change evaluation framework that aligns with and is suitable for the proposed course.

Following the conventions of a 'theory of change' approach to evaluation research, the result areas are mapped out around the ESD curriculum planning and lesson design areas of:

- Content as situated narrative in relation to sustainability concerns (Know your subject: Strengthened subject knowledge)
- Active learning methodology and learner engagement (Improved teaching practices: Strengthened relevance and learner engagement)
- Expansion of assessment to include both knowledge acquisition and a broader view of learning outcomes. (Improved assessment practices: Significant learning and academic performance)

The 'theory of change' schema mapped out in Figure 3 enables an assessment of progressive performance using the data generated in online course assignments. It shows how these can be reviewed as curriculum-strengthening evidence for reporting against the DBE curriculum-strengthening imperative of including IKS and Sustainable livelihoods as ESD matters of concern.

Applying the Theory of Change in this research involved using narrative inclusion—questioning, analysis, modelling, implementation, and reflection—to create a coherent and ethically grounded approach to integrating IKS and sustainable livelihoods in subject teaching. Data analysis clarified ESD models of process, highlighting the transformative potential of these methodologies in enhancing teacher capacity and promoting sustainable education practices. This iterative and reflective approach ensured continuous improvement and adaptation of teaching strategies to better integrate IKS and sustainable livelihoods and support sustainable livelihoods.

Following this structured approach, the Life Orientation: Healthy Living course aimed to develop an ESD-aligned online learning platform and course materials that effectively integrated IKS and Sustainable Livelihoods to support sustainable education practices, strengthening teacher capacity and promoting a deeper understanding of sustainability among students. Figure 3 outlines the process of applying the Theory of Change to the ESD Course Framework.

Figure 3 illustrates a comprehensive framework for integrating IKS situated in ESD as sustainable Livelihood interventions through the Fundisa for Change programme. This framework outlines the spheres of interest, influence, and control, along with the types of activities, their results, and the ultimate outcomes. The process focuses on strengthening teaching and learning through the inclusion of IKS in ESD to support Sustainable Livelihood interventions. It expands the sphere of influence within classrooms and PLCs, aiming to integrate these practices broadly. The Sphere of Control centres are designing the Fundisa for Change online course, the primary tool for implementing this framework. By following this framework, the Fundisa for Change course designers aimed to create a sustainable and scalable model for integrating IKS and Sustainable Livelihoods into educational practices, ultimately leading to more effective teaching and strengthened curriculum outcomes.

DISCUSSION

This formative research on ESD course design focused on developing an ESD model of process as a course design framework for an online course supported by face-to-face practical sessions. The aim was to prepare a course-mediated process to support teacher-design research interventions and a theory of change framework for monitoring and evaluating the course in line with the imperative strengthening of the CAPS curriculum. Through the course's development, continuous monitoring, and evaluation, we gained valuable insights into the different aspects of such a framework and reconceptualisation process.

The theoretical framework, informed by the Vygotskian action learning schema, framed ESD as a transformative learning process (Vygotskian, 1978: 57). This framework is essential for developing a teacher capacity-building course that encourages teachers to engage deeply with subject content and deliberate on matters of concern in the classroom. The proposed theoretical framework for ESD and teacher design research supports curriculum-activated ESD initiatives, emphasising the importance of IKS and Sustainable Livelihoods (Figure 2). The expansive learning cycle facilitated the development of lesson plans that engage learners with real-world stories of change and shared concerns (Figure 1). This framework supports the design of a course that mediates teaching and learning processes, resulting in curriculum-activated ESD initiatives that strengthen the CAPS curriculum and the uptake of ESD matters of concern, IKS, and Sustainable Livelihoods (Engeström & Sannino, 2010: 15; Edwards, 2014: 25).

The co-engaged design process enabled active participation from course participants and the development of a PLC. Through deliberative workshops, teachers identified or created start-up stories shared lesson implementations and participated in evaluations. The hybrid design of online and face-to-face sessions, coupled with practical tasks, helped track and develop competencies in ESD lesson design, learning mediation, and change project support. This approach emphasised situating learning in real-world contexts, mediating learner-led inquiries, analysing inquiry data, and enacting small-scale change projects. The co-engaged course design research approach significantly strengthened subject knowledge, teaching practices, and learner engagement, improving academic performance (Stenhouse, 1988: 45; McKernan, 2008: 23).

The online course, developed using the Fundisa for Change Theory of Change schema, was structured to enhance teacher capacity in specific areas (Figure 3). Each module consisted of three sessions, starting with a workshop that focused on subject knowledge, teaching practices, and assessment practices linked to IKS and Sustainable livelihoods in ESD. The first unit addressed subject knowledge, IKS and Sustainable livelihoods through story-sharing and start-up narratives. The second unit focused on lesson plan design and task sequences for curriculum activation, while the third unit covered significant learning through assessment practices. Practical tasks and assessments allowed teachers to engage actively with the course material and contribute as design researchers. The course culminated in a curriculum-oriented change project assignment, integrating ESD matters of concern into classroom settings (O'Donoghue, Misser & Snow-Macleod, 2021: 39; van Staden & Lotz-Sisitka, 2023: 12).

Based on the Theory of Change, the evaluation process allowed researchers to assess the course's outcomes and its contribution to curriculum strengthening. By tracking participants' progress and addressing challenges, the course facilitators ensured that the course effectively developed teacher capacities. Linking capacity-building areas to result in areas simplified the evaluation, highlighting the active and expanding online PLC and the contribution to curriculum strengthening (Garrison, Anderson & Archer, 2000: 89; Gogus, 2023: 7).

While the online learning platform presented some challenges, such as participants' partial engagement and navigation difficulties, it also offered co-engaged curriculum activation and teacher training opportunities. To address these challenges, an initial session introducing the online platform is recommended to ensure participants understand the course's structure and how to engage fully with the content. Overall, the course demonstrated that an online teacher capacity-building programme could effectively engage teachers and support curriculum-activated ESD initiatives, fostering a deeper understanding and integration of IKS and sustainable livelihoods in school subject teaching (Bosch, 2016: 12; Picciano, 2017: 42).

CONCLUSION

Based on the findings from our discussion, an online (digital) course-mediated teacher intervention process to support ESD for curriculum strengthening, with the inclusion of IKS and Sustainable Livelihoods as integral concerns, is indeed possible. This is achievable when situated within an ESD Theory of Change course design framework and implemented as an active, co-engaged design research process (Figures 2, 3).

Our research confirms that an online course-mediated teacher intervention can effectively support ESD as a curriculum-strengthening process. The inclusion of IKS and Sustainable Livelihoods as cross-cutting concerns enriches the curriculum by providing a comprehensive framework for transformative learning. By employing a theoretical framework informed by Vygotskian action learning, the course design facilitated the integration of real-world stories of change and shared concerns into lesson planning. The expansive learning cycle supported teachers in developing and implementing ESD initiatives that enhance the CAPS curriculum, promoting sustainable education practices.

Our findings demonstrate that online teacher capacity-building programmes can engage teachers in meaningful ways, including curriculum-activated ESD initiatives in school subject

teaching. The structured modules, aligned with the Fundisa for Change Theory of Change schema, allowed teachers to engage deeply with subject content, lesson plan design, assessment development, and practical activities. By participating in the online course, teachers could develop and refine their teaching practices, supported by a PLC that fostered collaborative learning and knowledge generation. This co-engaged research process empowered teachers to monitor their contributions to the curriculum-strengthening process, ensuring that ESD matters of concern, IKS, and sustainable livelihoods are effectively integrated into their teaching practices.

In summary, the online course framework design facilitated a comprehensive approach to teacher capacity building, enabling course participants to engage with subject knowledge through situated learning. The framework supported improved teaching and assessment practices. It fostered active participation in ESD initiatives, demonstrating the potential for significant curriculum strengthening through a well-structured, co-engaged online learning platform.

REFERENCES

Bosch, C. (2016). Blending with Pedagogical Purpose: A Multi-Perspective Approach. *International Journal of Educational Technology in Higher Education, 13*(1), 1-16.

Carter, S. & Gulati, M. 2014. *Climate change, the Food Energy Water Nexus and food security in South Africa. Understanding the Food Energy Water Nexus*. WWF-SA, South Africa. Retrieved 20 June 2024 from http://awsassets.wwf.org.za/downloads/1__a16231_wwf_climate_change_few_and_food_security_in_sa__online.pdf

Department of Basic Education, South Africa. (2020). National Curriculum Statement. Retrieved 11 July 2024 from https://www.education.gov.za/Curriculum/NationalCurriculumStatementsGradesR-12.aspx

Edwards, A. (2014). Designing tasks which engage learners' knowledge with knowledge. In: I. Thompson (Ed.) *Task, Design, Subject Pedagogy and Student Engagement.* London: Routledge, pp.13-27.

Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualisation. *Journal of Education and Work, 14*(1), 133-156.

Engeström, Y. & Sannino, A. (2010). Studies of expansive learning: Foundations, findings and future challenges. *Educational Research Review*, *5*(1), 1-24. www.doi:10.1016/j.edurev.2009.12.002

Garrison, D. R., Anderson, T. & Archer, W. (2000). Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education. *The Internet and Higher Education, 2*(2-3), 87-105.

Gogus, A. (2023). Adapting the Activity System Theory Framework for Effective Online Learning. *Journal of Interactive Media in Education, 2023*(1), 1-12.

Janse van Rensburg, E. & Lotz-Sisitka, H. (2000) Monograph: Learning for Sustainability. *Southern African Journal of Environmental Education*, *20*, 45-53.

McKernan, J. (2008). *Curriculum and Imagination Process Theory, Pedagogy and Action Research.* London: Routledge.

National Planning Commission, South Africa. (2012). *National Development Plan 2030: Our Future - Make it Work*. Pretoria: Sherino Printers.

O'Donoghue, R., Misser, S. & Snow-Macleod, J. (2021). Review of a Course-supported Design Research Intervention Process for the Inclusion of Education for Sustainable Development in School Subject Disciplines. In I. Schudel, Z. Songqwaru, S. Tshiningayamwe & H. Lotz-Sisitka, (Eds.) *Teaching and Learning for Change: Education and Sustainability in South Africa.* African Minds, 165-182. www.doi:10.47622/9781928502241

Picciano, A. G. (2017). The multimodal model for online education: The role of social presence and interaction in online learning. *Journal of Asynchronous Learning Networks*, *21*(1), 41-49.

Sarabhai, K., Henze, C., O'Donoghuee, R., Sandoval, Rivera, J. C. & Shimray, C. (2022). *Handprints for Change: A Teacher Education Handbook*. Ahmedabad: Centre for Environmental Education.

Schudel, I. & Lotz-Sisitka, H. (2021). Strengthening Environment and Sustainability Subject Knowledge: Curriculum Challenges and Opportunities. In I. Schudel, Z. Songqwaru, S. Tshiningayamwe & H. Lotz-Sisitka (Eds.) *Teaching and Learning for Change: Education and Sustainability in South Africa.* African Minds, 25-48. www.doi:10.47622/9781928502241

Stenhouse, L. (1975). *An Introduction to Curriculum Research and Development.* London: Heinemann.

Stenhouse, L. (1988). Case study methods. In J. P. Keeves (Ed.) *Educational research methodology and measurement: An international handbook.* Oxford and New York: Pergamon Press.

UNESCO. (2021). International Commission on the Futures of Education, 2021. *Reimagining our futures together: a new social contract for education*. Paris: UNESCO. www.doi:10.54675/ASRB4722

van Staden, W. & O'Donoghue, R. (2023). Retos de la formación docente en línea en educación para la sostenibilidad en Sudáfrica (A review of some of the challenges of online teacher training for sustainability education in Southern Africa.). *Decisio*, *58*, 67-61.

van Staden, W. & Lotz-Sisitka, H. (2023). E-learning as a mediating tool to support interactive professional learning of teacher educators. *Interactive Learning Environments*. www.doi:10.1080/10494820.2023.2170423

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, Mass.: Harvard University Press.

Weiss, C. H. (1995). Nothing as practical as good theory: Exploring theory-based evaluation for comprehensive community initiatives for children and families. In J. P. Connell, A. C. Kubisch, L. B. Schorr & C. H. Weiss (Eds.) *New approaches to evaluating community initiatives: Concepts, methods, and contexts,* 65-92. Aspen, Colerado: Aspen Institute.

Emergency remote teaching during COVID-19: an examination of selected secondary school teachers' experiences on technology integration in Namibia[1]

Johanna Munyanyo, Rhodes University, South Africa
Clement Simunja, Rhodes University, South Africa

ABSTRACT

This study examines the experiences of secondary school teachers in Namibia in integrating technology during emergency remote teaching (ERT) necessitated by the COVID-19 pandemic. Aided by the TPACK framework and an interpretive qualitative case study approach. The data were gathered through semi-structured interviews of 17 secondary school teachers selected using purposive sampling. Findings revealed teachers innovatively employed available technological resources to ensure continuity of education, sharing and customising instructional content to promote student interaction. The study also found a significant role for parental involvement in supporting ERT. However, the integration of technology in the transition to ERT was associated with challenges, including lack of access to digital technologies, technical glitches, and maintaining student engagement. Unexpectedly, feelings of professional isolation were also reported among teachers, potentially due to the abrupt shift to online teaching lacking conventional face-to-face professional collaboration. The research underscores the importance of adequate digital literacy skills, essential technological resources, and the role of policymakers and educators in creating effective tactics to overcome emerging challenges. The findings suggest technology can significantly enrich and support educational continuity in crisis situations.

Keywords: integration of technology, emergency remote teaching, TPACK, continued education, pedagogical strategies

INTRODUCTION

The COVID-19 pandemic significantly impacted education, leading to a shift from traditional classrooms to online learning environments (Dhawan, 2020). Consequently, a report by UNESCO shows that over 1.7 billion learners worldwide experienced disruptions in their education (UNESCO, 2020). To ensure learning continuity, schools globally adopted online

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teaching methods and digital tools, resulting in a surge in technology adoption among educators. This immediate change required educators to quickly adapt to online platforms, often with limited time for preparation or development of suitable online course designs. This unexpected shift also caused significant anxiety and uncertainty among educators and other stakeholders regarding the effectiveness of teaching and learning in a remote environment (Valsaraj et al., 2021).

The COVID-19 pandemic forced most schools to find new ways to keep learners learning from home. Schools distributed learning materials, provided technology and online content, adopted new learning management systems, and adapted existing ones. Teachers also had to quickly learn how to teach remotely. According to Hodges et al. (2020), emergency remote teaching (ERT) refers to the use of distance or remote education during COVID-19 lockdowns. Rodés et al. (2021) describe ERT as a necessary shift in teaching that relies on digital technology. Shin and Hickey (2021) suggest ERT as a teaching style that is fully or partially online and used during crises. The shift to emergency remote teaching required educators to not only adapt existing courses for online delivery but also to develop new skills in digital content creation, technology integration, and online pedagogy. Additionally, educators had to find ways to engage parents, address learners' psychological needs (Shambare & Simuja, 2022) and implement diverse teaching methods to accommodate both synchronous and asynchronous learning (Hartshorne et al., 2020).

Similarly, to mitigate the threat of COVID-19, the Namibian government implemented a nationwide lockdown in April 2020, leading to the closure of schools and other educational facilities (MoE, 2020). As a result, teachers were required to quickly convert their teaching materials for remote delivery, and learners had to rapidly acclimate to a new, online learning environment. Despite these efforts, research by Mabolloane (2021) found that distance learning put many learners at a disadvantage due to inadequate learning environments and a lack of access to technology. This paper, which is part of a larger, ongoing longitudinal study, examines how selected case of rural secondary school teachers in Namibia approached the integra the integration of technology during this time of emergency remote education.

Thus, the objective in this study was to attempt to understand teachers' experiences in adapting curricula and pedagogy, the technological tools they were using, and the opportunities and challenges they encountered during the ERT. The following research questions guided the study:

(a) What digital tools and software applications did the rural secondary school teachers use during Emergency Remote Teaching in response to the COVID-19 pandemic in Namibia?
(b) What were the opportunities and challenges experienced by the selected Namibian rural secondary school teachers in integrating digital technologies during the period of emergency remote learning?

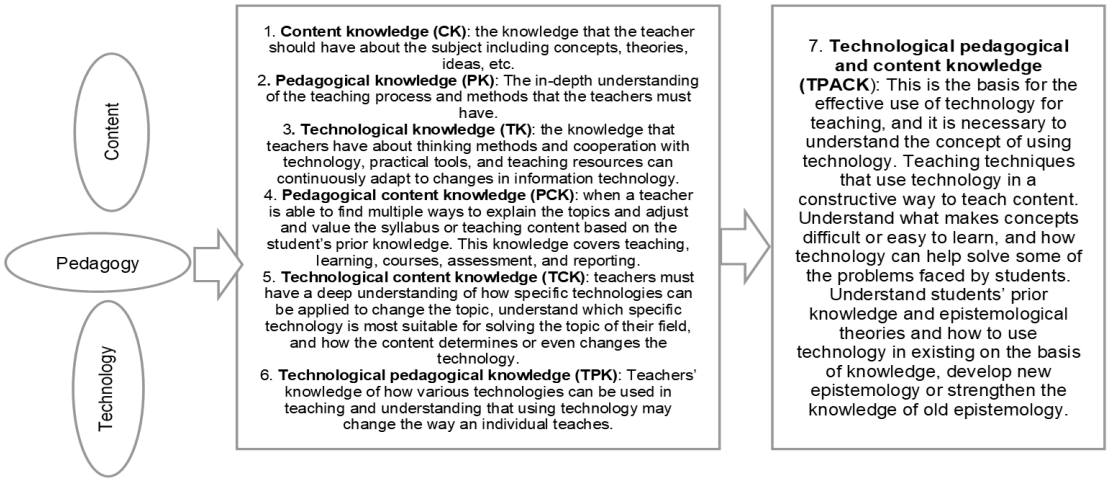
To respond to the two research questions, this paper commences with a concise overview of the study's background and reviews pertinent literature in the domain. Subsequently, the research methodology is detailed, followed by the methodology and findings. Finally, the paper offers several suggestions for educators and future research

THEORETICAL FRAMEWORK

Technological pedagogical and content knowledge (TPACK)

This paper explores secondary school teachers' experiences integrating technology during emergency remote teaching to ensure the continuity of teaching and learning during the COVID-19 pandemic and is underpinned by the Technological Pedagogical and Content Knowledge (TPACK). The TPACK framework, as proposed by Mishra and Koehler (2006), postulates that to integrate technology into their teaching, teachers need knowledge, which falls into three major domains: content knowledge, pedagogical knowledge, and technological knowledge. Additionally, TPACK is a framework (see Figure 1) that introduces the relationships and complexities between all three essential components of knowledge (technology, pedagogy and content).

Figure 1:
TPACK model as adopted from Tpack.org



The TPACK theory was adopted in this study to comprehend intricate teachers' experiences in the phenomenon of integrating technologies during the COVID-19 pandemic in Namibia. Koehler and Mishra (2008) support this viewpoint in advocating for studying technology use in schools through the lens of the TPACK framework. As such, the TPACK framework offered this study an analysis of knowledge components, their entirety, and their interconnectedness since technology integration in schools and classrooms comprises a multifaceted system consisting of several components and relationships. The knowledge constructs in the TPACK framework interact, creating a dynamic, ever-changing, and open ecosystem. Koehler and Mishra (2008) assert that integrating technology involves multiple factors that interact in complex ways.

While some Namibian rural secondary school teachers may already be familiar with using digital technologies for instruction, the COVID-19 pandemic necessitated a more comprehensive application of ERT and remote teaching methods. In navigating through this change, crucial were the knowledge constructs of the TPACK framework, key to aiding instructors in facilitating student engagement and interaction within multiple cultural scenarios. Given the versatility of technology in communication and interpretation, this study underscores

how its integration in education can facilitate learners' learning in culturally diverse contexts. Thus, by adopting the TPACK framework, the study was able to effectively draw upon the practices offered by technology, enhancing education during ERT.

LITERATURE REVIEW

Emergency remote teaching (ERT)

The COVID-19 pandemic compelled a departure from both traditional classroom teaching and remote instruction methods (Iglesias et al., 2021; Sharma et al., 2021). During the COVID-19 pandemic, educational institutions around the globe had to adapt to the new normal by transitioning to virtual learning (Nerantzi, 2020; Aliyyah et al., 2020). As a result, a wide-ranging conversation took place about how to label teaching and learning experiences during the pandemic, specifically amid a lockdown situation (Bhamani et al., 2020), and ERT was favoured (Rahiem, 2020; Liguori & Winkler, 2020).

The temporary shift to utilising electronic devices and entirely remote instruction as a result of crises is referred to as emergency remote teaching (Barbour et al., 2020; Rahiem, 2020). ERT represents the direct transition from in-person to distance learning without focusing on pedagogical aspects (Guerra et al., 2021; Seabra et al., 2021). This approach encompasses the use of technological tools, such as videoconferencing and learning management systems, but may also involve distributing physical resources, like books and paper packets in certain cases (Azlan et al., 2020). Rodés et al. (2021) define ERT as a teaching and learning mediation process marked by its emergency nature and the proposal to employ digital technologies. Shin and Hickey (2021) further explain that ERT is a teaching method implemented partially or fully online in response to crises. Hodges et al. (2020), highlighted that emergency remote teaching involves an abrupt shift from face-to-face instruction to remote because of the emergency education crisis. Basilaia and Kvavadze (2020) state that the emergency teaching period concerns maintaining contact between schools and learners mainly through technology. The shift to emergency remote teaching necessitates educators to take charge of the activities related to designing, creating, and delivering courses (Hodges et al., 2020).

Challenges experienced with ERT during COVID-19

During the COVID-19 pandemic, ERT presented various challenges for teachers and learners (Rapanta et al., 2020). This necessitated a rapid adjustment to the new teaching and learning environments while grappling with the social and psychological impacts of the crisis. One of the significant difficulties encountered was the absence of direct interaction and communication between learners and teachers (Varea & González-Calvo, 2021). Rahiem (2020) highlights that successful emergency remote instruction is largely dependent on the competence of teachers and learners, their prior experience with technology, and access to communication and information technology. The study additionally disclosed that factors such as teachers' and learners' access to technological resources like high-speed internet, preparedness for online learning, availability of instructional assistance, and policies enforced by institutions or governments all influenced the effectiveness of emergency remote teaching. However, not all schools have the necessary human and physical resources to transition to ERT (Watermeyer et al., 2021). In many developing countries, economically challenged children may not have the means to acquire and access technological devices and internet services. Consequently, online

education excludes most learners and teachers from participating in teaching and learning in most developing countries (Pokhrel & Chhetri, 2021; Di Pietro et al., 2020).

Moreover, the lack of power to charge devices, such as laptops and cell phones, also makes it difficult for learners to stay connected in deep rural areas without electricity (Adarkwah, 2021). In addition, inadequate infrastructure and resources to facilitate technology-based teaching have made it difficult for teachers to work from home (Mseleku, 2020). The burden of ensuring children have access to computers and other necessary technologies for studying at home has also increased for parents (Abuhammad, 2020; Bhamani et al., 2020). For young learners, lack of parental guidance, particularly for those whose parents are still working, hindered the effective implementation of ERT (Schuck & Lambert, 2020). The major challenges and hindrances to high-quality ERT during the COVID-19 pandemic were classified into four categories by Lassoued et al. (2020). The first category of obstacles is self-imposed, which indicates learners' rejection and resistance. The second is pedagogical, focusing on tests and evaluations of online or remote assessments and feedback. The third is technical and includes weak internet connectivity and other technical issues. The fourth category is financial and institutional obstacles, including difficulties some learners face in accessing digital technological tools and a lack of remote communication capabilities. This affirms that providing instruction remotely during the pandemic has posed a challenge for both teachers and learners. These challenges underscore the need for ongoing research on integration of technologies in teaching and learning in rural schools to explore the unique circumstances of remote learning environments in developing countries such as Namibia.

RESEARCH METHODOLOGY

The study adopted an interpretive paradigm and phenomenology approach to better understand teachers' experiences integrating technology during ERT in Namibia. To explore areas that are not well understood and to gather information on phenomena that are hard to extract using traditional research methods. A qualitative method was used (Strauss & Corbin, 1998) while a case study (Brown & Danaher, 2019) focus was chosen, particularly on teachers working in secondary schools in the Ohangwena region in the Endola Education Circuit in northern Namibia. This circuit encompasses a vast network of schools scattered across the sparsely populated, arid landscapes of rural Namibia. Many of the schools within the circuit are situated in remote villages, some accessible only by rough dirt roads, making the prospect of regular in-person learning a challenge even in the best of time. Similar, phenomenology was considered the best approach as this study assumes that every teacher's technology usage is moulded by their distinctive lived or professional experiences, i.e. ERT. To understand these experiences, we, as researchers, disregarded our perspectives and instead focused on how the participants interpreted and perceived the situation. So, we used a phenomenological approach (Nepembe & Simuja, 2023) that explores awareness by examining how individual teachers integrated technology.

When using the phenomenological method, we became aware that certain assumptions might impact our results when gathering participant data. These assumptions include considering the selected teachers as active, intentional contributors to the research. They are conscious of their technology usage and can form experiences and attitudes regarding their use in their

professional environment and ERT. Also, we considered the teachers' ability to reflect on their teaching methods and their decisions. Also, each participant's unique and group contexts, situations, and experiences were considered to gain a full understanding.

This research employed qualitative techniques to investigate and collect the data (Strauss & Corbin, 1998). Semi-structured interviews were employed as a part of the study. The research purposively selected 17 teachers from three secondary schools in the Endola education circuit. The semi-structured interview approach is a methodology for gathering qualitative data to gain insights on certain subjects from the participants' viewpoints (Brown & Danaher, 2019). This was achieved by posing open-ended questions. In ensuring the purposive selection of participants, a few steps were taken. To begin with, the first author collaborated with the Education Inspector of the Endola education circuit. This was to identify teachers who used technology efficiently during the COVID-19 pandemic. The inspector suggested 17 teachers from four schools and across various subjects. The first author then reached out to these teachers, explained the study, and asked for their views on using technology during ERT. Ultimately, all 17 teachers considered themselves adept in using technologies and confirmed their willingness to participate in the study. Before the interview sessions commenced, every participant was briefed about the objectives and methodology of the research. They then gave their consent verbally and in writing.

The audio-recorded interviews were transcribed on Microsoft Word and analysed using NVivo version 22, a software for managing and analysing different kinds of qualitative information. These transcripts were put into NVivo and later reviewed by grouping the participants' responses into distinct categories or themes using a thematic approach (Creswell et al., 2006). Each participant's response was linked and correlated with the pertinent theme through a coding procedure. This method involved associating each relevant quote with the fitting theme. Subsequent to this, the research adopted an inductive data analysis approach. The conclusions of the study were derived from the emerging theme patterns. Furthermore, the participants approved their case descriptions and analyses by performing a member check, which confirmed the accuracy of interpretations. This paper uses in-depth, descriptive quotes from the participants, enhancing the credibility of the findings. These quotes allow readers to interact directly with the participants' responses and experiences.

Ethical clearance was obtained from our affiliated university's Ethics Committee and the Director of the education office in Namibia. No coercion or deception was used to get people to participate in the study; participation was entirely voluntary. Moreover, individuals were free to exit the study whenever they wished. Key ethical principles such as informed consent, credibility, anonymity, confidentiality and trustworthiness were consistently maintained and ensured in this study.

FINDINGS OF THE STUDY

Digital tools and software applications commonly used during ERT

The results of this study predominantly address the technological resources employed in the selected schools, the specific technological devices, and the software that facilitated uninterrupted learning amidst ERT. Insights from semi-structured interviews revealed that some

secondary schools successfully leveraged various technological tools to integrate technology into their educational practices during ERT. The participants revealed that schools possess diverse technological resources, and certain secondary school teachers had readily adopted these technologies in their pedagogical practices since they were easily accessible within the schools. Astonishingly, some teachers disclosed that their schools lacked a dedicated computer lab for accessing technologies. However, they mentioned that there were computers and laptops allocated for teacher use primarily for lesson preparations and access to electronic content shared by the Ministry of Education in Namibia.

The teachers reported that their respective schools were equipped with internet connectivity, with some of them using personal tablets and mobile phones as teaching aids. Mobile phones were identified as the most frequently used technological tool, closely followed by laptops, tablets, and desktops, as recounted by the participants. They also shed light on the versatility and flexibility that these devices provided, facilitating education under ERT. Numerous software applications and programs were employed to continuously share content and interact with learners, demonstrating adaptability in the face of ERT. It is noteworthy that, despite the absence of dedicated computer labs, some schools and teachers were innovative and resourceful enough to continue imparting education during ERT.

While the technological tools mentioned were often leveraged to enhance teaching practices, the teachers revealed that actual interactive teaching was less frequent. Instead, educators commonly used technologies to share learning content, including teaching notes, audio explanations, and video presentations, through technological platforms such as WhatsApp groups, Zoom meetings, and Facebook pages. The participants further revealed that the use of multimedia graphics in the teaching notes, such as PowerPoint presentations, indicated a comprehensive teaching approach that caters to various learning styles (visual and auditory). More so, by disseminating these resources within WhatsApp groups, educators were able to directly reach parents, bolstering parental engagement in the learning process. Miss Angula (Pseudonym) noted that the positive results and growing interest of parents served as a motivator to persist in the creation and distribution of lesson content through WhatsApp technology: She stated:

> ...Seeing parents actively engage with the lesson content we distribute on WhatsApp and Facebook motivates me to keep innovating. Even in rural Namibia, we ensure that learning never stops during the COVID-19 pandemic.... (Ms Angula)

Opportunities encountered for technology integration during ERT

The study data indicated that participants started exploiting the learning content resources readily available on platforms such as Facebook and YouTube, integrating these into their lesson plans and sharing through WhatsApp technologies. Some participants mentioned that initially digital content resources were utilised directly, but over time they began to customise and create their own instructional content aimed at promoting student interaction. Using real-life examples and the assistance of WhatsApp to share visual materials located online became standard practice. For instance, Mr Solomon (Pseudonym) acknowledged that he could make

his own video lessons using his mobile phone to suit curriculum requirements for English subjects. He said:

> …I used to just share videos straight from YouTube for my students. But then, I found out I could make my own lessons. It was not easy at first, but with my phone, I started recording videos for my English lessons…. (Mr Solomon)

Ideal technology integration in ERT, as reported by the participants, was described as flawless and subtly improved the learners' learning experience. Furthermore, during the interviews, it transpired that such technological integration fostered increased student engagement. Another beneficial aspect was the ease of adjusting lesson pacing to match individual learners' abilities and preferences. Additionally, teachers reported achieving a better understanding of the learners' learning process through immediate feedback provided through the technology platforms. This also enhanced peer collaboration, as learners could directly interact digitally using these platforms. The easy accessibility to a plethora of online resources further expanded the variety and quality of instructional content. This transformation, made possible by technology, immensely impacted the effectiveness of ERT lessons. The teachers perceived this invisible enhancement to their teaching practices to be vital in the current digital age.

The participants expressed that technology integration in ERT also facilitated differentiated instruction by enabling personalised learning paths based on lesson content and student learning styles. Such tailored approaches heighten curiosity and attentiveness, fostering a positive attitude towards learning. Moreover, the steady interaction with technology also cultivated digital literacy among teachers and learners, arming them with vital skills for navigating the 21st-century digital world. All the participants in the study noted improvements in technological knowledge and competence not only among learners but also among themselves as teachers. Some teachers stated:

> …When you have a pandemic like COVID-19, technology helps us teach our students in a way that fits their learning styles better. It gets them excited about learning and that was a wonderful thing to see… (Ms Nakali)

> …Through continuous learning and adaptation, we have improved our technology knowledge, and I am super in using WhatsApp… (Ms Shilongo)

> ...Because we had to use technology so much, we all got better at using it. This did not just help our students, but it also helped us teachers… (Mr Bakali)

The integration reaffirmed the role of teachers not merely as knowledge transmitters but also as learning facilitators and digital mentors. The engagement of professionals in continuous learning, upskilling, and adaptation to changes was seen as instrumental in this process.

Challenges experienced encountered for technology integration during ERT

Similarly, the study also investigated the difficulties teachers experienced when they incorporated technology during the unexpected remote learning period. It was found that the

integration of technology did not yield equal benefits for all learners. A major problem was the restricted access to some educational websites and online content owing to poor internet connectivity in Namibia. Additionally, even if some learners did manage to locate some online resources, significant financial constraints hindered them from accessing certain paid content. Two teachers, Ms Mlauzi and Ms Moyo offered insight into these difficulties:

> … We try to find learning materials online, but many times they ask for money. It feels like our pockets limit our education. How can poor students download such content and learn, if we can't afford to buy it? (Ms Mlauzi)

> …We wanted the best for our students, but the slow internet in Namibia made accessing learning sites tough. It was not the same for everyone… (Ms Moyo)

Further findings from the study revealed that some teachers' digital literacy levels posed a significant obstacle in the integration of technology during the ERT. Many teachers lacked the basic computer skills needed to utilise technologies and online learning tools effectively. Teachers noted the challenge of maintaining learner's engagement during ERT sessions. Without the ability to directly oversee learner's participation, it was difficult to ensure consistent involvement from all learners. Furthermore, technical issues such as software malfunctions or device incompatibility posed significant challenges. These issues disrupted the smooth delivery of instruction, creating an unreliable teaching and learning environment. A remarkable finding was the steep learning curve experienced by both teachers and learners because of the sudden shift from traditional classroom-based learning to ERT. Not previously relying on digital platforms necessitated quick adaptation, which presented a significant challenge.

Effective communication surfaced as a major issue throughout the study, with the lack of efficient channels complicating coordination between teachers, learners, and parents. This led to potential confusion, misunderstandings, and missed information. Teachers identified limitations in the use of remote assessment tools, making it challenging to adequately measure student progress and understanding. The teachers express the lack of training and preparedness among most educators for conducting assessments in a remote setting resulted to inconsistencies and difficulties in accurately measuring student learning. Ms Ndawana and Mr Petrus stated:

> ...It was so hard to know how my students were really doing. Many of them had limited access to the internet, so even if I gave them online quizzes, I could not be sure they were the ones completing them. Some did not even have textbooks at home to refer to... (Ms Ndawana)

> … I tried to assess my learners learning through phone calls, but network coverage is unreliable here. Plus, it was impossible to assess their practical skills in subjects like agriculture or physical education remotely. I worried that without a way to assess these areas, students would fall behind… (Mr Petrus)

The teacher's comments revealed the exacerbation of existing inequalities, as learners without reliable internet access or appropriate technology faced significant disadvantages in accessing

and completing assessments. The transition to online platforms also raised concerns about academic integrity, as noted by Ms Ndawana, with limited mechanisms to effectively prevent cheating and ensure fair evaluation. It is worthy to note that despite the difficulties, teachers found creative ways to adapt. Some resorted to using alternative assessments like having learners submit photos of completed projects or engaging them in learning reflections through voice notes over mobile phones. Others relied heavily on parental support to monitor student progress offline and provide feedback when internet access was limited.

A surprising finding, however, was teachers' feelings of professional isolation. The transition to ERT reduced in-person interaction with colleagues, leading to a sense of isolation for some teachers. To combat the feeling of isolation educators in this study found solace in connecting with each other virtually. They formed online communities of practice using platforms like WhatsApp to share resources, exchange strategies, and offer each other much-needed support and encouragement. These virtual spaces became invaluable lifelines, reminding teachers that they were not alone in navigating the challenges of emergency remote teaching.

DISCUSSION AND CONCLUSION OF FINDINGS

The findings of this study provide significant insights into the nature of experiences of the selected teachers encountered as they integrated technologies to offer ERT during the COVID-19 pandemic in Namibia. The findings indicated that teachers used technologies such as WhatsApp groups, Zoom meetings, and Facebook pages to share educational content with learners, echoing the observation by Dhawan (2020) about the role of online learning platforms during the pandemic. The findings align with Dhawan's research where educators globally were prompted to swiftly transition in their methodology and integrate technology within their teaching practices. The incorporation of technology, as discussed in the results did not just involve remote classroom teaching but extended to sharing resources, including presentations, audios, and videos via platforms such as WhatsApp technology. This multi-faceted approach corroborates the framework of Technological Pedagogical and Content Knowledge developed by Mishra and Koehler (2006), which suggested an effective technological integration requires skills in three knowledge domains. Interestingly, the participants found the use of multimedia graphics in PowerPoint presentations served diverse learning styles (visual and auditory), which offers further practical evidence for the TPACK framework.

Moreover, the findings from this study reveal that teachers used mobile phones, laptops, and other devices to maintain instructional continuity. This aligns with Rahiem's (2020) study which highlighted the role of technological resources in the success of remote teaching. Interestingly, despite the lack of dedicated computer labs in some schools, teachers manifested an innovative spirit by using available resources to ensure the progression of education, exhibiting a similar resilience noted by Watermeyer et al. (2021) during online migration caused by the pandemic. The study's findings also shed light on the significance of parental involvement, bolstered by technology use, particularly through direct access to learning materials via WhatsApp. This corresponds with the research of Abuhammad (2020) and Bhamani et al. (2020), which emphasised the crucial role parents played in supporting their children's learning during remote education. Further, participants' adaptations to customise and create instructional content, promoting student interaction echo the importance of teacher's technological content

knowledge in TPACK framework where teachers adjust the content based on learners' knowledge.

The findings revealed the integration of technology not only offered immediate instructional benefits, but also fostered digital literacies among both teachers and learners, skills critical for the 21st-century digital world, as supported by numerous studies. Despite these encouraging findings, the incorporation of technology during ERT was not without associated challenges, echoing findings from prior research. Participants reported challenges with access to necessary digital technologies, highlighting the digital divide mentioned in other studies (Di Pietro et al., 2020; Pokhrel & Chhetri, 2021). Technical glitches, an obstacle familiar to even the most technology adept, cropped up as a persistent challenge, as was the difficulty of maintaining student engagement during ERT. Other researchers (Lassoued et al., 2020; Watermeyer et al., 2021) have also identified these impediments, making it clear that while ERT is a crucial response in crises, it is not without its own set of complex issues.

This study revealed feelings of professional isolation among teachers during the COVID-19 induced shift to emergency remote teaching. This could be attributed to the sudden and unplanned transition to online teaching, where educators had to navigate technological tools and digital content creation without the usual face-to-face professional collaboration and support. The sense of isolation might have been exacerbated by the challenges associated with managing a virtual classroom, unfamiliar technology, and reduced interaction with peers, highlighting the importance of communication and collaboration among educators in adapting to such drastic changes in teaching modalities. The study highlights the necessity for advanced planning and resource provision to ensure successful conversion to emergency remote teaching in times of crisis. The findings of this study also offer the pivotal role of technology in facilitating education during emergency situations like the COVID-19 pandemic. It underscores the need for teachers to develop adequate digital literacy skills and ensure learners have access to essential technological resources. Policymakers and educators can work together to create efficient strategies and support systems to overcome the challenges identified in the context of ERT. The study reveals that a well-integrated use of technology can effectively support educational continuity and enrich the learning experience during crisis situations. Therefore, there is a need for further research to examine how teachers effectively used technology to engage and actively meet learners' learning needs during the COVID-19 pandemic period.

REFERENCES

Abuhammad, S. (2020). Barriers to distance learning during the COVID-19 outbreak: A qualitative review from parents' perspective. *Heliyon*, *6*(11). https://doi.org/10.1016/j.heliyon.2020.e05482

Adarkwah, M. A. (2021). "I'm not against online teaching, but what about us?": ICT in Ghana post COVID-19. *Education and information technologies*, *26*(2), 1665-1685. https://doi.org/10.1007/s10639-020-10331-z

Azlan, C. A., Wong, J. H. D., Tan, L. K., Huri, M. S. N. A., Ung, N. M., Pallath, V., Tan, C. P. L., Yeong, C. H. & Ng, K. H. (2020). Teaching and learning of postgraduate medical physics using Internet-based e-learning during the COVID-19 pandemic–A case study from Malaysia. *Physica Medica*, *80*, 10-16. https://doi.org/10.1016/j.ejmp.2020.10.002

Barbour, M. K., LaBonte, R., Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., Bond, M. A., Hill, P. & Kelly, K. (2020). Understanding pandemic pedagogy: Differences between emergency remote, remote, and online teaching. *State of the Nation: K-12 e-Learning in Canada*. Retrieved July 16, 2023, from http://hdl.handle.net/10919/101905

Basilaia, G. & Kvavadze, D. (2020). Transition to online education in schools during a SARS-CoV-2 coronavirus (COVID-19) pandemic in Georgia. *Pedagogical Research*, *5*(4). https://doi.org/10.29333/pr/7937

Bhamani, S., Makhdoom, A. Z., Bharuchi, V., Ali, N., Kaleem, S. & Ahmed, D. (2020). Home learning in times of COVID: Experiences of parents. *Journal of education and educational development*, *7*(1), 9-26. http://dx.doi.org/10.22555/joeed.v7i1.3260

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S., Al-Freih, M., Pete, J., Olcott Jr, D. & Rodes, V. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, *15*(1), 1-126. ttps://www.asianjde.com/ojs/index.php/AsianJDE/article/view/462

Brown, A. & Danaher, P.A. (2019). CHE principles: Facilitating authentic and dialogical semi-structured interviews in educational research. *International Journal of Research & Method in Education*, *42*(1), 76-90. https://doi.org/10.1080/1743727X.2017.1379987

European Commission: Joint Research Centre, Di Pietro, G., Biagi, F., Costa, P., Karpiński, Z. et al., *The likely impact of COVID-19 on education – Reflections based on the existing literature and recent international datasets*, Publications Office, 2020, https://data.europa.eu/doi/10.2760/126686

Hartshorne, R., Baumgartner, E., Kaplan-Rakowski, R., Mouza, C. & Ferdig, R. E. (2020). Special issue editorial: Preservice and inservice professional development during the COVID-19 pandemic. *Journal of Technology and Teacher Education*, *28*(2), 137-147. https://www.learntechlib.org/p/216910

Hodges, C. B., Moore, S., Lockee, B. B., Trust, T. & Bond, M. A. (2020). The difference between emergency remote teaching and online learning. Retrieved June 20,2023 from https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Lassoued, Z., Alhendawi, M. & Bashitialshaaer, R. (2020). An exploratory study of the obstacles for achieving quality in distance learning during the COVID-19 pandemic. *Education sciences*, *10*(9), 232. https://doi.org/10.3390/educsci10090232

Liguori, E. & Winkler, C. (2020). From offline to online: Challenges and opportunities for entrepreneurship education following the COVID-19 pandemic. *Entrepreneurship Education and Pedagogy*, *3*(4), 346-351. https://doi.org/10.1177/2515127420916738

Mabolloane, P. (2021). 'Data costs and online access high on list of obstacles to online learning for South African students', *The Daily Maverick*, viewed November 30, 2021, from https://www.dailymaverick.co.za/opinionista/2021-08-03-data-costs-and-online-access-high-on-list-of-obstacles-to-online-learning-for-south-africanstudents/..

Mishra, P. & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers college record*, *108*(6), 1017-1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Mishra, P. & Koehler, M. J. (2008). Introducing technological pedagogical content knowledge. In *annual meeting of the American Educational Research Association 1*, 16.

Mseleku, Z. (2020). A literature review of E-learning and E-teaching in the era of COVID-19 pandemic. *International Journal of Innovative Science and Research Technology, 5*(10), 588-597

Nepembe, V. & Simuja, C. (2023). Instructors' perspectives of TPACK in a vocational training classroom in Namibia. *Journal of Vocational, Adult and Continuing Education and Training*, *6*(1), 90-107. http://doi.org/10.14426/jovacet.v6i1.315

Nerantzi, C. (2020). The use of peer instruction and flipped learning to support flexible blended learning during and after the COVID-19 Pandemic. *International Journal of Management and Applied Research*, *7*(2), 184-195. https://doi.org/10.18646/2056.72.20-013

Pokhrel, S. & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher education for the future*, *8*(1), 133-141. https://doi.org/10.1177/2347631120983481

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L. & Koole, M. (2020). Online university teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning activity. *Postdigital science and education*, *2*, 923-945. https://doi.org/10.1007/s42438-020-00155-y

Rodés, V., Porta, M., Garófalo, L. & Enríquez, C. R. (2021). Teacher Education in the Emergency: a MOOC-Inspired Teacher Professional Development Strategy Grounded in Critical Digital Pedagogy and Pedagogy of Care. *Journal of Interactive Media in Education*, *2021*(1). https://doi.org/10.5334/jime.657

Schuck, R. K. & Lambert, R. (2020). "Am I doing enough?" Special educators' experiences with emergency remote teaching in Spring 2020. *Education Sciences*, *10*(11), 320. https://doi.org/10.3390/educsci10110320

Seabra, F., Teixeira, A., Abelha, M. & Aires, L. (2021). Emergency remote teaching and learning in Portugal: preschool to secondary school Teachers' perceptions. *Education Sciences*, *11*(7), 349. https://doi.org/10.3390/educsci11070349

Shambare, B. & Simuja, C. (2022). A Critical Review of Teaching with Virtual Lab: A Panacea to Challenges of Conducting Practical Experiments in Science Subjects beyond the COVID-19 Pandemic in Rural Schools in South Africa. *Journal of Educational Technology Systems*, *50*(3), 393-408. https://doi.org/10.1177/00472395211058051

Sharma, M., Onta, M., Shrestha, S., Sharma, M. R. & Bhattarai, T. (2021). The Pedagogical Shift during COVID-19 Pandemic: Emergency Remote Learning Practices in Nursing and Its Effectiveness. *Asian Journal of Distance Education*, *16*(1), 98-110. https://asianjde.com/ojs/index.php/AsianJDE/article/view/537

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage.

Valsaraj, B. P., More, B., Biju, S., Payini, V. & Pallath, V. (2021). Faculty experiences on emergency remote teaching during COVID-19: a multicentre qualitative analysis. *Interactive Technology and Smart Education*, *18*(3), 319-344. https://doi.org/10.1108/ITSE-09-2020-0198

Varea, V. & González-Calvo, G. (2021). Touchless classes and absent bodies: teaching physical education in times of COVID-19. *Sport, education and society*, *26*(8), 831-845. https://doi.org/10.1080/13573322.2020.1791814

Watermeyer, R., Crick, T., Knight, C. & Goodall, J.(2021). COVID-19 and digital disruption in UK universities: Afflictions and affordances of emergency online migration. *Higher education*, *81*, 623-641. https://doi.org/10.1007/s10734-020-00561-y

Investigating discourses inspiring ICT integration in primary schools in Lesotho: The case of three teachers[1]

BM Taolane, University of the Free State, South Africa
T Jita, University of the Free State, South Africa

ABSTRACT

Scholars have discovered that as technology advances, additional opportunities for improving classroom learning utilising information and communication technology (ICT) advance. A policy-practice gap was identified on ICT integration especially in developing countries including Lesotho. Even though many countries invested in provision of ICT resources, there is a mismatch between policy intentions and teachers practices of ICT integration. This qualitative case study grounded in the technological pedagogical content knowledge (TPACK) framework, explores discourses of ICT-integration shaping practices of teachers in Lesotho. The paper shows how three purposively selected teachers were exposed to productive discourses. Findings show mutually reinforcing and sometimes competing discourses in the context of Lesotho. Findings show inequity in teachers' acquisition of ICT pedagogy and that ICT integration was successful due to diverse communities of practice which incorporated use of mobile phones. The paper recommends continuous teachers' support on fundamental ICT infrastructure and pedagogy, and more research in schools' contexts.

Keywords: classroom practice, ICT discourses, ICT integration, ICT pedagogy, TPACK

INTRODUCTION

Scholars emphasise that teachers in developing countries face a significant problem of lack of access to ICT resources and ICT pedagogy while confronted with teaching 21st century learners. According to Oyier et al. (2015) and Dlamini and Rafiki (2023), emerging technologies are fast transforming classroom instruction. Dlamini and Rafiki (2023) further stress that even though South Africa is more advanced with ICT integration, some teachers are confronted with the issues of access and pedagogy and negative attitude to ICT integration. Howie (2010) argues that the strategy used for implementing ICT in South Africa schools which was different from the

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successful Chilean strategy could have contributed to the experienced challenges. Spaull and Jansen (2019) argue that there is persisting inequality in schooling in South Africa. Lesotho, like other developing countries, faces information and communication technology (ICT) infrastructure and pedagogy limitations, yet using technologies has the potential to alleviate inequalities in education (Dlamini & Rafiki, 2023). Since 2007, some programmes have been launched in the country to provide instructors with ICT-integration skills (Jita & Akintunde, 2021).

Even though many secondary schools in Africa including Lesotho participated in ICT skills training projects such as the School Net Lesotho, Microsoft School Technology Innovation Centre Project, the NEPAD e-School and benefited from the provision of ICT infrastructure, the use of ICT devices is minimal to date (Jita & Akintunde, 2021; Kawonga, 2023; Saka 2021). The studies attribute the limited use to hurdles such as a lack of infrastructure, teachers' ICT competency, a lack of access to available ICT resources in schools, and individual teachers' opinions and attitudes towards ICT integration. Mndzebele (2013) emphasises the challenges of sustainability by developing countries beyond the period of interventions. Gulati (2008) argues the challenges experienced by deprived populations in developing countries as more investments are conducted on ICT integration. Ke and Hsu (2015) discovered a gap between instructors' ICT-integration methods and expectations about how ICTs could be used in classroom practices. Furthermore, the scant literature on technology in education in Lesotho highlights the difficulties teachers face (Lisene & Jita, 2018; Makuru & Jita, 2022). The implication is that teachers could benefit from sharing their experiences with ICT integration in the context of schools. The purpose of this study is to explore the discourses informing ICT integration and to establish the productive discourses teachers rely on for effective use of ICTs in classroom practices using the WHAT and HOW questions. In this light, the study addresses the following research questions:

1. What are the discourses of ICT integration in basic education in Lesotho?
2. How are teachers exposed to productive discourses of ICT integration?

THEORETICAL AND CONCEPTUAL BACKGROUND

The theoretical framework for this study draws from literature about discourses of ICT integration globally and in the context of Lesotho. The study is grounded in the upgraded technological pedagogical content knowledge (TPACK) framework (Mishra, 2019), as explored by numerous researchers as it expands to encompass questions of the teachers' knowledge of the context of ICT integration (XK). Mishra (2019) contends that teachers with established TPACK have the capacity to develop rich, innovative, technology-oriented instruction provided they also have thorough knowledge of factors in the context in which they integrate ICTs. Furthermore, Liu (2016) emphasises that including the context factor stimulated qualitative studies about the TPACK framework.

The upgraded TPACK framework by Mishra (2019) comprises eight knowledge areas; Pedagogical Knowledge (PK), Content Knowledge (CK), Technological Knowledge (TK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK),

Pedagogical Content Knowledge (PCK), Technological Pedagogical Content Knowledge (TPACK), and the surrounding teachers' ConteXtual Knowledge (XK). The knowledge categories of the framework place a strong emphasis on the requirement that teachers possess ICT literacy and competence in order to support students' development of digital literacy and ICT usage skills in the classroom. Dlamini and Rafiki (2023) emphasised that the effective ICTintegration classroom instruction is created by teachers who have knowledge on TPACK areas in a study in the context of South Africa. The majority of studies concentrated on teachers' TPACK development and the challenges to successful ICT integration in education. In this study, we examined discourses which guide teachers' ICT integration into science and technology classroom practices using the TPACK framework. During the course of this study, ethical concerns were realised. Ethical clearance was sought with the University of Free State and the Ministry of Education and Training, Lesotho granted permission to collect data in primary schools. The teachers participated on a voluntary basis and were informed that they are free to quit the study any time.

ICT-integration discourses in the teaching space

Discourse is defined by McCormick and Scrimshaw (2001) as the language of the classroom, encompassing the ways in which topics, classroom cultures, and behaviours are expressed through speech and behaviour in specific classroom circumstances. It is further stressed that this pertains to how pupils respond and conduct themselves throughout classroom instruction in various classroom and educational settings. This suggests that ICT-integrated teaching methods have their own classroom discourses as well. Inferring from this perspective, it could be argued that in science instruction that incorporates ICT, it is expected that a specific scientific language will be enhanced with technology-oriented practices and that students and teachers will demonstrate specific behaviours and cultural practices that demonstrate their use of ICT.

The following are some of discourses that emerged in the literature. Even though technology has afforded improving classroom practices such as interaction, collaboration and learner-centred approaches, teachers in South Africa and developing countries struggle with ICT integration-oriented pedagogy (Dlamini & Rafiki, 2023). Lesotho is no exception. Cha et al. (2020) revealed factors for developed ICT integration models for the context of developing countries, arguing that a gap exists on the development of a working environment for ICT integration in developing countries. ICT includes items such as computers, the internet, the web, cell phones, digital motion and still cameras, robots, and all digital devices that store and play music, videos and games. According to the literature, many schools continue to face challenges of ICT integration (Dalal et al., 2017; Günes & Bahçivan, 2016; Ohei et al., 2023). Cha et al. (2020) argue that this is more significant in developing countries when they struggle to implement ICT integration models suitable for developed countries environments. These impediments reduce instructors' ability to effectively employ ICTs in instruction. The majority of those impacted are in developing countries. Lesotho is no exception, having teachers across the country who are struggling to overcome obstacles in their school settings.

The ICT-integration space in the present study

The use of ICT integration discourse in this study refers to both the written and verbal expressions of teachers about their opinions towards using ICTs in primary school science teaching and learning, as well as the documented communication information found in Lesotho policies that

informs ICT integration. Though the Lesotho Ministry of Education and Training (MoET, 2009) recognised the importance of technology in education when drafting the Lesotho Curriculum and Assessment Policy (CAP), primary schools have yet to significantly integrate ICTs into classroom operations. The policy emphasises aspects of the Science and Technology Curriculum targeted at equipping students with ICT capabilities. According to MoET (2009) Curriculum Action Plan, the curriculum should provide learners with scientific and technological knowledge and skills that will enable them to communicate effectively, respond to environmental challenges, and interact with the environment in a sustainable manner, while also enhancing production. However, research indicates that the majority of schools face challenges, such as a lack of ICT infrastructure and ICT-skilled staff. This necessitates greater efforts to improve ICT integration in education in order to help learners fit into the global workplace. It is assumed that the existing teachers' acquired ICT abilities are used inefficiently in the Lesotho school system. The implication is that the methods of ICT-savvy and active teachers may be revealed in order to inform practice.

METHODOLOGY

For this investigation, a qualitative approach was used. This is advocated by Creswell and Creswell (2018), who contend that in qualitative research, the investigator is the primary instrument for data collection, and it allows the researcher to acquire information in the participants' natural contexts. To create a thorough analysis of science teachers' ICT-integration discourses, the current study used a multiple-case-study technique from an interpretive perspective. For the purpose of providing rich data, three science teachers, coded - Thupa, Lethu and Nasi - were selected using purposeful sampling (Cohen, Manion & Morrison, 2018; Creswell & Creswell, 2018). Data were gathered through lesson observations and interviews of the three teacher-participants, and through document analysis of the relevant ICT policy framework in Lesotho as detailed in Table 2. Content analysis was utilised to analyse the generated data (Creswell & Creswell, 2018), more specifically to establish emerging themes about the ICT-integration discourses influencing science teachers at basic education level. The researcher analysed the relevant policy documents for establishing discourses of ICT integration in the context of Lesotho. The three participants were also interviewed to reveal further discourses of ICT integration through their views as reform implementers in classroom practices.

Participants

The target group was in-service teachers at primary schools in one district of Lesotho. The participants comprised three teachers who volunteered to take part and were either teaching G7 or G6. Regarding ICT-available resources in their individual schools, the teachers were either using mobile phones or computers. The demographic data, including background in technology-related pedagogy, is shown in Table 1.

Table 1:
Participants Demographic Information

Name Pseudonyms	School	Gender & Age	Qualification	Teaching Experience	ICT Integration Experience	Grade
Lethu	Leratong Primary School	Male 35 years	Diploma in Primary Education	6 years	4 years	7
Thupa	Sentleng Primary School	Male 36 years	Diploma in Primary Ed.	15 years	9 years	6 & 7
Nasi	Lebisang Primary School	Male About 27 years	Degree in General Management	4 years	3 years	7

The purposeful selection of three male participants, as indicated in Table 1, was based, among other things, on the teacher's use of ICTs in science and technology instruction in Grades 6 and/or 7. During the time of data collection, these were the teachers for the target grade level. Although one of the participants could not disclose his age, it is believed that he is in his late 20s. With the use of the qualitative data, the aim was to acquire a thorough understanding of the participating teachers' perspectives on how ICT integration in primary schools is shaped by discourse. This would result in documenting these teachers' perspectives on innovations in the Lesotho Education system.

Data collection

Data for this study were gathered through interviews, document analysis, and the classroom observations covered in this section. Table 2 shows the summary of how the instruments were engaged.

Table 2:
Data collection summary table

Instrument	Collected data	Frequency
Interviews	Initial in-depth interview of one hour and follow up interviews of 20 to 30 minutes.	Six to seven interviews including the initial one Teachers describing their background about exposure to ICT pedagogy and skills What guides their use of ICT in classroom practices How they use ICTs in instruction How easily accessible ICT resources are in their respective school Challenges faced when integrating ICT into lessons Steps taken to overcome challenges

Classroom observation	45 minutes to one-hour lessons once a week for six weeks	Six to seven observations in six weeks in 2019 to 2022, disrupted by COVID 19 pandemic which led to closure of primary schools in Lesotho.
Document analysis	Relevant Lesotho National policy framework informing ICT integration.	Nine policy documents, e.g. the Vision 2020. National ICT policy, the Education Strategic plans, the reviewed Lesotho Curriculum and Assessment Policy.

The data were presented using the three methods - interviews, classroom observations, and document analysis as detailed in Table 2; in so doing they complimented one another.

Data analysis

The productive discourses and the competing discourses of ICT integration were identified through content analysis of teachers' responses to interview questions that focused on learning about their opinions on ICT integration and the pertinent policy papers. To gain a thorough understanding of how the developing discourses were transformed into ICT-integrated lessons, the participant instructors were then observed in ICT-oriented classroom practices. Along with the observations, the findings from the content analysis of policy documents and interviews are discussed.

RESULTS

Emerging discourses of ICT integration in primary schools

The first research question - what are the discourses of ICT integration in basic education in Lesotho? - focuses on ICT-integration discourses in Lesotho's primary education. The results from interviews, document analysis and classroom observations show discourses informing ICT integration in the context of Lesotho schooling. Data from the pertinent policy documents were analysed, and the information was divided into three categories: (i) general emerging data about technology plans for the education sector; (ii) important technology plans for basic education/primary; and (iii) emerging data about teachers and students regarding ICT integration into classroom practices. In the context of Lesotho, the pertinent policy framework, and perspectives of the selected teachers on ICT integration reveal a variety of mutually reinforcing and occasionally conflicting discourses of ICT integration in basic education. Despite certain gaps in the translation to classroom practice, a content analysis of the policy framework reveals that the nine pertinent national ICT policy documents contained an ICT-integration policy message. The accessed policy documents include: National Vision 2020, a National ICT Policy (2006), the Lesotho Education Sector Strategic Plan (ESSP, 2005–2015), a MoET Curriculum and Assessment Policy (MoET, 2009), the revised Lesotho Basic Education Curriculum Policy (2021), the Lesotho National Strategic Development Plan (2013–2017), the Lesotho Country Working Document (2017), the Education Sector Plan (2016–2026), and the Integrated Primary Curriculum for Grade 7. Table 3 shows some policy messages that support ICT integration:

Table 3:
Policy Framework messages informing ICT integration

Policy Document	Policy message informing ICT integration	Emerging discourse
The Lesotho National Vision 2020	7th pillar emphasises the Lesotho schools' curricula incorporation of science and technology and enabling citizens' access to communication and development technology for economic development.	The gap framed by the policy and practice as teachers implement ICT integration. While many of the discourses from policy documents seem to emphasise that learners should be equipped with scientific and technological skills and knowledge, the three teachers were of the view that the curriculum did not provide adequate guidance.
National ICT Policy (2006–2011- Section 3.7.1	Ministry Responsible for Education and Training: The ministry responsible for Education and training has a fundamental role to play in the S & T policy implementation, especially for the effective integration, adaptation, delivery and promotion of science and technology education in the country …	
Curriculum and Assessment Policy (CAP, 2009), lately replaced by Lesotho Basic Education Policy (LBECP) of 2021	Similarly, the revised LBECP (2021), CAP (2009) recommended that more emphasis be placed to problem-solving, scientific thinking, entrepreneurial and technological skills, linking learning and productive skills.	
Integrated Primary Curriculum of Grade 7 (MoET, 2009:17)	Expectation at end of grade 7: … learners are expected to have developed core competencies such as 'functional communication, problem-solving, collaboration, scientific, technological, and creative skills.	

The policy document excerpts in Table 3 demonstrate that the Lesotho relevant policy papers had ICT integration messages that needed to be prepared for translation into instructional practices. The Science and Technology Curriculum was utilised by the teacher-participants, who facilitated ICT integration in Grades 6 and 7. Participants' declarations of their feelings about integrating ICTs into their lessons served as a source of additional discourses that shaped the findings of the current study. The policy requirements for ICT integration at elementary schools were, overall, known to the teacher-participants and principals. The idea that ICT integration in classroom practices has a significant positive impact on students is one that permeated the policy texts.

The advantages of incorporating ICTs into lesson plans were emphasised by the three participating teachers. They did, however, express dissatisfaction with insignificant teachers' support on the use of ICTs in education, particularly in the Grade 7 Science and Technology

Syllabus, which demands teachers use of ICTs in the current curriculum. The three teacher-participants believed that teachers who were not familiar with ICT pedagogy would typically struggle significantly to plan how to employ ICTs in instruction using the current curriculum. These are some of their comments:

> Lethu: [I] am able to use ICTs because I already have computer skills … Most teachers here do not manage to use the available ICTs.
>
> Thupa: [Schools] do not have digital tools … It is up to teachers to make teaching practice enjoyable.
>
> Nasi: [L]earners want to be in the computer room, but we have fewer computers than learners.

The extracts show that the participants' opinions are consistent with research on the theory of TPACK, which emphasises that the integration of ICT in teaching and learning is successful if there is thoughtful integration of technology and pedagogical processes as well as the commitment by every teacher to possess TPACK in the current period of education (Santos & Castro, 2021). The TPACK framework emphasises that teachers can use ICT in classes effectively provided they have a combination of the seven knowledge domains (TK, CK, PK, PCK, TCK, TPK, TPACK). The existing literature further attests to the fact that teachers are unable to demonstrate their TPACK due to a number of ICT-integration challenges, such as the lack of infrastructure and pedagogy for ICT integration (Günes & Bahçivan, 2016; Margolin, Pan & Yang, 2019; Ngwane & Mbatha, 2017). The consequence is that obstacles in educational environments and exposure to ICT pedagogy prevent teachers from demonstrating their TPACK and from assisting in the growth of students' digital literacy and skills. Table 4 demonstrates teachers' responses to interviews and views from classroom observations revealing ICT integration discourses.

Table 4:
Teachers' responses informing discourses of ICT integration

Teacher	Interview Question/ Observation	Teacher's response	Emerging discourses
Thupa	The participant teachers asked how they acquired ICT pedagogy.	School of Technology Innovation Centre (STIC): I was introduced to different tools that I can employ in teaching. That ranged from Microsoft tools in general to other digital tools … trained on use of different media in the classroom to drive innovation. … videography, …voice overs, storytelling using digital tools. There are online supporters that I signed in. That's where I went on learning about innovative means of using ICTs in teaching.	Exposure to productive discourses of ICT integration

Lethu		I used the smartboard in South Africa. South Africa is investing in ICT classroom practices, so the school I volunteered to work on had the smartboard…. There was no specific training on how we are going to use ICTs in the science lessons at the college. So, integrating ICT into the new syllabus is an individual effort...	
Nasi		Through studying computer textbooks and the help of teachers from this school	
Thupa Lethu Nasi	Observation of ICT – pedagogical lessons	Teacher talk dominated learners talk in some observed lessons at varying degrees.	Lessons as combination of teacher and learner-centred approaches
Thupa	The teachers asked about the kind of ICT resources available at their schools.	Predominantly mobile phones through the bring your own device initiative. Learners bring mobile phones to school. Teacher owned rooter used for class internet connectivity and personal laptop for projection	Available ICT resources in schools' contexts
Lethu		The 5 Hub Schools Project… supplied us with the computers. …currently have 39 Desktops in the Computer lab… since 2019. installed Wikipedia and the UBUNTU software in the computers with no internet connectivity. TV screen and a shared projector by the 5 schools	
Nasi		20 computers in a small, spaced computer room. Learners want to be in the computer room, but we have fewer computers than learners. So, I take them in groups to enable each learner to access the computer.	

The three participants had differing degrees of proficiency in using ICTs in instruction, which may be inferred from their various types of exposure to ICT pedagogy. It is important to note though, that all three of the participants were eager to learn more about how to use ICT in the classroom effectively. The three participants further embraced the discourse promoting use of ICTs in instruction to motivate learner-centredness. It was observed that all participants were aware that the present curriculum required them to employ ICTs in instruction in learner-centred classes. The implication is that teachers are expected to facilitate learning by giving learners the tools needed to become autonomous learners. However, the competing discourse is that teachers were not empowered to develop ICT pedagogy and competencies to a large extent.

Nevertheless, utilising the ICT resources at their disposal, the three participants were successful in involving students in a range of activities.

What was also evident in this study was that there were indications that their lessons combined learner- and teacher-centred methods. This is alluded to by Chigona (2018: 377), who cautions, 'most teachers are stuck in their old ways of teaching … they lack the skill and knowledge on how and when to integrate the digital classroom into their pedagogy.' This is also highlighted by the Lesotho Education Sector Plan (2016–2026) policy document, which stipulates that there is a 'lack of Continuous Professional Development' on issues of teacher development, supply, and management in Lesotho (MoET, 2016).

According to the TPACK theory, using ICTs in the classroom motivates teachers to abandon their traditional methods of instruction and adopt the teaching and learning techniques seen in ICT pedagogy lessons (Hunter, 2017). This change from traditional methods of instruction supports learner-centred teaching approaches. The classroom practices of the three participants showed some indications of the techniques. Additionally, it showed that all of the teachers benefited from the support of the school administrators, which helped them overcome some of the obstacles to ICT integration in the context of the classroom. The assistance included, among other things, encouraging parents to assist schools with ICT-integration resources that fostered the creation of communities of practice (CoPs) and provided Lethu and Nasi with access to a conducive working environment in the computer laboratories.

A gap between policy and practice was discovered that affects how well teachers are supported in ICT pedagogy and prepared for using ICTs in the classroom as required by the current curriculum. Most often, the curriculum gave the idea that one of the resources for the courses was the internet. The three participants credited their prior learning of how to use ICT resources in classroom activities for their ability to handle ICT integration. The consequence is that instructors who have not been trained in ICT pedagogy and are not exposed to it may find it difficult to administer the curriculum as intended. This affects the development of the expected competencies for learners at this level.

Teachers' exposure to productive discourses of ICT integration

The second research question is: how are teachers exposed to productive discourses of ICT integration? To determine how the participants were exposed to ICT pedagogy, data from the first and follow-up interviews were further triangulated with data from lesson observations. This was done with reference to the first research question, which focused on discourses of ICT integration. Thematic and narrative content analysis exposed the participants' TPACK knowledge from their classroom ICT-integration practices. Emerging themes showed that the participants' ICT pedagogy was obtained from several sources, specifically pre-service training for Thupa, in-service professional development for Lethu, and apprenticeship of observing colleagues at work for Nasi, which enabled them to handle ICT integration. Additionally, data show that the participants' success with the adoption of ICT integration was a result of the diverse CoPs at each of their individual schools. Table 5 shows teachers responses revealing the CoPs.

Table 5:
Teachers' responses revealing Communities of Practices (CoPs)

Participant teacher	Interview Question/ Observation	Teacher's response	Emerging discourses
Thupa	The teachers asked to describe the kind of support they have for using ICT tools in lessons	…the electricity comes from a neighbour to our school. And the extension cords that connect the electricity from our neighbour to our school comes from the students. …all of the classes help us because some of the extension cords don't come from the families of students in my class. On my side I bring my own Wi-Fi router, I bring my iPad or my laptop if it is not busy at home. So, we get to connect with learners.	Existence of diverse CoPs for the success of ICT integration.
Lethu		Collaboration between the five hub schools in the project that provided computers and ICT pedagogy training	
Nasi		Internal collaboration of teachers capacitating one another	
Thupa	Observation of teaching styles in ICT pedagogy lessons	The teachers had groupwork, presentations, searching information online, projected lessons (two teachers), working on computer software and the integration of videos in lessons	ICT pedagogical teaching styles in the context of the schools

The study discovered differences between how teachers engaged in CoPs as highlighted in Table 5. However, all the three participants complained of inadequate MoET exposure of primary teachers to ICT pedagogy. In their views, they cope with ICT integration because of their background experience. The implication is that teachers in Lesotho require continuous training on ICT pedagogy to cope with ICT integration.

DISCUSSION

Discourses of ICT integration within the context of the selected schools

The results of this study on discourses of ICT integration point to ICT-integration policy statements being explicitly articulated and serve to encourage ICT integration into basic education in Lesotho. However, the teachers noted some gaps in putting policy into reality, such as the lack of enough support for teachers acting as implementers in the classroom, issues with ICT pedagogy, teacher preparation, and the accessibility of ICT resources in primary schools. The implication is that Science and Technology Curriculum requirements are not properly implemented in teaching and learning, which has a detrimental impact on learners' ability to develop the skills they need to pursue professions in science at a higher level of learning. As a result, teachers' efforts to include ICTs into their lesson plans are negatively impacted (Jita &

Akintunde, 2021; Jita & Munje, 2020; Margolin et al., 2019). Technology access for teachers and learners in developing countries continues to be a barrier to effective ICT integration as argued by Dalal et al. (2017). This circumstance is analogous to what scholars refer to as impediments to effective ICT integration. In other words, although the ICT-integration policy requirements were made clear in numerous pertinent policy documents, it is possible that actors such as instructors and curriculum creators did not fully adhere to them.

Since the national policy framework was established, Lesotho has had a policy requiring the use of ICTs in the classroom. According to Lisene and Jita (2018), the Lesotho General Certificate of Secondary Education (LGCSE) curriculum for secondary schools encourages the use of ICT in educational activities. The Lesotho Basic Education Curriculum Policy (Lesotho. MoET, 2021 emphasises ICT integration. To put it differently, primary school teachers are expected to assist students in enhancing their digital literacy and skills. This is consistent with national goals to support students in developing 21st century skills to prepare them for work and further education levels. It may be assumed that before the curriculum was implemented, teachers had acquired digital literacy and skills to help students gain knowledge and abilities akin to what UNESCO (2011) refers to as an ICT competency framework for teachers. This framework offers guidelines for ICT integration for the kind of teacher best suited for students in the 21st century. In addition to having ICT resources available in schools, as was previously mentioned in the literature review, training teachers in ICT pedagogy is what makes ICT integration effective (Jita & Akintunde, 2021). This viewpoint is consistent with the TPACK framework recommendations for teachers, which outline seven knowledge areas in which they should be proficient to handle ICT integration. As has been previously demonstrated in the literature, effective instruction is best achieved when instructors are given the tools and ICT pedagogy they need to do their jobs well.

According to a study conducted during the COVID 19 pandemic by Juanda, Shidiq and Nasrudin (2021), the pandemic served as a wake-up call for all instructors to create TPACK and be prepared for ICT integration in order to prevent disruptions caused by school closures. According to the literature, integrating ICT encourages a learner-centred teaching approach, improves higher order thinking skills, and engages learners in self-directed learning (Fu, 2013; Ngwane & Mbatha, 2017; Trust, 2018). Programmes for ongoing professional development could help in-service teachers create effective teaching strategies that include ICT. The support of principals and parents for teachers' ICT-integration activities is another factor in the current study that contributes to effective ICT integration. The need for equipping teachers with continuous ICT pedagogy to deliver the curriculum to meet the current needs of learners seems to have been overlooked, resulting in low ICT-integration efforts in schools.

Furthermore, a major concern from recent studies about ICT integration using the TPACK model is that constraints of ICT resources within the context of a school disadvantage teachers from utilising the acquired ICT pedagogy. This is to an extent that it is challenging to map their espoused TPACK, and the ICT-integration classroom practices observed (Tsakeni & Jita, 2019). This disconnection between teachers who acquired ICT pedagogy, and a working school environment contributes to teachers' decisions on the use of ICTs in instruction. The presented submissions from the literature assist in understanding teachers' readiness for ICT integration vis-à-vis policy framework stipulations. Recommendations on how to close the existing policy-

practice gap on ICT integration in developing countries are presented by Howie (2010) who emphasise that schools should provide detailed plans of their commitment to ICT integration before being provided with the ICT resources. This will reduce the challenges of schools provided with advanced technologies without using them due to reasons such as negative attitudes towards ICT integration (Ohei et al., 2023)

Teachers' uneven exposure to productive discourses of ICT integration

A conclusion to be drawn from participants' exposure to discourses of ICT integration is that teachers are not equally exposed to productive discourses of ICT integration. The three participants managed to use ICTs in classroom practices due to acquired ICT pedagogy from varying sources. For Thupa, Lethu and Nasi, respectively, this involved preservice training from STIC, in-service training as a volunteer teacher at a primary school in South Africa, and on-the-job training through observation of colleagues. Studies on ICT integration through the TPACK lens stress that its implementation is successful when there are ICT resources and teacher support, especially leadership support.

The observed teacher-participants were supported by the principals and colleagues for overcoming experienced ICT integration challenges in classroom practices. There was a difference in the support also. One principal had exposure to ICT pedagogy and could easily resolve challenges experienced, while the other two principals could support mobilisation of ICT resources and provision of data only. This suggests that teachers require support to sustain ICT integration. It is therefore necessary to ensure that principals are continuously sensitised to the requirements of changing curricula during the implementation process. The principals may only have had once-off sensitisation workshops like the teachers, who had once-off training workshops. This has a negative impact on teachers and principals who are employed some years after the implementation year.

What enabled the teacher-participants to cope with the demand of ICT integration in the curriculum appeared to be engagement in CoPs, offering them support within the context of their schools. What also contributed to the success of ICT integration of the three participants was their competency and access to the available ICT resources at the respective schools, as attested by Chigona (2018). It is important to realise that the three participants experienced several challenges of ICT integration within the context of their schools. What enabled them to sustain the challenges was the collaborative practices with colleagues and school communities and the determination to continue using ICT in classroom practices. Extant literature views teachers' exemplary practices of ICT integration as characterised by individuals' ability to engage in CoPs for sharing ICT pedagogy skills (Hunter, 2017; Padayachee, 2017). Of the three participants, Thupa was exemplary in participation in the CoPs with colleagues from other schools. Lethu and Nasi were active in the creation of communities of practice (CoPs) within the context of their schools. The CoP initiatives assisted the three participants to cope with adapting ICT integration to the context of their schools.

The relevant policy documents for ICT integration make it evident that there was insufficient knowledge driving teacher preparation for ICT pedagogy. How can the ICT-integration efforts of the teachers in the schools under observation be justified? According to Juanda et al. (2021) and Rosenberg and Koehler (2015), the best instructors who could design lessons that use ICTs,

are those that have TPACK. The additional teaching strategies and activities from the high possibility classroom (HPC) model can be used in classrooms that integrate ICT by instructors who have built ICT pedagogy. Extant literature further shows that even if ICT resources are available in schools, teachers' access to such resources contributes to their decisions to use the ICT resources in classroom practices. It was apparent at the three schools observed that teachers freely access the available ICT resources supported by the school administration.

CONCLUSION

Analysis of data from the three case studies in this study led to the conclusion that there are discourses that affect whether ICT integration in Lesotho's primary schools is successful. These discourses reveal how teachers in the selected schools manage or struggle with the use of the ICTs present in their educational environments. Some discourses draw their information from authoritative policy publications, which fall short of supporting teachers in their lesson plans. ICT pedagogy training for teachers may be detrimental to some students at this level of education. Since Lesotho started integrating ICT into learning and teaching, some discourses suggest that not all primary school teachers have benefited from ICT pedagogy initiatives. During pre-service training, one participant in the study benefited from ICT pedagogy from the STIC initiative. Another participant currently benefits from ICT resources and ICT pedagogy from the 5 Hub Schools project, which supports a group of five schools in one region of the country, while the third participant learned how to use ICT in instruction from colleagues. This leads to the conclusion that there is inequity in teachers' acquisition of ICT pedagogy, which may disadvantage some learners at this level of education. The implication is that Lesotho should rethink the approach for effective ICT integration using lessons learnt from experiences of countries such as South Africa and other developing countries that have made positive progress.

RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

As this study was based solely in one district and had only three participants, future research should broaden the range of discourses around ICT integration by including teachers from all 10 districts of Lesotho. The findings of this study indicate that to create an environment that will allow teachers to sustain ICT integration at this level, it is necessary to address both productive and conflicting discourses for ICT integration in basic education. For pre-service and in-service teachers to develop and improve their ICT pedagogy and competencies, the study recommends regular and ongoing professional development programmes, both formal and informal. An atmosphere that supports effective ICT integration needs to be created by providing teachers and learners access to ICT tools for classroom activities holistically, incorporating deprived learners and teachers due to their location in the country and other factors. Lessons learned from implementing the present curriculum in primary schools are informed by the findings of this study, which serve as a foundation for future research on ICT integration in primary schools in Lesotho and developing countries such as Malawi that have similar challenges of coping with ICT integration at this level (Saka, 2021).

REFERENCES

Cha, H., Park, T. & Seo, J. (2020). What should be considered when developing ICT-integrated classroom models for a developing country? *Sustainability*, *12*(7), 2967.

Chigona, A. (2018). Digital fluency: Necessary competence for teaching and learning in connected classrooms. *The African Journal of Information Systems*, *10*(4), Article 7. https://digitalcommons.kennesaw.edu/ajis/vol10/iss4/7

Cohen, L., Manion, L. & Morrison, K. (2018). *Research methods in education*. New York: Routledge.

Creswell, J. W. & Creswell, J. D. (2018). Research design: Qualitative, quantitative and mixed methods approaches. Thousand Oaks, CA: Sage.

Dalal, M., Archambault, L. & Shelton, C. (2017). Professional development for international teachers: Examining TPACK and technology integration decision making. *Journal of Research on Technology in Education*, *49*(3-4), 117-133.

Dlamini, R. & Rafiki, M. (2022). Teachers' Perspectives on the Integration of Information and Communication Technology: The Case of a Teachers' Union. *Africa Education Review*, *19*(1), pp.34-55.

Fu, J. (2013). Complexity of ICT in education: A critical literature review and its implications. *International Journal of Education and Development Using ICT*, *9*(1), 112-125.

Graham, R. C., Burgoyne, N., Cantrell, P., Smith, L., St Clair, L. & Harris, R. (2009). Measuring the TPACK confidence of in-service science teachers. *Tech Trends*, *53*(5), 70-79.

Gulati, S. (2008). Technology-enhanced learning in developing nations: A review. *The International Review of Research in Open and Distributed Learning*, 9(1), 1-16.

Günes, E. & Bahçivan, E. (2016). A multiple case study of preservice science teachers' TPACK: Embedded in a comprehensive belief system. *International Journal of Environmental and Science Education*, *11*(15), 8040-8054.

Howie, S. J. (2010). ICT-supported pedagogical policies and practices in South Africa and Chile: emerging economies and realities. *Journal of Computer Assisted Learning*, *26*(6), 507-522.

Hunter, J. (2017). High possibility classrooms as a pedagogical framework for technology integration in classrooms: An inquiry in two Australian secondary schools. *Technology, Pedagogy and Education*, *26*(5), 559-571. https://doi.org/10.1080/1475939X.2017.1359663

Jita, T. & Akintunde, M. A. (2021). Pre-service teachers' competence to teach science through ICTs: A case study of Lesotho. *The International Journal of Science, Mathematics and*

Technology Learning, *28*(1), 2740. https://doi.org/10.18848/2327-7971/CGP/v28i01/27-40

Jita, T. & Munje, P. N. (2020). Teaching science through information and communication technologies: 'Enablers' and 'constraints' on beginning teachers. *The Independent Journal of Teaching and Learning*, *15*(2), 107-120.

Juanda, A., Shidiq, A. S. & Nasrudin, D. (2021). Teacher learning management: Investigating biology teachersâ€™ tpack to conduct learning during the COVID-19 outbreak. *Journal Pendidikan IPA Indonesia*, *10*(1), 48-59.

Kawonga, E. (2023). Exploring the Use of Media and Technology in the Teaching of English in Secondary Schools in Malawi: A Case Study of Selected Secondary Schools in Northern Education Division (NED). Doctoral dissertation, Mzuzu University, Malawi.

Ke, F. & Hsu, Y. C. (2015). Mobile augmented-reality artefact creation as a component of mobile computer- supported collaborative learning. *The Internet and Higher Education*, *26*, 33-41.

Koh, J. H. L., Chai, C. S. & Tay, L. Y. (2014). TPACK-in-Action: Unpacking the contextual influences of teachers' construction of technological pedagogical content knowledge (TPACK). *Computers & Education*, *78*, 20-29. https://doi.org/10.1016/j.compedu.2014.04.022

Lesotho. Ministry of Education and Training (MoET). (2009). *Curriculum and Assessment Policy* (CAP). Maseru: Government Printing.

Lesotho. Ministry of Education and Training (MoET). (2016). *Education Sector Plan 2016–2026*. Maseru: Government Printing.

Lesotho. Ministry of Education and Training (MoET), (2021). *Lesotho Basic Education Curriculum Policy*. Maseru: Government Printing.

Lisene, N. & Jita, T. (2018). Exploring the integration of modern technologies in the teaching of physical science in Lesotho. *Perspectives in Education*, *36*(1), 111-127. https://doi.org/10.18820/2519593X/pie.v36i1.8

Liu, P. (2016). Technology integration in elementary classrooms: Teaching practices of student teachers. *Australian Journal of Teacher Education*, *41*(3), Article 6. http://dx.doi.org/10.14221/ajte.2016v41n3.6

Makuru, B. & Jita, T. (2022). Information and Communication Technology Practices Biology Teaching in Lesotho High Schools. *International Journal of Information Technology*, *12*(7), 668-677.

Margolin, J., Pan, J. & Yang, R. (2019). Technology use in instruction and teacher perceptions of school support for technology use in Iowa high schools. *Regional Educational Laboratory*. Midwest. Retrieved 30 July 2021 from https://ies.ed.gov/ncee/edlabs/regions/midwest/pdf/REL_2019004.pdf

Mishra, P. (2019). Considering contextual knowledge: The TPACK diagram gets an upgrade. *Journal of digital learning in teacher education*, 35(2), 76-78.

Moursund, D. G. (2005). *Introduction to information and communication technology in education*. University of Oregon, Eugene, US.

Mndzebele, N. (2013). Teachers readiness in using ICT in the classroom: The case of a developing country. International Journal of Information and Education Technology, *3*(4), 409.

Ngwane, K. S. & Mbatha, B. (2017) Information and communication technology as agents of change for teaching and teacher development: A case study of a secondary school, KwaZulu-Natal. *International Technology, Education and Development Conference*. Retrieved 18 May 2023 from https://www.researchgate.net/publication/315352525

Ohei, K., Mantzaris, E., Ntshangase, B. A. & Olutade, E. O. (2023). Incorporating new technologies into teaching in South Africa. *International Journal of Research in Business and Social Science (2147-4478)*, *12*(6), 286-295.

Oyier, C. R., Odundo, P. A., Lilian, G. K. & Wangui, K. R. (2015) Effects of ICT integration in management of private secondary schools in Nairobi County, Kenya: Policy options and practices. *World Journal of Education*, *5*(6) 4-22. https://doi.org/10.5430/wje.v5n6p14

Padayachee, K. (2017). A snapshot survey of ICT integration in South African schools. *South African Computer Journal*, *29*(2) 36-65. https://doi.org/10.18489/sacj.v29i2.463

Rosenberg, J. M., & Koehler, M. J. (2015). Context and technological pedagogical content knowledge (TPACK): A systematic review. *Journal of Research on Technology in Education*, *47*(3), 186210. https://doi.org/10.1080/15391523.2015.1052663

Saka, T. W. (2021). *Digitalization in teaching and education in Malawi Digitalization, the future of work and the teaching profession project*. https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/docum ents/publication/wcms_783666.pdf

Santos, J. M. & Castro, R. D. (2021). Technological pedagogical content knowledge (TPACK) in action: Application of learning in the classroom by pre-service teachers (PST). *Social Sciences & Humanities Open*, 3(1), 100-110. https://doi.org/10.1016/j.ssaho.2021.100110

Spaull, N. & Jansen, J. D. (2019). *South African schooling: The enigma of inequality. A study of the present situation and future possibilities*. Springer: Switzerland. https://doi.org/10.1007/978-3-030-18811-5

Trust, T. (2018). 2017 ISTE standards for educators: From teaching with technology to using technology to empower learners. *Journal of Digital Learning in Teacher Education*, *34*(1), 1-3. https://doi.org/10.1080/21532974.2017.1398980

Tsakeni, M. & Jita, T. (2019). Classroom information and communications technology integration by preservice and in-service teachers in rural ecologies. In M. M. Dichaba and M. A. O. Sotayo (Eds), *Proceedings of the South Africa International Conference on Education (SAICEd)*. September 2019 conference. Pretoria: The African Academic Research Forum.

UNESCO. (2011). *UNESCO ICT competency framework for teachers*. Retrieved 16 June 2021 from http://hdl.voced.edu.au/10707/217813

Teachers' enactment of project-based learning within the Ecubed project in Grade Four life skills classrooms[1]

Elizabeth Mokwena, University of Johannesburg, South Africa
Dean van der Merwe, University of Johannesburg, South Africa
Lerato Ndabezitha, University of Johannesburg, South Africa

ABSTRACT

In response to the importance of preparing learners for the demands of living and thriving in a fast-changing world, this study explored how three Grade Four Life Skills teachers enacted project-based learning (PBL) in their classrooms following training as part of the Ecubed (E3) project on PBL. The aim was to understand how teachers implemented PBL in their classrooms and their experiences with applying PBL following training from E3 on effective PBL practices. Utilising semi-structured interviews, observations, and stimulated recall interviews, the study revealed that teachers grasped certain PBL elements and recognised factors enhancing its implementation, leading to improved learning outcomes. Nevertheless, challenges hindering successful PBL implementation were also identified. The findings underscore the potential of PBL, with appropriate intervention and motivation, to deepen learning, nurture an entrepreneurial mindset, and equip learners with competencies to live and thrive in a fast-changing world. This research contributes valuable insights to the ongoing discourse on effective teaching methodologies and their impact on learners' readiness for the challenges of a fast-changing world.

Keywords: Project-based learning; Competencies for a fast-changing world; Life Skills; Grade 4 teachers

INTRODUCTION

Reflecting on the global impact of the COVID-19 pandemic, one is reminded that thousands of people worldwide experienced devastating consequences on their livelihoods. The pandemic also prompted significant and sudden changes in society, particularly in the field of education. Educational institutions had to undergo swift adjustments to ensure the continuity of teaching

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and learning despite the lack of preparation (Reimers, 2021). These adjustments involved measures such as reducing curriculum content and transitioning to emergency remote online teaching, even though teachers were not adequately prepared for such a shift (Eadie et al., 2021).

Drawing parallels between the COVID-19 pandemic and the Fourth Industrial Revolution (4IR), a similar scenario emerges. The unprecedented advancements in industry, technology, and digitisation associated with 4IR will have a profound impact on the skills required for future employees (Schwab, 2016). This unprecedented nature of change underscores the importance of adapting teaching methodologies within the school system to prepare learners to live and thrive in a fast-changing world (Reimers et al., 2021). Eadie et al. (2021) contend that many South African schools are not preparing learners for success in a rapidly changing world. This is evident in the unequal educational standards across schools and demographics, marked by variations in resources, infrastructure, teacher pedagogical knowledge, and learning outcomes.

Reimers et al. (2021) argue that one way to adequately prepare learners to live and thrive in a world that is changing at a rapid pace is to develop the knowledge and skills they will need in ever-changing times from a young age, enabling them to engage and contribute to societal needs. This involves fostering their ability to solve problems and seek solutions to societal challenges. Research increasingly suggests that traditional content knowledge alone is insufficient to meet the demands of a fast-changing world (Fadel et al., 2015).

Given that teachers have the potential to shape learners' knowledge and skills, they must create opportunities for learners to develop the competencies they will require to live and thrive in a rapidly evolving landscape. Educational advocates like the Organisation for Economic Cooperation and Development (OECD) (2019) and Fadel et al. (2015) stress the explicit integration of competencies for a continuously evolving world into teaching and learning to prepare learners for life beyond school. The terms 'competencies for a fast-changing world', '21st-century competencies', and '21st-century skills' are often used interchangeably in the literature. OECD (2019) defines competencies as a holistic concept encompassing knowledge, skills, attitudes, and values, emphasising their role in deepening understanding. Similarly, the National Research Council (NRC) (2012) defines competencies as future skills that involve higher-level thinking and social skills, contending that their acquisition supports deeper learning.

One-way teachers can develop the competencies learners will require in a rapidly evolving world is through project-based learning (PBL). This teaching approach involves learners actively engaging with intricate problems or questions over an extended period, allowing them to acquire knowledge and skills (Buck Institution of Education (BIE), 2022). Through PBL, teachers can infuse the explicit development of the competencies learners will require to live and thrive in a fast-changing world.

While there are numerous studies on implementing PBL in international primary schools (Kaldi et al., 2011; Karaçalli & Korur, 2014; Cintang et al., 2011; Astawa et al., 2017; Markula & Aksela, 2022), there is a notable lack of research focusing on the implementation of PBL in South African primary schools. This gap in the literature highlights the need for local studies

that explore the diverse educational contexts and challenges faced by South African teachers and learners when it comes to PBL implementation. To address this gap, this study specifically investigated how Grade 4 teachers enacted PBL within the framework of the Ecubed (E3) project in Limpopo, South Africa. The study was guided by the following research question:

> How do teachers enact project-based learning within the E3 project in Grade 4 Life Skills classrooms?

Our interest in understanding how teachers enacted PBL in their classrooms naturally extended to their experiences with implementing PBL in the same classrooms following training from E3 on effective PBL practices. By examining how teachers implemented PBL and their experiences with the process, this research aims to provide insights that can inform and improve the practice of PBL in South African primary schools.

The next section unpacks the literature on project-based learning. A description of the E3 project follows this. Next, the methods used to generate and analyse data are discussed. Lastly, the study's findings are presented and discussed.

LITERATURE REVIEW: PROJECT-BASED LEARNING

Project-based learning is a promising approach for developing the competencies learners require to live and thrive in a fast-changing world. Rooted in constructivism theory, PBL asserts that learners construct knowledge and understanding through engagement and reflection on experiences, essentially learning by doing (Duke et al., 2021; Ecubed, 2020; Krajcik & Shin, 2014; Larmer et al., 2015). The current literature on PBL lacks a unified definition, with various interpretations for project-based learning. Ecubed (2021) defines it as a learner-centred teaching method enabling learning through real-world projects. Others, such as Barron and Darling-Hammond (2010) and Kokotsaki et al. (2016), describe PBL as inquiry learning involving authentic questions and real-world problems that require solutions. Drawing from various sources, PBL can be defined as a learner-centred teaching method that involves inquiry-based learning through real-world projects, authentic questions and problem-solving.

PBL is characterised by key elements, including a challenging question or problem, sustained inquiry, authenticity, voice and choice, critique and revision, reflection, and a public product (Buck Institute of Education, 2022; Boss, 2015; Grossman et al., 2019; Larmer et al., 2015). Although these elements may be articulated differently in literature, utilising each as a guideline for implementation enhances learning outcomes. Notably, PBL involves group work, where learners collaborate, drawing on each other's contributions to produce an end product addressing a problem, often related to a societal need (Buck Institute of Education, 2022; Ecubed, 2021). Learning to collaborate effectively is a skill that will serve learners well in their current context and in the future. According to Fadel et al. (2015), learners who collaborate in groups can make better decisions as they consider issues and synthesise ideas from multiple viewpoints. The literature reveals that PBL involves key elements such as a challenging problem, sustained inquiry, authenticity, and collaboration, which collectively enhance learning outcomes and prepare learners for future decision-making by encouraging them to consider diverse viewpoints when engaging in group work.

Another key aspect of PBL is its emphasis on the learning process rather than solely on the final product (Condliffe et al., 2017). This implies that teachers should continuously create opportunities, such as tasks or assessments, to enhance knowledge and skill development throughout the learning journey. By involving learners in continuous tasks and assessments, teachers can deliberately create opportunities to enhance learners' competency in the 4Cs (communication, collaboration, critical thinking, and creativity). In PBL, learners express their thoughts and work through various means, including written tasks and presentations. According to Rusdin and Ali (2019), this can develop assertive and vocal learners who can express their thoughts and concerns. Collaboration is fostered as learners engage with peers, teachers, and other stakeholders to acquire and share knowledge during project work. The process also cultivates critical thinking and creativity as learners engage in tasks requiring problem-solving, resulting in the creation of solutions represented in the form of an artefact that addresses the identified problem. Coberly-Holt and Elufiede (2019) defined critical thinking as the capacity to go beyond the immediate context, discerning concepts, issues, or phenomena to make fair, logical, and unbiased judgments. They described creativity, or creative thinking, as the ability to introduce a new and innovative perspective. Encouraging the development of these competencies, as emphasised by Lathram et al. (2016), not only deepens knowledge of subject content and concepts but also enables learners to apply their acquired knowledge and skills in new settings. The literature highlights a focus on the learning process rather than the final product, aligning with current educational research that emphasises the importance of ongoing assessments and skill/competency development in PBL.

Prior research on the implementation of PBL suggests its successful application in primary schools, leading to improved learning outcomes. For instance, Kaldi et al. (2011) conducted a study in Greece, assessing the effectiveness of PBL on primary school learners' learning. The results indicated that those exposed to PBL demonstrated enhancements in content knowledge and collaboration skills. Similarly, Karaçalli and Korur (2014) investigated the impact of PBL on academic achievement, attitude, and knowledge retention in the context of 'Electricity in Our Lives'. Their findings revealed that PBL facilitated a deeper understanding of the content, increasing academic performance and knowledge retention. Additionally, Astawa et al. (2017) explored the influence of PBL on learners' English productive skills, noting positive effects on skills such as enthusiasm, confidence, creativity, self-directed learning, and collaborative learning. Mehmet (2005), in a study focusing on a 5th-grade social studies course, found that PBL not only elevated academic success but also instilled various skills in learners, making the learning process enjoyable, entertaining, and meaningful. We contend that these studies demonstrate PBL's effectiveness, thereby supporting our review with empirical evidence, enhancing its credibility, and aligning it with evidence-based practices.

Collectively, these studies underscore PBL as a promising teaching method that can enhance learners' comprehension of content, boost knowledge retention, and foster the development of competencies like collaboration and creativity. Furthermore, the positive impact on learner enthusiasm, motivation, and confidence emphasises the benefits of effectively implementing PBL in primary school classrooms.

The review of the aforementioned studies collectively supports the argument that PBL is a crucial approach for preparing learners to live and thrive in a fast-changing world. The competencies developed through PBL, such as critical thinking, creativity, collaboration, and communication,

are precisely those required to navigate and thrive in a rapidly changing world. The emphasis on real-world applications and problem-solving ensures that learners are not only 'receiving' knowledge but are also learning how to apply it in novel contexts. By engaging with real-world challenges, learners develop the flexibility and resilience needed to adapt to new circumstances, making them better equipped for the future world of work. Therefore, PBL not only addresses immediate educational goals but also prepares learners for lifelong learning and adaptation in an increasingly complex and fast-changing world.

THE ECUBED (E3) PROJECT

The E3 project, initiated by the South African Department of Basic Education (DBE), aims to address youth unemployment, economic challenges, and poverty in South Africa (Ecubed, 2020). Extensive research, including studies by Ecubed (2020) and Spaull (2016), highlights how societal factors such as high school dropout rates and the insufficient skills of high school graduates contribute to the high unemployment rate in South Africa.

Although the youth unemployment rate decreased to 32.6%, as reported by the Quarterly Labour Force Survey (QLFS) (Stats SA, 2023), a shocking number of young people remain unemployed. Ecubed (2021) contends that the education system is crucial in supporting economic change and addressing the persistent challenge of youth unemployment. They propose a contemporary approach to teaching and learning that aims to develop learners' competencies for a fast-changing world. This approach prepares learners to be solution-seekers and problem-solvers, essential skills in a world characterised by rapid change.

The E3 programme contends that teachers can reshape the current circumstances within schools and society, ultimately benefiting learners. E3 asserts that equipping learners with communication, critical thinking, collaboration, creativity, and an entrepreneurial mindset is crucial, especially in an ever-changing world (Ecubed, 2021). As a result, E3 considers the first step to be a shift in the mindset of teachers, encouraging them to embrace the explicit development of learners' skills and competencies. To support this, the E3 project provides comprehensive PBL training for teachers and creates communities where teachers can exchange ideas and learn from one another. To align with the Curriculum and Assessment Policy Statement (CAPS) requirements and alleviate the implementation burden on teachers, E3 schedules its projects during the third term.

E3 places a significant emphasis on PBL as a teaching and learning method. It is driven by the belief that it can activate and cultivate essential future competencies, fostering a mindset shift in learners through engaging in meaningful and purposeful projects (Ecubed, 2021). Through PBL, learners can work with content that directly addresses the day-to-day challenges they encounter in their societies. In this process, learners participate in long-term projects investigating and identifying societal problems, experimenting with solutions, and adapting their knowledge to address these issues.

The PBL intervention explored in this study focused on projects in the Grade 4 Life Skills subject within the CAPS in Term 3. The formal assessment required in the CAPS document in Term 3 is a project. Implementing PBL in Term 3 is not an add-on but instead builds on content already stipulated in the document.

RESEARCH METHODS

Using a qualitative research design (Merriam & Tisdell, 2016), this study investigated how teachers enacted PBL within Grade 4 Life Skills classrooms as part of the E3 project. Since the research aimed to explore the teachers' experiences with PBL and understand how they interpreted and applied the training provided by the E3 project in their classrooms, a qualitative approach was best suited for the study.

Guided by constructivist learning theory, which emphasises that learning is a dynamic process involving constructing meaning through interactions with the environment and the role of pre-existing knowledge (Gravett, 2016), the study explored how teachers understood and applied the training from E3. The research focused on how this understanding influenced their enactment of PBL in Life Skills lessons and whether their prior knowledge impacted their teaching practices.

The study was conducted at a primary school in the Waterberg District of Modimolle, Limpopo, which the Department of Basic Education (DBE) recommended for piloting. Three Grade 4 Life Skills teachers were selected to participate in the study: two had attended the E3 training, while the third received cascaded training from one of the trained teachers. The teachers were selected because they were teaching at the school recommended by the DBE for piloting and had completed the training. Consequently, the sample consisted of only three teachers.

An ethics application was submitted to the University of Johannesburg, detailing the study, researcher information, study type, and potential risks and benefits to participants. Following Merriam and Tisdell (2016), only participants who consented via E3 joined the training. Although participation was voluntary, the E3 team obtained consent from teachers who wished to take part, and permission was requested before observations and interviews, including consent to be recorded and filmed while implementing PBL. To ensure privacy, participants' identities were kept anonymous using pseudonyms, allowing teachers to express themselves freely

Data collection involved close observations of PBL lessons (September 2022), using an observation schedule and video recordings to *capture the implementation process*. Stimulated-recall interviews were conducted post-observation to facilitate reflection on the teachers' teaching practices. Additionally, semi-structured interviews were carried out before (in April 2022) and after (September 2022) the E3 project to gather insights into the teachers' experiences with the training and PBL implementation.

Data were analysed using the constant comparative method (Maykut & Morehouse, 1994; Merriam & Tisdell, 2016), which involved transcribing, coding, and categorising data to identify themes. The data were transcribed and analysed in Microsoft Word. To ensure trustworthiness, the study followed Merriam and Tisdell's (2016) and Lincoln and Guba's (1985) criteria, including credibility through triangulation of various data sources, transferability through detailed descriptions, dependability through an audit trail, and confirmability through rigorous data analysis and detailed description of the research design.

FINDINGS

Three themes were generated from the data analysis process to capture how Grade Four Life Skills teachers enacted PBL in their classrooms. The three themes are presented below.

Theme 1: Teachers gained a better understanding of some elements of PBL, which improved their ability to enact PBL in their classrooms effectively

Analysing the data showed evidence that indicated that teachers understood some key components crucial for the successful enactment of PBL in lessons. Specifically, teachers highlighted the importance of incorporating learner *voice and choice* in PBL projects. They acknowledged that incorporating these elements would enhance learner autonomy and hands-on learning, both of which are essential for the PBL process. An example is provided in the following quote from a semi-structured interview:

> What I'm looking for is to see my learners do things on their own, initiating things. My teaching won't be teacher-based. It will be learner-based. The learners will be taking charge. The learners will be asking questions, coming up with ideas that we can discuss and explore as a class. (Teacher 2, semi-structured interview, September 2022).

The data also showed evidence that teachers understood the element of *reflection*. They prompted reflection on various occasions during enacted PBL lessons. The extract from field notes made during lesson observations gives an example:

> The teacher asks learners to reflect on the COVID-19 pandemic. He asks his learners: Do you remember the Covid19 lockdown? Do you remember the time we had to come to school wearing masks and that these masks made people unrecognisable? Think about your experiences and share them… think about how they relate to this *(Fieldnotes, September 2022).*

Evidence indicates that teachers recognised the significance of group work in PBL. They understood that group work facilitates the sharing of ideas and allows learners to benefit from each other's insights. The teachers explained that to foster a collaborative and conducive learning environment, they grouped the learners. The excerpt provides evidence for this finding:

> I have tried to arrange them in groups, if you see, in the other group … So, if there is this one that I know is lagging behind, I'll put someone who will maybe try and motivate them in a way. (Teacher 2, stimulated-recall interview, September 2022).

Analysing the data provided evidence that teachers recognised the importance of having ample teaching and learning materials for the successful implementation of PBL. They stressed that the effectiveness of PBL implementation relies on access to sufficient teaching resources. An illustrative example of this observation is captured in the following statement from a teacher who highlighted the connection between the successful enactment of PBL and the resources provided by E3:

> They assisted me a lot with the information contained. It was good enough for me to make the [PBL] project successful. So, I have been referring to those documents as sort

of guidance as to how to go about the project. (Teacher 1, semi-structured interview, September 2022).

Theme 2: Teachers believe that the implementation of PBL has a positive effect on learners' learning and are aware of various factors that influence the successful enactment of PBL in their classrooms

The results of the data analysis revealed teachers' beliefs regarding the factors contributing to successful PBL implementation in their classrooms. The evidence suggests that teachers recognise the importance of asking diverse questions in their lessons to engage learners in meaningful conversations. Specifically, using questions related to prior knowledge, as well as those aimed at probing for clarification and eliciting elaboration, fostered conversation and discussion - an essential element for the successful implementation of PBL highlighted by E3.

The findings also indicated that teachers believed that the successful implementation of PBL in their classrooms had a positive impact on fostering learners' entrepreneurial mindset, thereby enriching the overall PBL process. Furthermore, teachers acknowledged that to facilitate successful PBL implementation and cultivate an entrepreneurial mindset, it was crucial to integrate opportunities for learners to practice and develop competencies for a fast-changing world. However, the findings also revealed that teachers encountered challenges in effectively incorporating these elements into their lessons, as exemplified in a fieldnote excerpt:

> Class 3 learners are seated in groups but do not collaborate or communicate amongst themselves. Also, the teacher assigns the different groups topics for creating the recipe book instead of allowing learners to do so themselves. The learners could engage more if presented with the chance to collaborate (Fieldnotes, September 2022).

Additionally, the findings revealed that teachers were aware that they must constantly research and seek information and resources to enhance and address challenges encountered during the PBL implementation process. The extract shows an example from the raw data:

> I believe that I need always to ensure that I bring different materials. I don't focus only on books, or, you know, on only prescribed books. I need to do research and bring those things that I believe are going to make my teaching easier because the aim is to make learners understand whatever you are *teaching and saying as a teacher…* (Teacher 2, semi-structured interview, September 2022).

Theme 3: Some factors inhibit the successful enactment of PBL in teachers' classrooms.

Evidence from the data analysis indicates that teachers revealed some barriers that prevented them from successfully implementing PBL in their classrooms. Teachers expressed that one factor impeding successful implementation was the language barrier that impacted full learner participation. One teacher expressed that they used code-switching as a strategy to support learning. However, they indicated their concerns over the overuse of this strategy as they are aware that the Language of Teaching and Learning (LOLT) in Life Skills is English. Furthermore, they elaborated that although learners showed enthusiasm to learn, they often needed help putting their thinking into words due to the LOLT. The following extract from a stimulated recall interview shows evidence for this finding:

> The language – the challenge is language and lack of participation from the learners. Of course, you realise that some of them want to learn. However, they do not understand what is being said. No matter what, I try to make my lessons interesting because some of the learners cannot read. They do not have the vocabulary and everything like that. So […] they can hear what I am saying but putting it down into words or writing it down is difficult. (Teacher 2, stimulated-recall interview, September 2022).

Another challenge expressed by the teachers was the learners' lack of motivation and participation. An example from the field notes highlighted:

> Learner engagement could be improved here as only selected learners are following the story and answering questions while others are working on other work. Giving learners a story to read with the teacher can grab learners' attention. (Fieldnotes, 2022).

Teacher 2 commented during the semi-structured interview that parental involvement also hinders the enactment of PBL:

> …And the most important thing that I think is affecting our learners is parent involvement. Because most of our learners will stay at home as long as they want, they just come to school today, and it can be two weeks not coming to school. And when you try and get engaged, the parents cannot even come to the party. So, as a teacher, you find yourself being alone. They are getting no support from their parents. And you know what I mean? Though you try, it is kind of frustrating. As far as I'm concerned, it's frustrating because you try to do this, you try to engage them... (Teacher 2, semi-structured interview, September 2022).

The evidence indicated that teachers faced difficulties in effectively managing their time to complete PBL projects. According to Teacher 1, implementing PBL later in the term had a negative impact on his PBL experience. This timing created additional pressure, preventing him from implementing PBL to the best of his potential. The teacher disclosed that he could not fully engage with the E3 materials due to the time constraints required to complete the PBL project. The following quote provides an example:

> Oh, the challenge that I faced during this project. The first is that I started this project late while we were still busy with formal assessment, you understand? I see that I was supposed to start this project before- as soon as possible, you understand. Without any pressure. Because I was under pressure at the time, when I was administering this [PBL] project, so it created challenges, you understand? Because I was supposed to balance this project together with the things that were supposed to be done for the curriculum. (Teacher 1 – semi-structured interview, 2022).

DISCUSSION AND CONCLUSION

Several conclusions can be drawn from the study's findings. First, the initial E3 teacher training at the onset of PBL implementation provided teachers with some understanding of what PBL involves and its components. These components encompass learner voice and choice, contributing to enhanced learner autonomy, reflection, group work, and the effective utilisation of teaching and learning resources. Larmer et al. (2015) asserted that incorporating these PBL elements in the classroom can foster the effective implementation of PBL. However, contrasting evidence emerged, indicating that teachers did not fully understand some elements.

One of the integral components of PBL is *critique and revision*, which is fundamental to the PBL project. Critique and revision play a crucial role in PBL, considering it is an activity-based pedagogy involving diverse tasks and continuous assessments (Aldabbus, 2018; Ecubed, 2021). Given the nature of PBL, which emphasises ongoing tasks, learners require frequent feedback for meaningful learning to take place. Therefore, incorporating critique and revision allows learners to address their strengths and weaknesses and refine their thinking through trial and error, as emphasised by Ecubed (2021). This process is vital for producing a meaningful end product. While there was evidence of group work and collaboration among learners, such as collaborative task marking and sharing of inputs, there were insufficient opportunities for teachers to provide feedback, instruct learners based on feedback, or design tasks that encouraged critique and revision.

Buck Institute of Education (2022), Larmer et al. (2015), and Grossman et al. (2019) have emphasised the significance of the end product as the final element in PBL. While PBL prioritises the learning process over the final product, in contrast to conventional projects, these sources underscore that crafting a public product allows learners to showcase their acquired knowledge. Creating a public product is a motivational factor, instils a sense of responsibility in learners, and helps them perceive themselves as active contributors to society (Larmer et al., 2015; Grossman et al., 2019). However, in this study, not all teachers could complete all the necessary steps for learners to bring their projects to fruition. While one participant successfully reached the final step, the other two teachers could not do so, resulting in learners being unable to finalise their projects. This implies that learners might have missed the opportunity to demonstrate their learning to peers, school staff, and the broader community. This also represents a missed opportunity for the researchers, as they were unable to study how teachers fully implemented their PBL projects.

The participants encountered difficulties that hindered the completion of their PBL projects. One contributing factor was that teachers initiated their projects later in term 3 instead of at the term's beginning. As a result, they found themselves under pressure to complete the implementation and conduct assessments in other subjects as per the prescribed Annual Teaching Plan (ATP) by the DBE. A suggested solution for addressing these challenges is effective time management. According to Cintang et al. (2018), teachers can design tools to help them navigate time-related challenges. This may involve creating a PBL programme that outlines time allocation, and the duration required for different learning tasks throughout the PBL process while taking into consideration other subjects. Implementing a structured approach could alleviate the pressure on teachers, ensuring they can complete their PBL projects more effectively.

The teachers in this study responded positively to the PBL resources provided by E3, noting that the materials guided them through certain steps when implementing PBL in their classrooms. However, they also expressed a need for clarification on how to utilise these resources effectively in the enactment of PBL. Specifically, teachers were unsure whether they should strictly adhere to all the provided steps or modify the project to suit their learners' needs. Additionally, there was uncertainty about whether they should use the marks learners received in the project as the final grade for the Life Skills subject. While teachers received some teaching and learning materials, concerns were raised regarding the school's lack of technical facilities and resources, such as printers. This limitation hindered their ability to print a sufficient quantity of learning materials for their learners.

To address the challenge of insufficient teaching resources, Yang et al. (2021) underscored the importance of teachers seeking cost-effective methods to create resources that are readily accessible. This involves substituting tools and materials that are hard to find or adapting to the project context (Cintang et al., 2018). The recommendation is to tailor tools and materials based on the natural resources available in the learners' environments. Additionally, maintaining easy access and regular communication with the programme support team can provide teachers with timely clarification and support during implementation.

The aim of this study was to understand how teachers implemented PBL in their classrooms and their experiences with applying PBL following training from E3. Drawing conclusions from the results, it is evident that PBL implementation can benefit teachers and learners. Teachers who received training from E3 on effective PBL practices shared how they approached challenges like time management, language barriers, and insufficient learner participation. They employed strategies such as structured planning techniques, collaborative tools, and varied instructional methods. These approaches have the potential to help teachers address these challenges in any context, leading to smoother PBL implementation and a more engaging learning environment. The results showed that learners, in turn, experienced deeper learning outcomes through hands-on, real-world projects that required critical thinking and problem-solving. The structured support from teachers helped learners develop an entrepreneurial mindset, essential for adapting to and thriving in a fast-changing world. The training provided by E3 played a crucial role in equipping teachers with the necessary skills and confidence to implement PBL effectively, thereby enhancing the overall learning experience and contributing to the development of the competencies vital for future success.

So, what are the implications of the study's findings? The results demonstrate that PBL can positively influence both learning outcomes and the development of key future competencies in learners. However, this impact is dependent on teachers' ability to implement PBL effectively in their classrooms. This suggests that teachers must be thoroughly prepared to use PBL, whether through pre-service teacher education or ongoing in-service development. Without this foundational knowledge and support, the potential benefits of PBL may not be fully realised, and the approach risks being underused or improperly applied, ultimately leading to ineffectiveness. Thus, the study highlights the importance of investing in teacher preparation programmes to equip teachers with the necessary skills and confidence to integrate PBL strategies into their classrooms successfully.

Given the limitation of having only three teachers in the sample, future research should involve a broader range of schools across South Africa. This will provide insights into how PBL is implemented and experienced by both teachers and learners, as well as the effects of its implementation.

REFERENCES

Aldabbus, S. (2018). Project-Based Learning: Implementation & challenges. *International Journal of Education, Learning and Development 6* 71-79.

Astawa, N. L., Artini, L. P. & Nitiasih, P. K. (2017). Project-based Learning Activities and EFL Students' Productive Skills in English'. *Journal of Language Teaching and Research, 8*(6), 1147-1155.

Barron, B. & Darling-Hammond, L. (2010). Prospects and challenges for inquiry-based approach to learning. In H. Dumont, D. Istance & F. Benavides (Eds.) *The nature of learning: Using research to inspire practice.* Paris: OECD. pp.199-226.

Boss, S. (2015). *Implementing Project-Based Learning: Solutions for Digital Learner-Centered Classrooms.* USA: Solution Tree Press.

Buck Institute of Education (2022). *Gold Standard PBL: Essential Project Design Elements.* Retrieved 22 November 2022 from *https://www.pblworks.org/blog/gold-standard-pbl-essential-project-design-elements*

Cintang, N., Liesnoor, S. D. & Handayani, S. S. D. (2018). The Obstacles and Strategy of Project Based Learning Implementation in Elementary School. *Journal of Education and Learning (EduLearn), 12*(1), 7-15.

Cintang, N., Setyowati, D.L. & Handayani, S.S.D. (2017). Perception of primary school teachers towards the implementation of project-based learning. *Journal of Primary Education*, *6*(2), 81-93

Coberly-Holt, P. & Elufiede, K. (2019). Preparing for the Fourth Industrial Revolution with Creative and Critical Thinking. Paper presented at the Annual Meeting of the Adult Higher Education Alliance (43rd, Orlando, Florida, March 7-8).

Condliffe, B., Quint, J., Visher, M. G., Bangser, M. R., Drohojowska, S., Saco, L. & Nelson, E. (2017). *Project-based learning: A literature review*. MDRC: Working Paper Retrieved 17 November 2022 from https://www.mdrc.org/publication/project-based-learning.

Duke, N. K., Halvorsen, A.-L., Strachan, S. L., Kim, J., & Konstantopoulos, S. (2021). Putting PjBL to the Test: The Impact of Project-Based Learning on Second Graders' Social Studies and Literacy Learning and Motivation in Low-SES School Settings. *American Educational Research Journal*. 58(1) 160-200. https://doi.org/10.3102/0002831220929638

Eadie, S., Villers, R., Gunawan, J. & Haq, A.N. (2021). South African curriculum: Infusing competencies for a changing world. In F. M. Reimers, U. Amaechi, A. Banerji & M. Wang (Eds.) *An educational calamity: Learning and teaching during the COVID-19 pandemic*, Independently published, Paris. pp.277-312.

Ecubed (2020). *E3 learning model pedagogical paradigms.* Pretoria: Ecubed.

Ecubed (2021). *Teacher Training Manual.* Pretoria: Ecubed.

Fadel, C., Bialik, M. & Trilling, B. (2015). *Four-dimensional education: The competencies learners need to succeed.* Boston: Center for Curriculum Redesign. Gravett, S. (2016). *Adult learning: Designing and implementing learning events-A dialogic approach* (2nd ed.). Pretoria, Gauteng, South Africa: Van Schaik.

Grossman, P., Dean, C. G. P., Kavanagh, S. S. & Herrmann, Z. (2019). Preparing teachers for project-basedoteaching. *Phi Delta Kappan*. *100*(7) 43-48. https://doi.org/10.1177/0031721719841338

Kaldi, S., Filippatou, D. & Govaris, C. (2011). Project-based learning in primary schools: Effects on pupils' learning and attitudes. *Education 3-13*, *39*(1) 35-47 from https://doi.org/10.1080/03004270903179538

Karaçalli, S. & Korur, F. (2014). The effects of project-based learning on students' academic achievement, attitude, and retention of knowledge: The subject of "electricity in our lives". *School science and mathematics*, *114*(5) 224-235.

Kokotsaki, D., Menzies, V. & Wiggins, A. (2016). Project-based learning: A review of the literature. *Improving Schools*. *19*(3) 267-277. https://doi.org/10.1177/1365480216659733

Krajcik, J. S. & Shin, N. (2014). Project-Based Learning. In R. K. Sawyer (Ed.) *The Cambridge Handbook of the Learning Sciences.* New York: Cambridge University Press. pp.305-321.

Lathram, B., Lenz, B. & Vander Ark, T. (2016). *Preparing students for a project-based world.* Buck Institute of Education, California, US.

Larmer, J., Mergendoller, J. & Boss, S. (2015). *Setting the Standard for Project Based Learning.* Alexandria: Library of Congress Cataloging-in-Publication Data.

Markula, A. & Aksela, M. 2022, The key characteristics of project-based learning: how teachers implement projects in K-12 science education. *Disciplinary and Interdisciplinary Science Education Research*. *4*(1) 1-17.

Maykut, P. & Morehouse, R. (1994). *Beginning qualitative research: A philosophical and practical guide*. London: Routledge.

Merriam, B. & Tisdell, E. J. (2016). *Qualitative Research: A Guide to Design and Implementation.* San Francisco: John Wiley & Sons.

Mehmet, G. (2005). The Effect of Project Based Learning on Learning Outcomes in the 5ht grade Social Studies Course in Primary Education. *Kuram ve Uygulamada Egitim Bilimleri,* 548.

OECD (2019). *OECD future of education and skills 2030 concept note: OECD learning compass 2030*. Paris: Organisation for Economic Co-operation and Development.

Reimers, F. M. (2021). Learning from a Pandemic. The Impact of COVID-19 on Education Around the World. In F. M. Reimers (Ed.) *Primary and Secondary Education During COVID-19*. Springer, Cham. pp.1-37. https://doi.org/10.1007/978-3-030-81500-4_1

Rusdin, N. M. & Ali, S.R. (2019). Practice of fostering 4Cs skills in teaching and learning. *International Journal of Academic Research in Business and Social Sciences*. *9*(6) 1021-1035.

Schwab, K. (2016). *Shaping the Fourth Industrial Revolution: 1*, Project Syndicate, Prague. United States: Council on Foreign Relations.

Spaull, N. (2015). Schooling in South Africa: How low-quality education becomes a poverty trap. *South African child gauge*. *12*(1) 34-41.

StatsSA (2023). *Annual Report – 2023.* Pretoria: Statistics South Africa.

Yang, S., Carter Jr, R. A., Zhang, L. & Hunt, T. (2021). Emanant themes of blended learning in K-12 educational environments: Lessons from the Every Student Succeeds Act. *Computers & Education*, *163*, 104116. https://doi.org/10.1016/j.compedu.2020.104116

Higher education in Iraqi Kurdistan: Rethinking psychological principles in student-centred learning approach[1]

Hozan Latif Rauf, Kurdistan Technical Institute, Iraq
Zhwan Namiq Ahmed, Kurdistan Technical Institute, Iraq
Sardar S Shareef, Tishk International University, Iraq

ABSTRACT

The student-centred approach has become more popular in recent years. The learners' responsibility for learning involves them directly in the learning process and promotes social behaviours, including collaboration, meaningful communication, freedom of choice, and teamwork. Students should develop their knowledge through dialogue, critical thinking, and problem-solving. However, due to various circumstances, teachers may struggle to overcome obstacles while utilizing the student-centred approach in educational settings. This struggle is particularly evident in developing nations like the Kurdistan Region of Iraq (KRI). Despite the regional ministry of higher education implementing rules requiring new instructors to take pedagogical courses before beginning their teaching careers, teachers in KRI cannot hide that it is difficult to grasp all the concepts. This research sheds light on the struggles and opportunities of student-centred learning in KRI. The findings demonstrate that although there is a lack of psychological concepts, instructors attempt to incorporate what they have learned in their pedagogy courses. However, there is no information in the educational curriculum concerning the psychological principles required for student-centred learning. This study suggests that decision-makers investigate this problem and incorporate these ideas into subsequent instructional courses.

Keywords: higher education, psychological principles, emissions, social interaction, communication, Kurdistan Region of Iraq (KRI), student-centred learning

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INTRODUCTION

In higher education, teacher-centred instruction, or more specifically, the traditional teaching style, has dominated for a long time. However, learner-centred teaching strategies have replaced teacher-centred approaches in higher education over the past few decades. In a learner-centred classroom, students actively participate in their learning and have more control over what they learn, how, and when (Diastuti et al., 2024). This indicates that students are actively engaged in learning and take ownership of their education. Instead of emphasizing how teachers teach, learner-centred instruction focuses on how students learn (Emaliana, 2017). In a learner-centred classroom, teachers abandon lecture notes and PowerPoint presentations in favour of a more dynamic, engaging, and collaborative teaching method (Agrahari, 2016). Furthermore, the most effective learners for learner-centred education are more independent and self-directed learners, actively choosing what, how, and when to learn and create their own learning experiences (Putra et al., 2024). This is why the constructivist theory is reflected in, and forms the foundation of, the learner-centred approach (Kaymakamoglu, 2018).

The teacher-centred method historically dominated higher education in developing countries like Iraq, particularly in the KRI, until the beginning of the 21st century. However, there is now a growing global trend toward modifying student learning strategies. According to KRI's Ministry of Higher Education regulations, recent master's and PhD graduates must take a training course to meet the requirements for teaching in higher education and conducting student-centred learning. This is a step in the right direction toward transforming passive learning from a teacher-centred approach to active learning from a student-centred approach (Rauf & Shareef, 2022). Unfortunately, despite the efforts and education of the foreign-trained training instructors, the psychological principles of learning, which are crucial in this process, are disregarded in this course.

This study, conducted by alumni of the pedagogy course, aims to highlight the lack of psychological principles and explores this issue through discussions with several alumni currently engaged in teaching. The goal is to eventually introduce these ideas so that they can be included in subsequent iterations of the pedagogy course in the area. Therefore, the primary objective of this research is to discuss the key psychological principles involved in the teaching and learning process in the context of KRI's learner-centred learning method. To reach this goal, the study raises the following questions: (a) How does the KRI Ministry of Higher Education approach learner-centred learning, and what are the fundamental psychological principles that can be applied in their education approach? (b) How do instructors who have completed the training course handle psychological concepts in their lessons? (c) How do psychological concepts foster a safe learning environment at KRI institutes of higher education? To accomplish this, the study reviewed a large body of literature. In addition, workshops were held for numerous teachers who had completed the pedagogy course and were already using the student-centred approach.

Switching from a teacher-centred to a student-centred learning approach

The teacher-centred and student-centred learning approaches are often seen as being the converse of each other as they view the learner and learning from different perspectives. In teacher-centred learning approaches, the learner and learning are typically viewed from the educator's perspective (Ahmed, 2013). In teacher-centred learning, teachers play a significant role in the learning process. Students are often viewed as passive information receivers, while teachers are seen as information providers and evaluators who monitor students to ensure they respond appropriately (Sawant & Rizvi, 2015). Teachers make decisions on behalf of the learner regarding what is needed externally by defining aspects of instruction, curriculum, assessment, and administration to accomplish desired learning outcomes. So, teachers are less motivated to innovate in the classroom, as they use specific textbooks in such an approach to learning. Students are more likely to be competitive and individualistic in this setting as they have less opportunity to speak aloud or connect with others. For instance, in teacher-centred learning, the stage is run by teachers without the involvement of students; teachers increasingly serve as the primary source of information, as described by Dole et al. (2016). Teachers are solely responsible for planning all learning experiences in the classroom.

Based on the above description, it is still believed that there are some benefits of teacher-centred learning, including its suitability for large classes, the completion of class activities in less time, well-prepared learning materials, and decreased anxiety, embarrassment, or hesitancy for teachers (Ahmed, 2023). More recently, educators have recognized the importance of actively collaborating with students to define learning goals and determine how to enhance each student's learning. To achieve this, the framework for achieving targeted learning outcomes must consider learners' unique talents, abilities, and experiences. To help learners achieve their desired results, educators are expected to understand their reality and encourage any innate abilities they may possess. Given the current expectations for supporting lifelong, continuous learning, it is reasonable to consider instructional design methods that involve students as active participants in creating learning plans.

Learners' accountability for their learning directly involves them in it and promotes social behaviours such as cooperation, meaningful communication, choice, and group work. Students may acquire knowledge through problem-solving, communication, and critical thinking. This approach allows students to relate directly to their everyday lives rather than learning irrelevant materials. It provides students with opportunities to negotiate with the teacher and other students using a target language through group projects, task-based interactions, and other situations while receiving guidance, modelling, and feedback on their progress (Ali, 2019).

In student-centred learning, students' activities are a crucial part of the learning process, and the quality of the learning outcomes is an essential indicator of this method (Serin, 2018). This strategy is connected to self-directed, flexible, and experiential learning. Therefore, a student-centred classroom is one in which teachers consistently promote active learning by considering the needs of the students, both as a group and as individuals (Ali, 2019). Teachers guide and supervise students' activities while actively participating in learning. They direct their students' learning, and students may work independently, in pairs, or in groups in a class focused on them (Dole et al., 2016). Students working independently may brainstorm or take notes before class sessions. They may work in groups or pairs to compare and discuss their responses. During

conversations or role-playing exercises, students can collaborate and exchange ideas, opinions, and experiences (Ali, 2019; Lojdová, 2019). Participating in these activities allows them to increase communication, share ideas, learn from one another, and feel a sense of security, experiencing less anxiety (Emaliana, 2017; Hussein Salih et al., 2022; Salih et al., 2023; Serin, 2018; Wulf, 2019).

Psychological principles in the student-centred learning approach

The American Psychological Association team of educational researchers enacted a chapter on psychological principles between 1990 and 1996. It arrived at 14 points that they used to construct, redesign, and reform American schools (Alexander & Murphy, 1998). The 14 principles are divided into cognitive and metacognitive, motivational and affective, developmental and social, and individual difference factors (Motschnig et al., 2016). They may be rearranged under three umbrellas: social interaction, emotion, and communication.

Several studies have shown that using psychological principles is one of the most effective ways to improve and enhance learning (Salih et al., 2023). These studies agree that psychological principles can help students change their attitudes, improve their understanding, and learn more effectively. Specifically, each study included an in-depth discussion of how psychological principles can impact the learning environment.

Schwartz et al. (2023) explained an educational psychology curriculum's main teaching and learning objectives. The course covered the fundamental subjects of the field, as well as theory-based and evidence-based strategies and techniques for teaching them effectively. Additionally, it introduced fundamental ideas of effective teachings, such as inquiry-based, problem-based, small-group, and service-based learning among students. Keiler (2018) investigated teaching in student-centred, peer-mediated STEM classrooms connected to four areas of study, science, technology, engineering, and mathematics, for the effects on educators to prepare student peer leaders for their class responsibilities. The author also discussed how changing the learning environment could have predictable effects on teachers' identities and instructional strategies, providing valuable insights for teacher education and professional development programmes for STEM teachers. It was suggested this could help maximize teachers' success when implementing learner-centred pedagogy.

Chew et al. (2018) stated that psychology teachers have the same responsibilities to keep current and will incur risks if they fail. Psychology educators should not only scientifically learn concepts that have been verified by science, but they should also use the methods of psychological science to test the efficacy of their teaching practices. Huguet and Kuyper (2017) considered that whenever a group of people wishing to learn is made from individuals, there is a chance to put social psychological principles into practice to further educational goals. Chew et al. (2018) and Huguet and Kuyper (2017) agreed that, at least in part, education is an applied social psychology. They also demonstrated how understanding fundamental social psychological concepts and phenomena might advance our educational aims.

Hurst et al. (2013) examined how students perceived the importance of social contact in their learning. A total of 45 undergraduate and graduate students taking three literacy teacher preparation courses over a summer session were selected for their research. This was based on the highly interactive nature of each course. According to the outcomes of the study, social contact would (1) improve the working environment, (2) give a means for students to view topics

from multiple perspectives, and (3) help them to develop their critical thinking and problem-solving skills. Jaleel (2010) stated that applying psychological principles to e-learning could improve and enhance the quality of teaching and learning. The study was conducted using 32 postgraduate student teachers with prior teaching experience and computer competence at Mahatma Gandhi University, Kottayam, Kerala, India. The results of this in-depth study, namely applying psychological principles, suggested making the learning environment more learner-centred than teacher-centred could benefit both students and instructors alike. We agree with this research since putting psychological concepts into practice may enhance our learning environment. However, we need first to create a safe environment before beginning to adopt a learner-centred approach.

THE STUDY METHODOLOGY

The present study seeks to provide a new means of enhancing the level of education by presenting the essential psychological principles of implementing a student-centred learning approach. In addition, it tries to illustrate how educators can apply it as a possible method for student empowerment. For this reason, this study conducted a mixed-method approach with a naturalistic approach. According to Anderson and Arsenault (2005) and Chong and Yeo (2015), educational research is either acquiring fresh information from primary or first-hand sources or repurposing already collected information to address a specific issue. The purpose of this study is to argue that psychological concepts are essential for student-centred learning. The procedure and sample that were conducted for this study are as follows.

The study procedure

The data about the student-centred learning approach, students' role in their learning, the significance of psychological principles in enhancing students' learning, and the instructors' role in reviving psychological principles were collected from previous studies. Then, the content of the pedagogy training course, which is required for all instructors by the Ministry of Higher Education-KRI, was examined. At the same time, a workshop that dealt with psychological principles in a student-centred learning approach was conducted at one educational institution with the condition that only instructors who had passed a pedagogical training course would be accepted. For this reason, Kurdistan Technical Institute (KTI) was chosen as the case for this study. Finally, this research's conclusion and focal point were based on the teacher's comments from the workshop and the analysis of the training course results.

The study sample

Since 2014, master's and doctoral degree holders have been seeking employment at private educational institutions due to a shortage of job opportunities in government institutions. One of the requirements for employment is the completion of a pedagogy training course by the applicant or holder of the position. At KTI, master's and doctoral degree holders must have undergone pedagogical training courses to meet this requirement. Therefore, this study focuses on this aspect of academic education. Each of the 10 departments at KTI has full-time and part-time instructors, as shown in Table 1. Reviewing the instructor profiles revealed that all full and part-time instructors held pedagogical training course certificates.

Table 1:
KTI departmental names with their full-time and part-time instructors

#	Name of Department	Full-Time Instructors	Part-Time Instructors
1	Pharmacy	7	-
2	Medical Lab	5	-
3	Nursing	6	1
4	Information Technology	6	-
5	Computer Science	4	3
6	Business Administration	6	-
7	Accounting	6	-
8	Decoration Engineering-Interior Design	4	4
9	Digital Media	5	-
10	Petroleum Drilling and Refining	4	1

The part-time instructors did not have the opportunity to attend the workshop simultaneously with the full-time educators. The sample size for the study was 53 teachers, but since two of those instructors served as the study's researchers, only 51 instructors were included. Thus, among them, 34 teachers took part and provided comments, which is appropriate for a study on education (Creswell, 2012).

Analysis of the student-centred learning approach in the pedagogy training course

In the KRI, the Ministry of Higher Education and Scientific Research oversees higher education institutions and develops strategies to organize learning processes and promote local scientific research. Since 2019, the ministry has been implementing the Bologna Process (BP) to establish a common structure of higher education systems across all institutions in KRI (Tariq Khalid, 2022). The primary aim of the BP is to share more coherence among European higher education systems. In addition, it aims to create a European higher education system to improve student and staff mobility, increase access to higher education, and make it more attractive and competitive worldwide (Omer et al., 2021; Tariq Khalid, 2022).

Since the beginning of this decade, the term BP has been among the most often discussed topics in KRI higher education circles. The Ministry began implementing the BP in 2019 by sending selected members of higher education staff, especially professors and directors from different institutions, to HAMK-Häme University of Applied Sciences in Finland (Omer et al., 2021). The main objective of this initiative was to provide professional development pedagogical programmes for teaching staff. Previously, in the KRI, instructors were offered traditional pedagogical courses for three months as a Ministry of Higher Education employee training

course. However, on October 28, 2019, the Ministry issued document number 1772, which proposed moving the traditional training courses to a new development and training academic and pedagogical centre.

All KRI institutions have since implemented this decision and now offer six-month pedagogical training courses as a prerequisite for BP implementation. Instructors who participated in the new pedagogical training course were significantly more motivated than those who did not. Therefore, training instructors for BP implementation is a critical element because it boosts motivation and helps the instructors define their new roles.

The pedagogical training course comprises six modules: Information and Communication Technology, Student-Centered Learning Approach, Innovative Teaching Methods and Assessment Tools, the Edupreneurship Module, Competency-Based Learning, and the Research Methodology Module. However, this study only discusses two modules: The Student-Centered Learning Approach and the Innovative Teaching Methods and Assessment Tools. These modules aim to help instructors understand how to shift the focus of the educational environment from teacher-centred to student-centred, as well as how to implement and evaluate students following BP standards.

The Student-Centred Learning Approach module, which can be accomplished in two months, is the most significant because it focuses on the learner. It aims to aid instructors in comprehending that the learning process is not only about transferring knowledge but also about deeper comprehension and critical thinking. According to this approach, instructors are facilitators who emphasize their students' autonomy and encourage them to construct meaning through proactive, independent learning, discovery, and reflection.

The second important module is the Innovative Teaching Methods and Assessment Tools module. Assessment is defined by quality assurance accreditation as any process that evaluates a student's knowledge, understanding, abilities, or skills in higher education (Zacharis, 2010). Therefore, assessment has a major impact on students' experience in higher education, and evidence for the certificate must be obtained. Traditionally, assessment was not seen as an essential part of teaching and learning itself but rather as a measuring tool after learning has been completed. However, the disadvantage of this traditional model is that assessments are given in an examination style at the end of each course, resulting in students prioritizing exams above actual learning. The outcome of taking this assessment module is to change 'assessment of learning' to 'assessment for learning'.

In the pedagogical course, instructors can get information about implementing assessments. There are two types of assessments which are presented in this module: formative and summative. The instructors learn how formative assessment is used to increase performance and improve students' learning experience (Zacharis, 2010). Such assessment should include providing students with timely, relevant feedback and helping them to understand and recognize quality during their educational process. On the other hand, the instructors are shown how summative assessments evaluate how much knowledge a student has acquired, which is crucial for certifications (Zacharis, 2010). This module helped instructors realize that formative assessment is the best method for assisting students in becoming the focus of their learning.

During the six-month pedagogical training course, the principles of psychology are ignored. The content of all six modules is far from the instructors' and students' emotional and social interactions. Due to these significant problems, a workshop was organized to discuss them with the KTI instructors and outline potential solutions.

Analyzing the instructors' reflections on the workshop

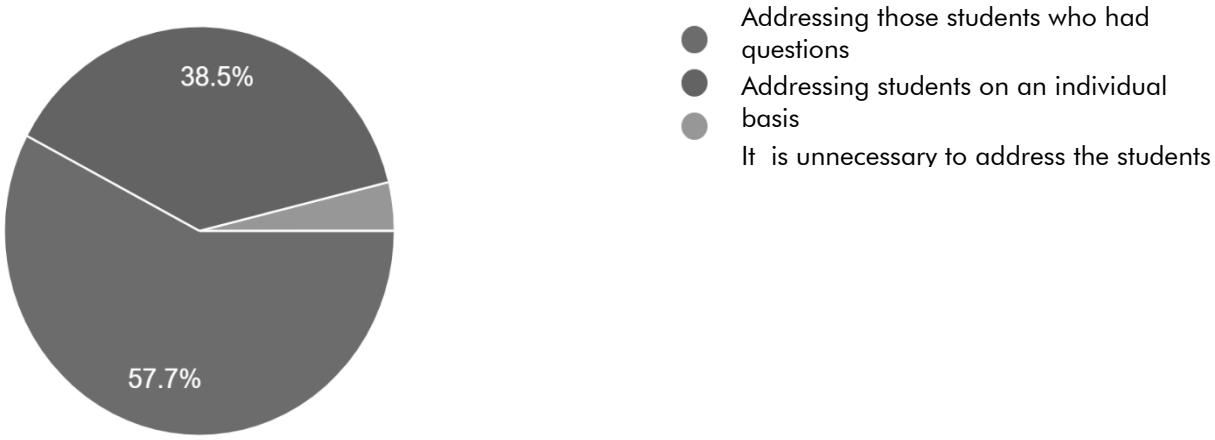
A one-day workshop was organized at the KTI under the guidance of the Ministry of Higher Education-KRI, in which 10 departments with more than 2000 students and 138 academic staff, including full-time instructors, part-time instructors, research assistants, and the employment of academic directorates, are employed. The workshop's goal was to allow participants to speak face-to-face with full-time teachers about the advantages, challenges, and limitations of using the student-centred learning approach in developing countries like Iraq and the KRI. The workshop was divided into three sessions. The first session presented general issues in applying a student-centred learning approach in KRI, including the lack of application of psychological principles. The conclusion of the session focused on three areas of interest: social interaction, instructors' emotions, and instructor-student communication. In the second session, an online Google questionnaire was conducted with three questions that targeted instructors' approaches in their classes. The third session was designed to understand instructors' reactions to the three main issues, i.e. social interaction, instructors' emotions, and instructor-student communication, and record their feedback on the topics.

In the second session, an online Google questionnaire was designed to understand instructors' behavior toward students during class. Three questions were asked here. First, the instructors were asked how they started their classes. According to their responses, 53.8% of them start their classes with topics irrelevant to the class subjects, like having discussions about non-school subjects, including the overall situation of the area, business, social life, etc. Meanwhile, 42.3% said they started by asking about previous topics from the module. Then, 3.8% of them stated that they started with class topics.

Figure 1:
How to Start a Class

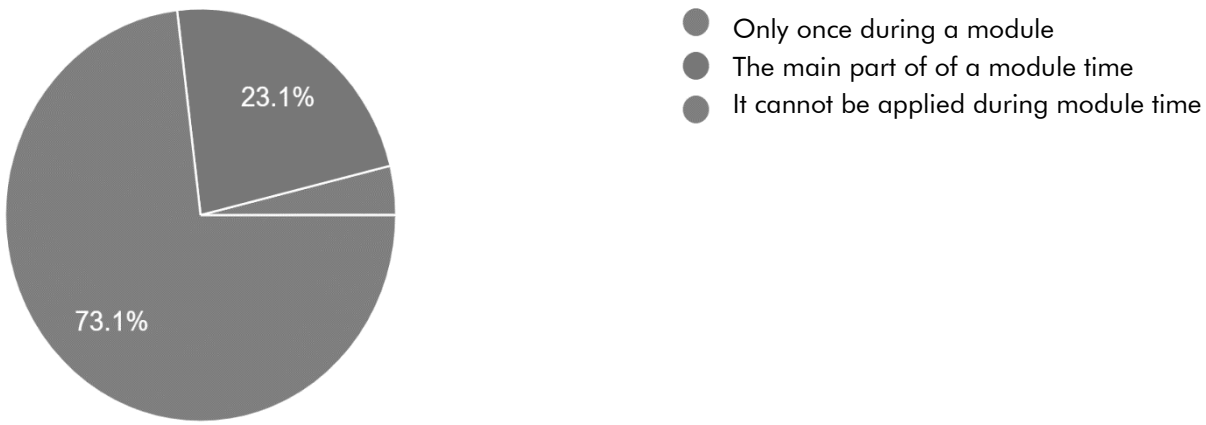
In addition, the instructors were asked if they communicated with individual students. From the total number of respondents, 57.7% of instructors said that they addressedstudents who had questions during class activities, while 38.5% mentioned that they addressed students on individual-basis during class activities. However, 19% of them stated that it was unnecessary to visit students when the activity had already been explained.

Figure 2:
Instructor's Communication with Students during Class Activities



The last question was about designing module group work activities to enhance instructor-student and student-student communication. In this question, 73.1% of the instructors said that they could use group work activities only once during a module. Meanwhile, 23.1% said it is the main part of the learning strategy in their module. Finally, 3.8% stated that they could not apply for group work during their module time due to there being too many students in the classroom.

Figure 3:
Application of Group Work in an Instructor's Module



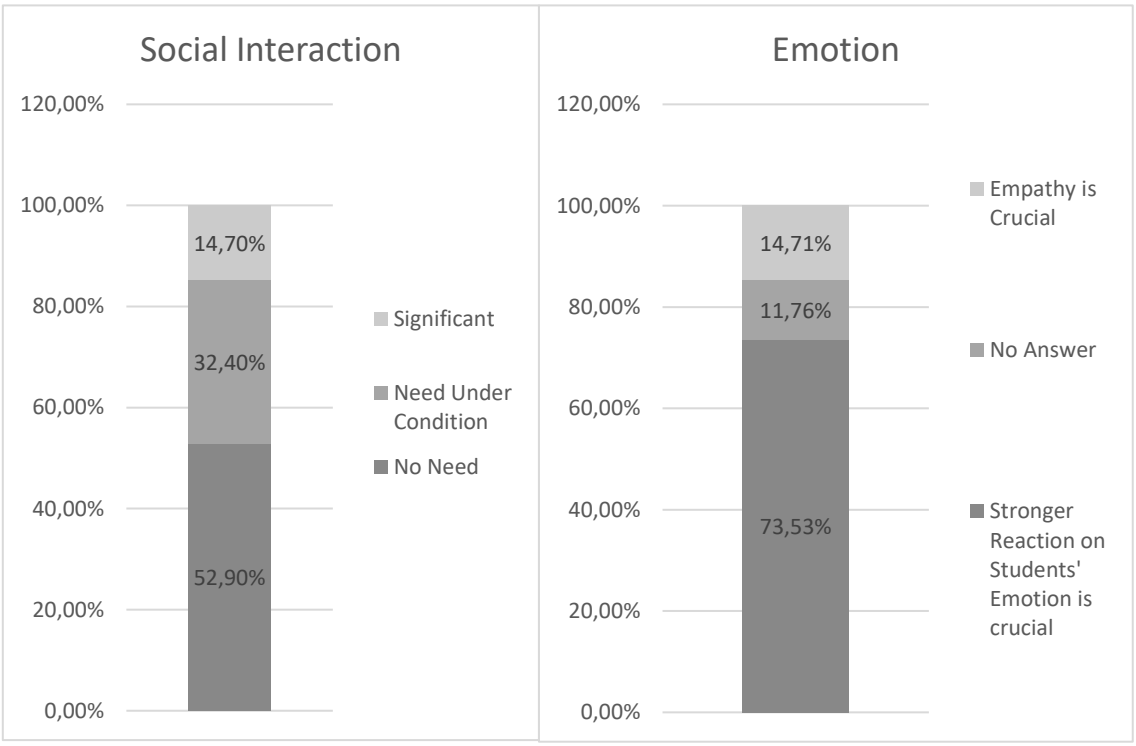
At the last session of the workshop, the participants discussed three psychological principles, and all of the instructors agreed that in the training pedagogy course, such principles had not been considered. Their feedback on the three issues was as follows:

a. **Social Interaction:** The lecturers fell into three groups at this point. The first group, which comprised 52.9% of the participants, thought there should not be any social connection between students and teachers because the latter might use their positions for personal gain. Meanwhile, 32.4% believed in creating social interaction between teachers and students under the proviso that the subjects of these interactions would fall within the purview of the class topics. Then, 14.7% of the instructors said that social attraction should be used in all forms in a learning environment.

b. **Emotion:** When two participants considered that an instructor's activities might cause a strong emotional response, the other participants and all the participant teachers agreed that new instructors were sometimes hesitant before presenting their lectures. However, the workshop participants' opinions on how instructors should react to students' emotions brought about a heated conversation because 73.53% of them thought that to exert their authority over students, instructors should react to students more harshly/strictly', with less empathy. Meanwhile, 14.71% of them believed that empathy was essential and that there there should be more support for students, and 11.76% did not respond.

c. **Communication:** The importance of communication between students and instructors was shared by all participants. Surprisingly, almost all the participants highlighted the instructor's conversations without mentioning the importance of the student's perspective on listening.

Figure 4:
Instructors' responses to the presence of social interactions and emotions in their classes



DISCUSSION

Despite the mandatory modules that instructors had to complete for their training pedagogy course, the workshop discussions showed that they did not consider psychological principles to be an integral element of their teaching methodology. This may be a sign that the Ministry of Higher Education's agenda for increasing instructors' awareness and knowledge required for a student-centred approach may not successfully secure an environment suitable for instructors and students to engage in such an approach.

Researchers continue to debate the desired degree of engagement between instructors and students. In previous studies, many instructors said they adopted an approach with the students whereby they did not immediately start talking about the class material but, instead, engaged in conversation and discussion with the students about topics unrelated to their course materials. This was done to establish rapport with the students and encourage them to talk about topics in addition to those covered in class. The teachers believed this may have affected students' perceptions of the classes as being less important subjects to learn about and retain. However, we could not determine if the outcomes of these teachers' trials would be successful compared to those who did not utilize the same method in our study. The results imply that teachers need some engagement even when unfamiliar with psychological principles. Due to the feedback they receive from their students, most teachers now advocate group projects, which have been identified in the literature as one of the tactics for facilitating easy learning and fostering the development of stronger soft skills in students.

Another point raised was that 73.53 percent of respondents thought that teachers should adopt a teacher-centred role and exert authority over their students to demonstrate who is a teacher

and who is a student. There is a significant lack of understanding among teachers regarding the importance of psychological principles centred on considering students' emotions.

Regarding the communication component, instructors thought it was important to communicate and that students should pay attention to what they had to say, with no expectation that they should do the same for them. This is, once again, a negation of the student-centred approach because it returns the process to a teacher-centred one in which the instructor is the sole authority who needs to be taken into account: the teacher is the source of knowledge, while the students serve as passive recipients.

The pedagogy course is a requirement for aspiring instructors wishing to implement a student-centred strategy. Many instructors' inability to create an environment supporting the student-centeed approach is due to the background attitudes they bring to their teaching practices from the schools they attended as students and the lack of any psychological principles in the pedagogy courses they took. This study recommends that the decision-makers change pedagogy courses to focus on psychological concepts. Without the focus on psychological concepts, creating a student-centred environment that works seems to be too difficult an undertaking, resulting in the teacher-centred approach predominating despite the necessary educational courses having been taught.

CONCLUSION

In conclusion, the student-centred approach is gaining popularity in higher education globally. However, implementing this method in developing countries like KRI faces several challenges, particularly due to the lack of psychological principles being introduced into the pedagogy courses required for new instructors. This study highlights the importance of including psychological principles in pedagogical training programmes to promote student-centred learning in higher education. Failure to do so, hinders the creation of a student-centred learning environment and influences the application of educational psychology principles, as the results of the one-day workshop held for teachers at KTI in KRI showed. Consequently, all the instructors employed a teacher-centred educational learning process. To address this, the study recommends that psychological principles be included in future pedagogical training programmes to promote a more effective learning experience for instructors and students. In addition, this study emphasizes the need for instructors to be aware of and understand the psychological concepts that play a crucial role in student-centred learning. Overall, the findings of this study highlight the need for ongoing education and development for instructors to create the most supportive and effective learning environment for students in the KRI.

REFERENCES

Agrahari, R. (2016). The nature of educational reform and change: From teacher-centered to student-centered learning. *Educational Quest-An International Journal of Education Applied Social Sciences, 7*(2), 133-139. http://dx.doi.org/10.5958/2230-7311.2016.00030.1

Ahmed, A. K. (2013). Teacher-centered versus learner-centered teaching style. *Journal of Global Business Management, 9*(1), 22.

Alexander, P. A. & Murphy, P. K. (1998). *The research base for APA's learner-centered psychological principles*. Paper presented How students learn: Reforming schools through learner-centered education. https://doi.org/10.1037/10258-001

Ali, S. S. (2019). Problem based learning: A student-centered approach. *English language teaching, 12*(5), 73-78. http://dx.doi.org/10.5539/elt.v12n5p73

Anderson, G. & Arsenault, N. (2005). *Fundamentals of educational research*: Routledge: New York.

Chew, S. L., Halonen, J. S., McCarthy, M. A., Gurung, R. A., Beers, M. J., McEntarffer, R. & Landrum, R. E. (2018). Practice what we teach: Improving teaching and learning in Psychology. *Teaching of Psychology, 45*(3), 239-245. http://dx.doi.org/10.1177/0098628318779264

Chong, C.-H. & Yeo, K.-J. (2015). An overview of grounded theory design in educational research. *Asian Social Science, 11*(12), 258. http://dx.doi.org/10.5539/ass.v11n12p258

Creswell, J. (2012). *Educational Research: Planning Cconducting and Evaluating Quantitative and Qualitative Research,* (4th ed.). Pearson Education.

Dole, S., Bloom, L. & Kowalske, K. (2016). Transforming pedagogy: Changing perspectives from teacher-centered to learner-centered. *Interdisciplinary Journal of Problem-Based Learning, 10*(1), 1. http://dx.doi.org/10.7771/1541-5015.1538

Emaliana, I. (2017). Teacher-centered or student-centered learning approach to promote learning? *Jurnal Sosial Humaniora, 10*(2), 59-70. http://dx.doi.org/10.12962/j24433527.v10i2.2161

Huguet, P. & Kuyper, H. (2017). Applying social psychology to the classroom. In P. A. Schutz & R. Pekrun (Eds.), *Emotion in education* (pp.123-140). Cambridge University Press.

Hurst, B., Wallace, R. R. & Nixon, S. B. (2013). The impact of social interaction on student learning. *Reading Horizons, 2013*(4), 375-398.

Jaleel, S. (2010). Psychological Principles for e-Learning. Accepted in: *3rd Annual Forum on e-Learning Excellence in the Middle East 2010 - Bringing Global Quality to a Local Context. Online Submission.* https://files.eric.ed.gov/fulltext/ED508860.pdf

Kaymakamoglu, S. E. (2018). Teachers' Beliefs, Perceived Practice and Actual Classroom Practice in Relation to Traditional (Teacher-Centered) and Constructivist (Learner-Centered) Teaching (Note 1). *Journal of Education Learning, 7*(1), 29-37. http://dx.doi.org/10.5539/jel.v7n1p29

Keiler, L. S. (2018). Teachers' roles and identities in student-centered classrooms. *International journal of STEM education, 5*(34), 1-20. https://doi.org/10.1186/s40594-018-0131-6

Lojdová, K. (2019). Socialization of a student teacher on teaching practice into the discursive community of the classroom: Between a teacher-centered and a learner-centered approach.

Learning, Culture Social Interaction, 22, 100314. http://dx.doi.org/10.1016/j.lcsi.2019.05.001
Morgan, K. (1970). Sample size determination using Krejcie and Morgan table. *Kenya Projects Organization, 38*, 607-610.
Motschnig, R., Sedlmair, M., Schröder, S. & Möller, T. (2016). A team-approach to putting learner-centered principles to practice in a large course on Human-Computer Interaction. Paper presented at the *2016 IEEE Frontiers in Education Conference* (FIE), (pp. 1-9). IEEE. doi:10.1109/FIE.2016.7757576

Omer, M. A., Asaad, M. M., Sofi-Karim, M., Kakakhan, M. B., Al-Zangana, S., Mohammed, O. A., . . . Mohamad, K. K. (2021). Academic staff's attitude toward the Bologna process and the new pedagogy in the University of Garmian. *ZANCO Journal of Pure Applied Sciences, 33*(1), 68-76.

Rauf, H. L. & Shareef, S. S. (2022). Reconsidering architectural education based on Freire's ideas in Iraqi Kurdistan. *Educational Philosophy Theory, 54*(13), 2243-2255. http://dx.doi.org/10.1080/00131857.2022.2130045

Sawant, S. P. & Rizvi, S. (2015). Study of passive didactic teacher centered approach and an active student centered approach in teaching anatomy. *International Journal of Anatomy Research, 3*(3), 1192-1197. http://dx.doi.org/10.16965/ijar.2015.147

Schwartz, N., Click, K. & Bartel, A. (2023). Educational Psychology: Learning and Instruction. *International Handbook of Psychology Learning Teaching*, 357. http://dx.doi.org/10.1007/978-3-030-28745-0_67

Serin, H. (2018). A comparison of teacher-centered and student-centered approaches in educational settings. *International Journal of Social Sciences Educational Studies, 5*(1), 164-167.

Tariq Khalid, A. (2022). Teacher Motivation towards the Implementation of Bologna Process in Erbil-Kurdistan. *International Journal of Social Sciences Educational Studies, 9*(3), 83-92.

Wulf, C. (2019). "From teaching to learning": Characteristics and challenges of a student-centered learning culture. In *Inquiry-based learning–Undergraduate research: The German multidisciplinary experience* 7-55.

Zacharis, N. Z. (2010). Innovative assessment for learning enhancement: Issues and practices. *Contemporary Issues in Education Research, 3*(1), 61-70.

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