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A critical review of academic practice and integrated edtech use at a South African University:

The ‘real’ level

Nazira Hoosen

A thesis submitted to the Faculty of Humanities,

University of the Witwatersrand, Johannesburg,

in fulfilment of the requirements for the degree of

Doctor of Philosophy in Interdisciplinary Digital Knowledge Economy Studies

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Abstract

This study aimed to investigate and understand how academics' digital competence and critical digital pedagogy (CDP) knowledge shaped pedagogical practice. Freire (1970), Bhaskar (1978), Archer (1995) and Shulman (1987) were the main authors drawn upon in the literature. A qualitative research paradigm and a multiple case study methodology were employed by drawing on critical realism (CR) and social realism (SR) as a theoretical analytical framework. This entailed exploring structural, cultural and agential emergent properties to examine how each construct developed over time prior to synthesis. The analysis demonstrated that the form of agential mediation to which academics were exposed explained why some of them in the same social structures and culture enacted CDP practices, while others did not. Consequently, three crucial dimensions of CDP knowledge and enactment were made visible through this study's data and theoretical analytical framework, namely digitally-enabling structures, digitally-informed cultures and digitally-capable agency. From a pragmatic perspective, to enact CDP practice, academics need to connect the digital reality to knowledge work and epistemic practice. In this process, academic agency and digital agency would intersect, requiring reflexive and reflective practice. However, while reflection assists in recognising the need for CDP knowledge and enactment, it is insufficient on its own: embodied action and mindful critique of the world are required. From a theoretical perspective, the concept of 'critical', in the literature, is related mainly to the level of social relations. This study demonstrated that there is a socio-cultural stratum and a psychological-cognitive stratum. Both these strata need to be considered as mechanisms that interact with each other to produce the outcomes of CDP practice within a digital reality. Collectively, these contributions do not translate to accepting the digital reality as a predestination. Instead, it highlighted that academics functioned in a layered HE system that required, not a singular, but a unified and pluralistic (collective) vision. Individuals and institutions are limited in their capacity to respond proactively to external change and internal complexity. Therefore, the HE system requires a rerouting from the traditional path, critically reframing learning and teaching through transformative foresight, where all parts within the system work co-terminously. One significant outcome of this study is a developmental higher education systems thinking framework focusing on the promotion of CDP practices.

Keywords: critical digital pedagogy, critical realism, digitally-capable agency, digitally-enabling structures, digitally-informed cultures, reflexive practice.

Declaration

I, Nazira Hoosen, hereby declare that this thesis is my own, unaided work. It is submitted in fulfilment of the requirements for the degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.



Signature

10 March 2023

_____

Date

Dedication

For

My husband, Imraan

and

My torchbearers:

Raadhiya, Humairaa, Zaakirah, Atiyah and Mohummed Zaahid

You take the angst out of many a complexity

With gratitude

Doctoral studies can be extremely lonely and convivial but this study has been profoundly yet intensely intellectual in my academic journey. I acknowledge the Almighty and my parents who provided scaffolding from a young age to constantly seek Islamic and secular knowledge to improve my understanding by providing a meaningful tapestry in the form of my childhood. This continues to shape who I am and how I view the world and the hereafter.

It is hoped that my research may, in beneficial ways, contribute to knowledge and understanding of the complexity of L&T practices in Health Science education where teaching to heal and save lives remain a priority.

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Peer-reviewed publications

Hoosen, N., & Crouch, A. (2021). Using ICT in higher education for student empowerment: An academic perspective using critical pedagogies. In Mphahlele, R. S., & Maguvhe, M. *Empowering students and maximising inclusiveness and equality through ICT* (pp. 134–157). Brill. https://doi.org/10.1163/9789004447226_009

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Krull, G., & Hoosen, N. (2022). Promoting community and collaboration: Models underpinning an academic professional learning online short course. In Jaffer T., Govender S., & Czerniewicz, L. (Eds.), *Learning Design Voices*. Advance preprint. https://doi.org/10.25375/uct.20027564

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List of Acronyms

APDC	Academic and Programme Development Committee
BL	Blended learning
CAQDAS	Computer aided qualitative data analysis software
CD	Compact disk
CDP	Critical digital pedagogy
CEP	Culturally emergent properties
CHE	Council for Higher Education
CHSE	Centre for Health Science Education
CK	Content Knowledge
CTLD	Centre for Learning, Teaching and Development
CNS	Computer and network services
CoP	Community of practice
CP	Critical pedagogy
CPL	Continuous professional learning
CR	Critical realism
DHET	Department of Higher Education and Training
DoH	Department of Health
DVC	Deputy vice-chancellor
Edtech	Educational technology
ELO	Exit level outcome
eLSI	eLearning and support unit
ERT	Emergency remote teaching
F2F	Face-to-face
FHS	Faculty of Health Sciences
GDH	Gauteng Department of Health

GEMP	Graduate Entry Medical Programme
HE	Higher education
HoD	Head of department
HoS	Head of school
HPCSA	Health Professions Council of South Africa
HRDU	Human Resource Development Unit
ICT	Information and Communication Technology
ILO	Intended learning outcomes
KIM	Knowledge and Information Management
KPA	Key performance areas
L&T	Learning and teaching
LMS	Learner management system
LoLT	Language of Learning and Teaching
MM	Morphogenetic/morphostatic
MoA	Memorandum of Agreement
MOOC	Massive open online course
MPRA	Model of pedagogical reasoning and action
NHLS	National Health Laboratory Service
OT	Occupational Therapy
OTL	Office of Teaching and Learning
PBL	Problem based learning
PCK	Pedagogical content knowledge
PDF	Portable Document Format
PEP	Personal emergent properties
PG Dip	Postgraduate diploma
PK	Pedagogical knowledge
PPT	Power point
PQM	Programme and Qualification mix

RBME	Results based management evaluation
RWOPS	Remunerated work outside the public service
S&P	Staffing and Promotions
SDL	Self-directed learning
SEP	Structurally emergent properties
SET	Senior executive team
SME	Subject matter expert
SoCM	School of Clinical Medicine
SoOHS	School of Oral Health Sciences
SoTL	Scholarship of Teaching and Learning
SoTS	School of Therapeutic Sciences
SR	Social realism
TDG	Teaching Development Grant
TK	Technological knowledge
TPACK	Technological, Pedagogical and Content Knowledge
UCDG	University Capacity Development Grant
USAF	University South Africa
Wits	University of Witwatersrand
WSoE	Wits School of Education

Chapter 1 Context and challenges for critical digital pedagogy (CDP) practice: Drawing on a Faculty of Health Science and two schools within

1.1 Introduction

This thesis focuses on health science (HS) academics' digital competence[1], knowledge and enactment of critical digital pedagogies (CDP) through their use of educational technologies (edtech) in blended learning (BL) environments. This topic is crucial and timely because the world is changing in a way that requires a reorientation of L&T practices to disrupt the hegemony of neo-liberal practices by enhancing critical thinking while considering students lived experiences and understanding of current conditions in the world to make it a better place for everyone. When employing CDP as a lever of change, academics need to engage in reflexive and reflective processes in learning and teaching (L&T) because this reasoning is required to transition pedagogical practices. From a critical realist (CR) stance (Bhaskar, 1978), edtech is conceptualised as a structural affordance to L&T practice at the empirical level. L&T practices require educators to reflect on the philosophical assumptions that they take into the classroom. These assumptions influence pedagogical practice because they foreground particular worldviews around "beliefs and fundamental aspects of reality that ground and influence all that one is perceiving, thinking, knowing, and doing" (Funk, 2001, p. 2). This worldview encompasses critical questions about how, where, and why academics teach and facilitate learning. These driving forces could be shaped by beliefs, values, prejudices, experiences and fears that lay hidden '*below surface*' whilst influencing events on the observed '*above surface*' level (Bhaskar, 1978). This research focuses on this deep, 'real' level by employing the integrated lenses of structure, culture and agency, which are introduced in Section 1.8 and further explained in chapter two.

This introductory chapter sets the scene for the study, providing a background on CDP in higher education (HE) and discusses nuances in the CDP practices of academics. The problem, research question and sub-questions that this study has addressed are presented. The main argument of this thesis is that CDP knowledge and practice cannot be viewed as a mere set of best practices or tools since academics have the power to act through their academic agency, even though they are conditioned by the social and cultural structures to which they have been exposed. I describe the purpose of the research and explain how certain concepts were employed in the study. The context, significance, originality and interdisciplinarity of the research are presented. The theoretical and analytical frameworks used in this study are introduced, followed by a brief discussion of the methodological approach and the limitations of the study. The chapter concludes with a motivation for the need to theorise around CDP knowledge and practice in a HE context within a developing digital knowledge economy[2].

[1] Digital competence can be viewed as a continuum of levels. Digital literacy, which is an understanding of how to use edtech tools, represents the first level; digital fluency goes a step further to include the ability to create new content with these tools. Digital mastery is the ability to create new learning and teaching interactions which reflect the interconnectedness of content areas and make use of a variety of strategies and assessment tools to design and develop learning experiences to reach all students. At the mastery level, the individual experiences digital competence as second nature.

[2] My view of a digital knowledge economy refers to how economies or systems transition from a physical labour force to a knowledge economy through digital technologies that allow them to use knowledge to innovate

1.2 Background: CDP in higher education

This research is set within the blended learning (BL) modality at the University of Witwatersrand (Wits), a South African research-intensive university. Further to this, the study is located within a broader research context that is concerned with understanding the CDP practices of a sample of academics in the Faculty of Health Sciences (FHS). Similarly, CDP relates to academics levels of digital competence, enablements and constraints when edtech is integrated into pedagogical practices and has implications for their agency and identity when facilitating learning in the online space.

In HE, teaching often remains uncritical and under-theorised since many academics engage in thinking about direct pedagogical work to improve their practice (Morris & Stommel, 2018a; Smith & Seal, 2021). CDP is situated at the intersection of the philosophy and the practice of L&T, thereby making it praxis (Morris & Stommel, 2018a). The focus of CDP practice is for academics to internalise underlying notions about the kinds of transformation that students undergo in the educational trajectory, and the kinds of individuals they will become at the end of this trajectory.

The HE milieu in South Africa is afflicted by challenges such as massification, poverty and inequality, diverse student bodies, cost efficiency and attaining measurable outcomes, as is the case globally (Cloete et al., 2016). Aligned with these challenges is the need to investigate the potential for advancing technologies to enable personalised learning whilst still adhering to the fundamental ideas of the purpose of education (Nel & Wilkinson, 2006), especially in the context of HS education. In 2015, South African HE institutions experienced the #FeesMustFall movement, characterised by student protests across the country that brought many institutions to a standstill. In this highly politicised and contested environment, some HE institutions engaged in blended and online teaching practices to enable the academic year to be completed (Czerniewicz, Trotter & Haupt, 2019).Thereafter, in early 2020, South Africa, and other countries globally, experienced a viral threat in the form of COVID-19, a pandemic that disrupted routines and compelled the government to enforce a national lockdown[3] for an initial five weeks. This extraordinary action was needed to disrupt the viral sequence of transmission across the country to save citizens from infection. Wits University instituted a L&T continuity plan, as did many other institutions, which directed all associated activities and research work to be continued remotely, via online and other appropriate means, during the emergency lockdown period. Wits implemented arrangements allowing staff to work remotely. This remote L&T practice continued through 2021 and into early 2022 due to subsequent waves of the pandemic.

It was during these extraordinary events that many academics were observed scrambling to transcend their traditional contact classrooms by creating online learning environments to engage students via alternative L&T approaches. Most academics are not confident using information and communication technologies (ICTs) for L&T (Deng & Yuen, 2011; Pisanu, 2022). This is substantiated by Akarowhe (2017), who states that academics teach the way they were taught and therefore struggle to transcend their familiar practice to use ICTs to design learning experiences. More than a decade ago, Deng and Yuen (2011) argued that academics were under tremendous pressure to ‘keep up’ with innovative pedagogy, curriculum and assessment practices by

[3] In terms of the COVID-19 lockdown period in early 2020, individuals (except essential staff) were not allowed to leave their homes except under strictly controlled circumstances, like seeking medical care or buying food, medicine and other essential supplies.

incorporating edtech. This pressure comes both from within institutions, as well as from the global landscape and the new generation of students who enter learning spaces. In the African context, even though institutions provide supportive environments, policy initiatives, commitment and provisioning of access to technology and connectivity, low uptake of edtech remains (Akarowhe, 2017).

For academics, distinguishing between their real, physical and virtual selves can seem rather unsettling when engaging in blended L&T (Stommel et al., 2020). Therefore, L&T in the blended space warrants reconsideration of how academics think and reflect on structures within existing cultures and identities and how this interplay shapes pedagogical practice. I recognise that edtech provides a catalyst for change in pedagogical practice. If academics choose to learn how to use emerging technologies in L&T, it could provide an opportunity for reflexivity and reflectivity in their practice (Czerniewicz et al., 2004).

In my experience, academics often use edtech as an 'add-on' to existing teacher-centred practices. That said, some academics do change their practices in definitive ways by first engaging in curriculum change, reflecting on their practice and then moving on to use a blended L&T platform. Other academics simply resist using edtech critically in L&T. These variances in openness to epistemological and ontological shifts in terms of academic roles and identities provided the impetus for this study. I believe that multiple realities exist, even though they may operate independently of my awareness or knowledge of them. Accessing these realities by interrogating the generative mechanisms that lay hidden, can be detected by exploring the laminated layers of reality within L&T practices through the lenses of structure, culture and agency (Archer, 1995). In sum, then, this research explicitly addresses the CP practice foundations of digital practices, thereby allowing for robust explanations of how edtech is being used to support L&T from the perspective of academic agency. I now turn to clarifying some of the terms that were employed throughout this thesis.

One challenge for research in the field of edtech is the inconsistent use of terminology relating to technology. The term 'edtech' itself is used to mean different things by different authors (Luppicini, 2005; Selwyn, 2011; Robinson et al., 2013). While some use the term as it stands, others use it to refer to information and communication technologies (ICTs), learning technologies, computing, digital technology or instructional technology. Selwyn (2011) employs various terms to align to contemporary technology that includes computing hardware, systems and devices 'content-free' computer software packages, internet applications, and so forth. My view is that Selwyn's (2011) conceptualisation converts technology to mere 'artefacts' and 'devices'. This range of usages of the term 'edtech' results in some ambiguity around the conceptualisation of the term. Mishra and Koehler (2006) suggest that while some technologies are particularly designed for educational purposes, others may be repurposed for use in educational settings. Therefore, in this research, I use the term 'edtech' interchangeably when I refer to digital technologies in my conceptualisation of CDP because I view edtech as a variety of L&T hardware and software employed in the classroom.

A range of terms are used in the literature to refer to CP practice, such as 'socially just pedagogy' (Maringe, 2017) 'critical teaching practice' (Bullough, 2011); 'education for emancipation' (Freire, 2004); 'liberal pedagogy' (Young, 2000), 'emancipatory pedagogy' (Morrow & Torres, 1995), and 'border pedagogy' (Giroux, 1988). Collectively, these all point to pedagogy that involves knowledge being constructed and deconstructed with communication being contextualised around emancipatory interests. Similarly, learning is actively pursued through forms of critically examining settings that shape the ideological and material conditions that contribute

to sites of domination and struggle. This research considers the nuances of context and issues of participation and power through employing the term 'critical pedagogy' as a way of L&T built on fostering agency thereby empowering students to liberate themselves from oppression.

Stommel (2014) asserts that education itself has been misconceived, as both lecturers and students remain gridlocked within a system that emphasises assessment over collaboration, L&T management over exploration, learning content over the lived experiences of students and learning outcomes over realisation. I wondered if critical pedagogies would translate into the digital world through reflective dialogue. I was interested in finding out if, through the integration of edtech into L&T, a space of democratic participation would emerge. I also wanted to know if critical pedagogies and digital pedagogies were indeed coterminous (possessing the same scope or boundary). Hence, I chose to employ the term 'critical digital pedagogy' to refer to a pedagogy that focuses first on the human aspects, then on the nuances of integrating edtech in L&T both in blended and fully online L&T.

Blended learning (BL) is partially encased in distance education as it is founded on distance education principles (Cao & Sakchutchawan, 2011). In contrast to in-person facilitation, whereby facilitators and students are physically present at the same place and time when L&T takes place, BL allows a portion of the L&T in a course to be done through the online learning mode, where there is no dependence on the physical locations of the facilitator and students (Cao & Sakchutchawan, 2011; Simonson et al., 2019). The common thread between BL, distance education and online learning can be viewed as a hierarchy of types of learning using media (Brindley et al., 2004). The term 'blended learning' is used to mean slightly different things by different authors, however. In this study, I defined BL as a pedagogical approach enabling access to various forms of knowledge through the use of edtech. This can take the form of a combination of face-to-face (f2f) and online L&T. It is crucial that, however learning is 'blended', sound critical pedagogical foundations – such as considering students' needs and lived experiences and employing student-centred designs are not neglected (Hiltz & Turoff, 2005; Turney, Robinson, & Soutar, 2009).

For clarity, in this study the term 'online learning' is used to refer to the use of electronic devices to access the Wits Learning Management System (LMS). Between 2013 and 2020, Wits used Sakai, contextualised as Wits-e, as its LMS. An analysis of Wits-e took place during the 2019-2020 academic years and the decision was taken for the university to transition to a new LMS called Canvas, which was contextualised as uLwazi in January 2021. However, this aspect is not the focus of this study.

1.3 Problem statement

This study addresses the problem of edtech integration as an enactment of content distribution manifesting in teacher-centred approaches. The problem is addressed by investigating the pedagogic practice of health science academics to find out how their digital competence and knowledge of critical pedagogies shape their L&T practices when they teach with technology. While HS academics engage in face-to-face professional learning to improve their disciplinary knowledge and skills, this appears to be inadequate for their pedagogy. Similarly, academics continue to focus more on the visible aspects of L&T, such as distributing content and being teacher-centred; when they integrate edtech into L&T, their techniques often focus on the technology as a content repository while neglecting student-centred pedagogy (Bidabadi et al., 2016). This has negative consequences for

the student since learning activities are often not crafted for the learning process. Edtech has values coded into them and are useful only insofar as they are used (Morris & Stommel, 2018a). Ideally, teacher-centred approaches should be reframed with CDP practices that consider the lived experiences and realities of students while exposing them to the various forms of knowledge through a process of conscientisation.

The consequence of this problem relates to the complexity of what critical practice means within the context of academic agency in HE institutions. If edtech is not utilised efficiently in pedagogic practices, it can eliminate academic agency by covertly reducing how and what is facilitated as commodified data due to technological dependence. Concomitantly, due to structural and systemic change in HE, there is uncertainty in terms of academic identity and agency within a FHS. This uncertainty is due to traditional notions of identity competing with new and emergent identities that are in the process of formation and articulation. This study addresses a research gap around context where CDP practices within the context of South Africa have not been considered previously.

1.4 Purpose of the research

This research is an attempt to shed light on CDP practice as an emerging L&T approach at a traditional face-to-face research-intensive university. The aim is to understand CDP practices within the context of one African university which can inform leaders, faculty and managers in HE institutions who are grappling with L&T practices when integrating edtech. There is sufficient evidence demonstrating that when edtech is integrated into L&T, the focus tends to be on content distribution, manifesting in teacher-centred approaches. This study seeks to be beneficial in a multiplicity of contexts, particularly in other universities with a synonymous research-intensive traditions to that of Wits. The research may also be beneficial for other Global South institutions that deal with the complexity and pressing issues around integrating edtech into pedagogic practices while considering the individual experiences of students as valued additions in the classroom.

1.5 Research questions

The main question focused on *how academics' digital competence and knowledge of critical digital pedagogies shaped pedagogical practice*. This main question was engaged through five sub-questions that addressed specific aspects:

1. What are the pedagogical practices and the levels of digital competence of academics?
2. Why do academics possess a specific level of competence concerning digital literacy, digital fluency and digital mastery?
3. What influences academics' pedagogical practices when they incorporate edtech into their learning and teaching processes? Why?
4. How do academics conceptualise identity in the online space?
5. How does individual agency enhance and support the use of critical digital pedagogies?

1.6 Brief overview of L&T practices within the context of digital transformation in a Faculty of Health Science

This study provides an informed, scholarly, critical and compelling account of the tensions and challenges facing the HS academic identity and the influences and techniques used in one university within the context of HE in 21st century South Africa. It is located within a specific paradigm of 'change' around digital competence and knowledge of critical pedagogies at a state-owned South African university. The University of Witwatersrand is a research-intensive institution with a strong research agenda supported by L&T at both undergraduate and postgraduate levels. Since the university developed a responsive and supportive approach to L&T, it needed to make demonstrable progress in establishing a culture of scholarship of L&T that informed pedagogical practice, taking the advances in technology into account. Similarly, Mohamed Hashim, Tlemsani, and Matthews (2022, p.3173) posit that "top universities are more reluctant to take advantage of the opportunities of the digital era" and Mercader and Gairín (2020) postulate that studies continue to demonstrate a limited usage of educational technologies by teaching staff for developing their teaching practices. For Wits to position itself as an 'IT savvy' university, it needed to focus more urgently on meeting the needs of students who increasingly demanded 'anywhere, anytime and any device' learning, focusing on collaboration, critical thinking, communication, creativity and citizenship (University of Witwatersrand, 2018). For most of its existence as a university, Wits offered only face-to-face facilitation on either a full-time or part-time basis.

As the study involved three case studies within the university, it has three corresponding sub-contexts. The Faculty of Health Sciences (FHS) was the focus of one of the case studies. The second case study involved both the Department of Family Medicine in the School of Clinical Medicine (SoCM), and the Department of Oral Rehabilitation in the School of Oral Health Sciences (SoOHS). These two departments were included in a single case study because, as a collective, their emphasis is on practice that focuses on directly healing patients through diagnosis, treatment, surgery, and prognosis (discussed in Chapter Three). The School of Therapeutic Sciences (SoTS) was chosen for the third case study.

1.6.1 Faculty of Health Sciences (FHS)

The FHS at Wits University comprises seven schools that prepare students for the healthcare sector globally. The faculty has been in existence for just over one hundred years and has a reputation across sub-Saharan Africa for excellence in health science training. It also partners with the Gauteng Department of Health (GDH) and the National Health Laboratory Service (NHLS). The FHS has a simulation lab that assists students through exposure to clinical theory and practice. The faculty has over 1 500 employees, who are employed either as full-time staff by Wits staff or as joint staff operating under a Memorandum of Agreement between Wits and the Gauteng Department of Health. Students receive academic knowledge and practical experience at some of the major hospitals and clinics in Johannesburg and rural Gauteng. Within the context of L&T, the health science faculty office and the Office of Teaching and Learning (OTL) have positioned themselves to capacitate staff to reflect on their L&T as a core component that aligns with the mission of the university. Hence, these offices, through partnering with the university's Centre for Learning, Teaching and Development (CLTD), focus on continuous academic professional learning and the adoption of active BL.

1.6.2 School of Clinical Medicine (SoCM) and School of Oral Health Sciences (SoOHS)

The disciplines in the Department of Family Medicine in the SoCM and the Department of Oral Rehabilitation in the SoOHS encompass a distinct body of knowledge appropriate to the needs of a changing society. The disciplines are person-oriented, health-oriented and disease-oriented, emphasising the importance of disease prevention and health maintenance as well as curative and oral medicine. Pedagogy includes bedside/chairside teaching, clinical tutorials, online tutorials and discussions. Most L&T happens at the bedside, even though there is much theory facilitated online. The departments engage in case-based learning, whereby a case is taken and discussed in terms of the associated theoretical component. Students receive a portfolio where they analyse the patient case and document this for workplace-based assessment.

1.6.3 School of therapeutic sciences (SoTS)

The School of Therapeutic Sciences comprises several disciplines, including Exercise Science, Sports Medicine, Nursing, Occupational Therapy, Pharmacy, Pharmacology and Physiotherapy. BL was already a key aspect of L&T in the SoTS before the Covid-19 pandemic. The SoTS is of the view that active learning is more meaningful for students and lecturers and can be accomplished through a BL modality. As such, the eFundanathi (eZone)[4] set about to ensure that the SoTS had significant experience with online teaching since 2010. The SoTS engages in inter-professional education (IPE), where students from different healthcare professions learn and collaborate to provide patient-centred health support.

1.7 Seeking originality and crucial points that frame the thesis

Original research produces new knowledge that informs the research area and discipline. 'Originality' has been defined in several ways. Cryer (2006, p. 192) points to various understandings and compositions of originality by outlining their forms in the thesis as follows:

- methodological originality in procedures, techniques and tools
- originality in investigating the unanticipated or unknown
- originality in data, place of use or transfer of mode
- originality in experience, by-products
- originality in being "potentially publishable"

While seeking originality, the literature review revealed that research on CDP is emerging and existed in academic practice at the level of social relations as foregrounded by Jin and Bridges (2014); Rowe (2018); Morris and Stommel (2018a); Stommel et al.(2020); Masood and Haque (2021); Lunevich (2022); and Rowell (2022) and Köseoğlu et al. (2023). However, very little of the research highlights a potential connection between critical pedagogy, edtech and CDP practices in an African context at the levels of both social relations and the cognitive

[4] eFundanathi (also known as the eZone) is an innovative space and key structure in the FHS. It was set up to introduce the use of edtech to augment L&T, in alignment with the university's Teaching and Learning Plan (2015-2019), by providing a flexible and well-equipped physical and virtual space for academics and students.

transformation of academics. Critical realism is one way to investigate the potential links. Within the context of HS pedagogies, recent research indicates that academic decisions are based on disciplinary knowledge and associated pedagogical approaches to establish transformative L&T experiences for the specific subject matter (Barradell, 2013; Oleson & Hora, 2014). This suggests that, due to digital transformation, deeper investigations of knowledge for social and cognitive reform are required, which could facilitate knowledge for interdisciplinary teams within the context of an emerging digital knowledge economy. It is at this point that this study makes a scholarly contribution, as illuminated in chapter eight. In this research, searching for originality led to:

- Originality in exploring the unanticipated, namely the notion of critical systems reframing through transformative foresight.
- Originality in data relevant to digital agency and digital transformation.
- Originality as "potentially publishable" that is discussed in chapter eight.
- Originality in context and place in alignment to the African context

The section that follows frames the thesis within the interdisciplinary research milieu.

1.8 Interdisciplinary research

Interdisciplinary research is important in HE research to address societal challenges. It is a challenge to conceive how one discipline can address the problem of quality education, research and, in turn, practice since academics emerge with different social and cultural conditionings within which they practice in their faculties. Each faculty produces different forms of knowledge. Thus, a range of lenses and disciplines are drawn together to study complex phenomena to advance the understanding of the problems that societies face. This study is interdisciplinary in nature as it integrates knowledge and approaches from education to advance an understanding viewed through another approach; the digital knowledge economy. This intersection underlines how changes in L&T approaches are possible when intersected with the educational design and use of technology. Understanding CDP while considering a stratified ontology, culminates in an interdisciplinary approach. Each discipline possesses its distinct form of knowledge, powerful ideas about pedagogy, different notions of what reality is, what may be known and how to approach the discipline. In this study, there is a combination of an interdisciplinary nature and a way of viewing the world since the research problem focuses on one of the ways of acquiring knowledge (epistemology) for the realities of a digital knowledge economy (ontology).

1.9 Theoretical and analytical framework

To explore how academics' digital competence and knowledge of critical pedagogies shape their practice, this study draws on critical realism (CR), social realism (SR) and Shulman's (1987) model of pedagogical reasoning and action (MPRA) as a theoretical and analytical framework[5]. The CR framework allowed for "ontological depth

[5] The CR and SR frameworks are both theoretical and analytical because the theory that was adopted became an analytical tool that guided my data collection and data analysis.

and explanatory critique" (Bhaskar, 2014, p. 1) of the L&T conditions and mechanisms that shape the interactions of academics. The overarching CR lens together with Archer's SR and morphogenetic model demonstrates "deeper understandings of the structure-agency change (morphogenetic) process [which is Archer's theorising] […] can only be realised when working with the theoretical tools afforded by a combined use of critical realism" (Mukute & Lotz-Sisitka, 2012, p. 346). From a social realist perspective, Archer (2003) identifies structure (policies, strategies, institutional systems); culture (beliefs, ideas and norms); and agency (the individual's freedom to act), as three interdependent strata of reality. The interrelationship between the three strata – or morphogenetic cycle – occurs over time, whereby the capacity of structure and culture becomes active when the individual agent acts over them. Hence human agency and reflection is the generative mechanism that mediates between culture and structure (Archer, 2003).

Of equal importance when employing this theoretical analytical framework is the view that culture and structure do not stand in a preordained position, as their features become powers only when the agent activates them. Shulman's (1987) MPRA was employed to understand pedagogic practice with the integration of edtech and the impact on pedagogical reasoning. The MPRA was useful as it employed a few steps; comprehension, transformation, instruction, evaluation, reflection and new comprehensions that provided focus in analysing data on pedagogic practice. The morphogenetic approach was useful as a theoretical lens because; firstly, it explained and considered social change and, secondly, due to analysis of the morphogenetic cycle at inception, which explored cultural, social and agential conditioning within the context at a specific point in time.

This research explores the state of conditioning in 2014 when blended L&T was introduced at the university. From a broad perspective, the theoretical and analytical framework is especially useful in this study since the stratified ontology related to the design of this study. HE is changing at the global, national and institutional levels, which affect the lives of the research participants and hence their pedagogy. These implications are elaborated in chapter three, where the study's design is aligned with a realist ontological stance, thereby allowing for stratification of phenomena to be considered.

1.10 Research design and methodology

This study aligns with the qualitative interpretive paradigm and employs a multiple-case study (explained in section 1.5) methodology. A case study is viewed in the light of an empirical inquiry which investigates a current phenomenon within a real-life setting and situates itself as the ideal when boundaries between phenomena and context are not clear (Stake, 2005). As this study follows the stratified ontology of CR, actual processes and events, such as the university's imperatives on formalising the use of edtech in L&T were explored. At the same time, I investigated academics' digital competence through a survey and knowledge of CDP in shaping practice through interviews and course reviews. Through this process, I uncovered the generative mechanisms to assess and understand academics' ability and readiness (since academic agency is the mechanism that mediated between structures and culture) to integrate edtech and critical pedagogies and the reasons for their specific levels of digital competence. My choice of design and methodology around the stratified ontology of CR was due to my search for emergence that is central to how generative mechanisms work whereby combined objects trigger the mechanism to produce an outcome. In this study the interplay of participants and edtech triggered various mechanisms relevant to their enactment and knowledge of CDP.

Purposive sampling was employed whereby twenty-two participants were invited to engage in a two-phase data collection timeline: January 2020 to June 2020; and January 2021 to June 2021. In early 2022, I randomly invited five participants again, to inquire about the findings that surfaced. Reflective approaches were employed to gather data from the document analysis, digital questionnaire, in-depth interviews and the review of participants' selected courses in the online modality. Broadly, this study engaged in four forms of data collection: documentation; course reviews; interviews and surveys. This study first described the data analysis procedure and linked it to the theoretical analytical framework.

The data was transcribed, and transcripts, notes and documents were read through many times for meaning-making and to develop categories and identify relationships in the data (soft coding). Substantive (open and selective) coding and theoretical coding were employed because the data had to be further broken down to enable the emergence of core categories. This involved engaging in a theoretical saturation process of all the related concepts to mine the data more deeply for the properties and dimensions of each category. Next, I engaged in open coding at a basic level for first impression phrases. I used Atlas.ti, a computer-aided qualitative data analysis software (CAQDAS), to create a word cloud. These processes indicated to me that I needed to refine the coding further. Hence, in the second stage of coding, I employed Schutz's (1962) theory that focuses on first and second order constructs. As the use of single words proved to be a challenge when attempting data coding to generate categories, I reviewed the data again to create more descriptive codes that were aligned with the research sub-questions (using short sentences).

Because this research employed the CR and SR analytical framework, coding was organically located at the 'real' level in the structure, culture and agency domain. I used theoretical sensitivity and aligned the second codes to the structural, cultural and agential theoretical constructs of this study, which created two overarching categories; enablements and constraints; as identified through the research participants' responses. I then engaged in nominal colour coding (red, blue and yellow) to make it easier to read and analyse the coded and categorised data. Thereafter, secondary colours of the primary colours were chosen (green, orange and purple) for cross-cutting codes. Next, connecting and categorising strategies were combined. I engaged in a process of reasoning (refer to Appendix I) to develop the data that would be justified or rejected by additional data through abductive, inductive and counter-inductive inferencing as analytical tools. Chapter Three provides an in-depth description of the methodology while chapter seven reminds the reader of the process.

1.11 Limitations of the study

This study was confined to three case studies within a single institution at a specific moment. The case study approach employed in this study limited the extent of the investigation of the practice of academics in HE institutions to determine their enactment of CDP in a FHS. However, while a cross-country comparison of a FHS could reveal a greater range of factors, the case study approach allowed for a deeper level of analysis of how a specific model of facilitation could affect the pedagogic practice of participants. While the international landscape of CDP practice within an FHS will be included in this research, a great emphasis will be placed on the way academics respond to these challenges. A deeper explanation of the limitations is explained in chapter 3 (3.11).

1.12 Chapter summation: The need for theorising CDP in HE within a 21st century digital knowledge economy

The need for theorising CDP relates to the research problem whereby pedagogy often manifests as a transmission of content, informed by a graduate stance (education for competence) instead of an emancipatory interest that underpins CDP practices. Due to the integration of edtech in L&T, pedagogy focuses on technology as an add-on or content repository while a student-centered CDP is neglected. Even though academics remain committed to social accountability through students being taught to be mindful of disparities in various situations, their understanding of realities that trigger these situations remain insufficient. The available body of literature, as will be discussed in chapter two does not overtly provide an understanding of how digital competence and knowledge of CDP shape pedagogic practices more so within the context of African countries. Hence, the theoretical framing for this study considers theories, frameworks and models recognised in the literature but endeavours to shift past these descriptive and analytical confines. Similarly, new frameworks would be an advantage to how pedagogy is positioned within the L&T culture in HE and provide a broader tapestry of understanding within a 21st century African digital knowledge economy[6].

This chapter has provided an overview of the entire study. The problem statement, purpose and research questions were presented, along with an overview of the theoretical and analytical framework and the research design and methodology. The context of the research was discussed. The search for originality and limitations of the study were considered. Chapter Two discusses the literature on the global-local landscape and perspectives on CDP practices. The relevant theoretical approaches are examined together with a justification for the selection of theories and models for this study. Chapter Three focuses on the research design and methodological approaches used in this study, with a discussion of their strengths and weaknesses. An outline of the methodological consequences of a CR approach is provided, and the approaches taken for data collection and analysis, and for ensuring ethical practice and the reliability and integrity of the study's findings are discussed.

Chapters Four, Five and Six present the empirical findings of this study. Each of these chapters contains reciprocal visualisations to aid the reader's engagement with the findings. Chapter Seven describes the analysis of data through a trajectory of how CR methodology enabled possible approaches to identify generative mechanisms. A deep discussion follows on the complexity of the global-local landscape and the academic disposition concerning CDP practices. Collectively, these highlight the complexity of academic work. Chapter Eight begins with a discussion of the study's findings regarding CDP. It focuses on theoretical connections and crucial dimensions to enacting CDP, which lead to theorising and a scholarly contribution articulated through two propositions. Practice and policy implications are presented. The methodological issues of trustworthiness; specifically, reliability and validity are discussed. Suggestions for future research are made before the thesis concludes with final reflections.

[6] A 21st century African digital knowledge economy refers to the ideal of how each African economy (due to the digital reality) functions around knowledge and innovation.

Chapter 2 Framing critical digital pedagogy within the higher education space

2.1 Introduction

Chapter one addressed the background, context and problem in relation to academics' critical digital pedagogical (CDP) practice. This chapter focuses on CDP practices and cannot be viewed merely as a set of best practices or tools. The focus is on agency (coupled with reflexive and reflective practices) as the generative mechanism within structures and existing culture. When integrating blended L&T into the curriculum, it is crucial that academics not view online resources and activities as add-ons to augment an already voluminous student workload. Therefore, it is imperative that the practice of edtech integration into L&T be premised on sound pedagogy. I draw on Freire, Giroux and Shulman, among others, to construct my argument and view of CDP.

Two themes can be used as 'lenses' to focus the review of literature relevant to the research topic: higher education and pedagogy. In this review, each of these lenses is reviewed in reference to five sub-themes that emanate from the research questions; namely, *continuous professional learning (CPL), pedagogic practice, agency, culture and identity*. Within these two broad areas of the literature review, the ontology of stratification of reality (empirical, actual and real) is adopted to analyse, critique and argue how mechanisms are generated while tracking their movement from events to experiences (refer to section 2.4 for further insight). This allowed me a better understanding of the possible conditions that could enable or constrain digital competence and critical pedagogical practices when edtech is integrated into learning and teaching. For ease of reference, a list of the acronyms used in this chapter is provided in Table 2.1.

Table 2.1 *List of acronyms commonly employed in Chapter 2*

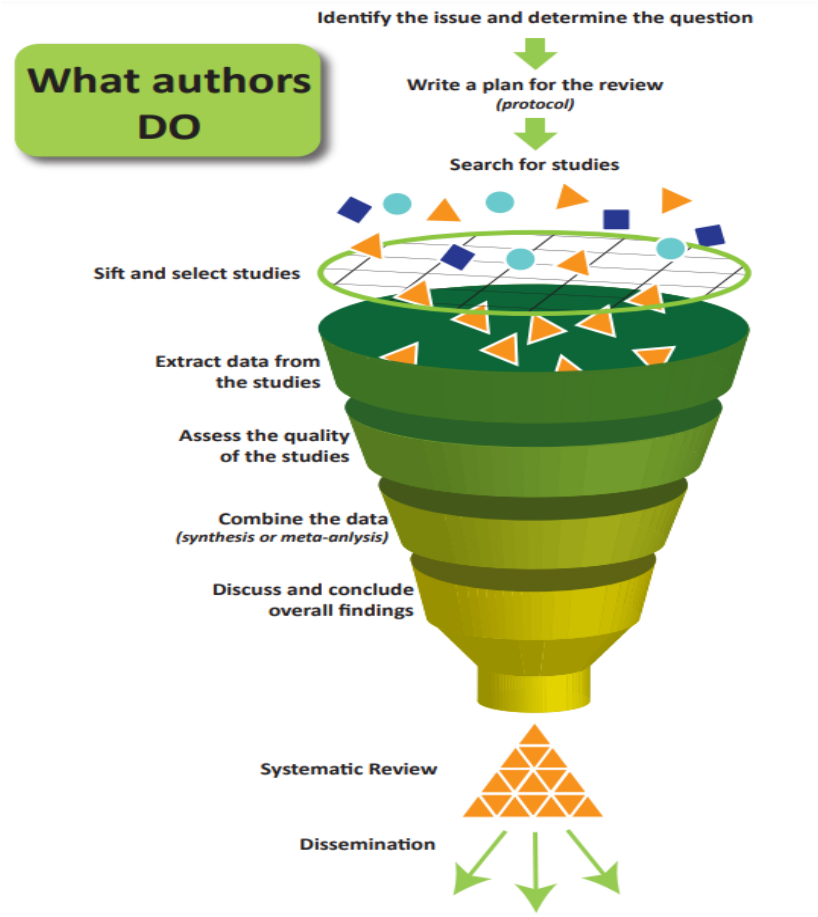
CEP	Culturally emergent property	HE	Higher education	PEP	Personal emergent property
CDP	Critical digital pedagogy	HS	Health science	SEP	Structurally emergent property
CP	Critical pedagogy	L&T	Learning and teaching	SR	Social realism/realist
CPL	Continuous professional learning	M/M	Morphogenetic/morphostatic	TPACK	Technological, pedagogical and content knowledge
CR	Critical realism	MPRA	Model of pedagogical reasoning and action		

2.1.1 Systematic-like Review

I conducted a systematic-like review (completed in a fairly systematic way, without the full rigor of a systematic literature review) that focused on the last fifteen years to describe the contemporary landscape in which CDP operate within the HE space. To search for relevant studies, I used Google Scholar, EBSCO host, ERIC, Education

Research Complete, Humanities International Complete, ProQuest and Medline Complete as the primary databases for multidisciplinary academic literature. Figure 2.1 depicts the process that I followed whereby I wrote the proposal and searched for studies which were sifted and selected in relation to the topic of this research. However, because the topic of CDP was fairly emerging, grey literature was also consulted. I specifically chose ERIC as it focuses on educational research, which is one aspect of this interdisciplinary research.

Figure 2.1 *A systematic-like review*



Note. Conceptualised by Centre for Health Communication and Participation, La Trobe University. 2011

The research questions guided my search for relevant literature. I used the search terms 'pedagogy', 'critical pedagogic practice AND higher education', 'critical digital pedagogic practices AND higher education' and 'digital technology AND higher education' with South African and British English spellings.

The search was initially delimited to title and abstract within the databases to deliberately decrease the number of publications whilst increasing the precision of the search (Guo & Huang, 2011; Savolainen, 2016). My intention was to retrieve publications that explicitly discussed pedagogic practices and, particularly, critical digital pedagogic practices in the higher education space. My rationale was that if these keywords appeared, these concepts were likely to be central to the publication as well as suggested by Syed and Collins-Thompson, (2017). I then used inclusion and exclusion criteria to narrow the number of publications. The inclusion criteria included

publications in Boolean, peer-reviewed, published between January 2008 and March 2021 within higher education as I noticed that much research, since 2008, focused on questioning "why, when and how best to implement edtech" (Englund et al., 2017, p. 73).

After a first scan of the literature on pedagogy and higher education, based on the title and abstract as depicted by the search engines, 82 publications that included journal articles and dissertations were downloaded and accessed against the inclusion criteria. The articles published before January 2005 were discarded as I found that their focus was on the use of edtech in the basic education space. From there, I manually applied exclusion criteria that did not align to the sub-themes emanating from the research sub-questions. By examining the references cited in these sources, I identified more sources, which I then collected using Google Scholar for in-depth interrogation.

The systematic-like review found that little empirical evidence existed which provided a complete understanding of how academics' digital competence and knowledge of critical digital pedagogies shaped their pedagogical practice. This comment refers specifically to the context of therapeutic science and critical digital pedagogies at a specific moment. Such research has focused mainly on analysing the relations between pedagogical sites for youth mental health and digital tools (Fullagar et al., 2017). This research adds to the interdisciplinary-related knowledge structure on the digital competency and practice of academics; not students, within two schools within a Faculty of Health Sciences.

Generally, past research focused on academic professional development and pedagogical analysis of personalised, yet adaptive, learning and teaching (Mistri, 2016). Cox (2016) conducted a study on social realism within open educational resources while Castañeda and Selwyn (2018) focused on reassessing mobile learning through critical explorations of national digital strategies. In summary, I concur with Castañeda and Selwyn (2018) that "edtech has yet to properly get to grips with matters of learning in higher education". Research was omitted that looked at the problem from a sustained theoretical perspective and especially one that advanced the important domain of research and new knowledge surrounding CDP.

One study conducted at the University of the Witwatersrand (Wits) focused on how student performance in occupational therapy was influenced by blended learning (Ashton et al., 2014). As my review began in 2019, it is worth noting that there was new research on pedagogies that integrate edtech in 2020 and 2021, due in part to the impact of the Covid-19 pandemic that necessitated a sudden shift to remote learning and teaching. However, not much was written around critical digital pedagogical practices within a Faculty of Health Sciences.

2.2 The higher education (HE) space

Higher education (HE) plays a significant role in democratic societies in preparing students for "democratic public life" (Walker, 2002, p. 44). Edtech, in the form of blended and online learning and teaching (L&T) approaches, is playing an increasing role in higher education. Of importance at this nexus where critical pedagogic practice and edtech are being integrated is the development of perspectives and alternate visions for the use of edtech within the HE space. These perspectives and alternate visions, together with the complexity of the practice of critical pedagogy (CP) raised in Chapter One, highlight the need for constructive criticism of edtech. Within the context of L&T, such constructive criticism does not involve a blanket dismissal of everything technological.

HE institutions serve the public interest by empowering students to improve societies and attain developmental goals. The question remains whether universities produce graduates who have not only acquired academic skills but possess the competence to participate in social justice issues in the public sphere. It is through education that students gain public voices and realise their power as individuals and social agents (Giroux, 2002) who should engage critically with knowledge that focused on issues related to culture, power so that they can articulate their positions in their struggle against a particular injustice.

Evidence exists that higher education institutions generally prepare students for work and seldom enables them to have a connection to real world problems (Giroux, 2002). I understand that graduates should be actively involved in the labour market while also sharing the various forms of knowledge they have attained through critical pedagogies to benefit society. It appears that universities may be moving further from the moral mission of ensuring that graduates are critical thinkers and socially conscious citizens who are capable of interrogating the reasoning of western epistemic that continue to prevail at African universities.

In alignment with preparing students to participate in social justice issues, the scholarship of pedagogy does not remain the same over time (Webb & Cox, 2004) as its conception has become complex due to the emergence and integration of edtech. It is not surprising that the integration of edtech has produced abysmal results in higher education solely due to it being conceptualised in isolation from the pedagogical background (Derry, 2008; Mama & Hennessy, 2013). Academics should reflect critically on critical digital pedagogic practices with a focus on the human aspect of pedagogical reasoning and understanding technology as a medium that partially shapes culture. The university as an institution (in part through the agency of its academics) has various functions, but its three core functions are research, teaching and accreditation (Lange & Luescher, 2016). When the institution is going through periods of change, its focus can shift to engaging with how those within the institution will adapt their practice rather than how the structures of the organisation will change to support those within it. To address the challenges facing HE due to the global expansion of technology, it is key for South African universities to foreground critical digital pedagogical practices to enhance their position as a key structure for promoting social justice goals.

Enrolment in higher education increased as it is a post-World War 2 incidence that began in Europe, the UK and the USA and persists into the twenty-first century. Trow (2006) differentiates between three types of university structures: namely, mass, elite and universal HE. The mass HE structure is harnessed to the "transmission of skills and preparation of a broader range of technical and economic elite roles" (Trow, 2006, p. 1). The elite structure has the objective of "shaping the mind and character of the ruling class; preparing for higher roles and involves the participation of less than 15% of a population" (Trow, 2006, p. 1). Trow (2006, p. 1) claims that over half of the population participates in the universal structure, which harmonises the population "to rapid social and technological change." Irrespective of the form of HE structures, critical pedagogic practice plays a crucial role in providing students with access to different forms of knowledge that can empower them to liberate themselves from oppression. It appears that much depends on the form of academic recruitment.

Strydom (2011, p. 110) writes: "Many studies suggest that more universities employ fixed-term staff [staff employed for a finite period] to teach and engage in support functions." From a financial point of view, this move supposedly saves money for the university. From an educational point of view, this may not benefit the academic project because it compromises sustainability, the continuity of institutional knowledge and fixed-term staff may use the position as a bridge between non-employment and permanent employment (Strydom, 2011). Clark (2001,

p. 9) argues that HE institutions need to diversify funding since state support decreases at the same time as demand for HE has increased as massification – "mass demand for higher education" – is an explicit goal in most countries, even while attaining knowledge has become more expensive.

Similarly, Maton (2005) suggests that for political and economic reasons, in its initial stages, the repositioning from elite to mass higher education needed to be accommodated. Reay et al. (2010, p. 109) call the increase in participation in higher education that is happening worldwide "the breakdown of exclusivity in university education". While developed nations may have experienced higher participation rates over time, growth is rapid in developing nations (Unterhalter, 2010). This research is located within the fast growth of HE globally that began in the latter part of the 20th century in the Global South.

2.2.1 Developments in the South African (SA) higher education landscape

Higher education in South Africa is flanked by "systemic contextual problems inherited from past educational policies and a generation of limitless possibilities enabled by emerging technologies" (Kilfoil, 2015, p. 4). It appears that the competing challenges of edtech and policy are inextricably linked and thus need to be addressed concomitantly. It can be futile to address ongoing problems and neglect the critical education of the future generation (Kromydas, 2017). While this dilemma may not be unique to South Africa, it impacts South Africa's higher education policies and, inevitably, efforts to incorporate edtech into learning and teaching. The conundrum of edtech and policy being inextricably linked is exemplified in many of the higher education policies discussed in section 2.2.3.

One explanation of HE institutions undergoing transformation currently is evident as the call for HE pedagogy to transform as well. Maringe (2017, p. 63) argues that "Afro-political theorists with a post-colonial philosophy advance the distinction between change and transformation that are conflated yet used interchangeably." Although change is conceptualised differently in various contexts, in the context of education it is fundamental due to changes in human attitudes, behaviours, and beliefs that result from institutional intervention. Conversely, transformation as a term "implies a complete change in structure, purpose and method relating to social processes in communities and societies" (Maringe, 2017, p. 62). Transformation takes place when the actors managing a system focus on creating new ways of learning and new mind-sets, irrespective of the modality being used (Daszko & Sheinberg, 2005).

During apartheid, despite the socioeconomic and political importance of education in South Africa, access to higher education was restricted for a large portion of the country's population. Prior to 1994, South Africa's education system was designed and delivered along racial lines, with the majority population group receiving the most inferior education. Higher education was fragmented into 36 public institutions of varying types with 300 or more private institutions that remained unregulated (Council on Higher Education, 2016). This education system reflected the compartmentalised nature of apartheid, whereby the racial groups operated in silos within their particular structures, cultures and traditions.

This legacy of different systems of education for different population groups within the same country had to be confronted by the new democratic government that came into being in 1994. This provided the impetus for education becoming a focal point for radical transformation in South Africa (Badat, 2010). A drastic, and unprecedented, restructuring of the entire education system was undertaken, which involved discarding the

previously fragmented, inequitable racially and culturally oppressive system of education and merging all educational institutions into a single system with the goal of satisfying the aspirations and requirements of democracy, equity, equality, redress, social and cultural empowerment (Badat, 2010). To bring about genuine transformation in education, the new democratic government of national unity introduced policies designed to achieve social justice for all of South Africa's citizens.

In 2004, further restructuring took place that saw the merging of smaller universities into larger institutions and the renaming of all higher education institutions as universities. Comprehensive universities, resulting from the merger of smaller universities with former Technikons, were introduced. The restructuring of the higher education landscape resulted in a new landscape with 26 public universities and over a hundred private higher education institutions (Webbstock & Fisher, 2016). These institutions could remain structured yet fragmented according to race in relation to access and space in quality. In as much as the higher education sector is moving towards cohesiveness, it continues to find itself in a fluid post-school landscape that questions its boundaries. This cohesion and integration have, to some extent, brought into question the unresolved aspect of potential institutional differentiation and the continuing debate around the very identity and nature of higher education institutions and their fundamental purpose – or perhaps, multiplicity of purposes – that can be achieved in varying ways. A further motivation (apart from resolving apartheid legacy institutions) in the macro-political agenda driving these changes, which was less pronounced in the public policy discourse, was "the need to incorporate the South African higher education system within fast-changing, technology- driven and information-based economies described under the rubric of globalisation" (Jansen, 2003, p. 5). The twin logics of the restructuring of the higher education landscape thus rested on repositioning the higher education sector within the context of a competing, internationalised economy.

While such extensive restructuring was viewed as a necessary condition to achieve the transitioning of higher education in South Africa, the needed transitioning could not be achieved by restructuring alone. A range of other initiatives is required to achieve a genuine transformation that will enable South Africa's higher education institutions to realise their potential to address the country's needs and goals with regard to social equity and economic, social, cultural and intellectual development. This highlights the pressure between two important and competing transitioning initiatives; economic development and quality assurance, on the one hand, and social equity and redress of injustices in HE, on the other. However, "universities matter as the primary engine for the production of high-level skill and talent for economic growth, technological innovation and societal leadership" (Jansen, 2018, p. 1). In this context, Bawa (2001) notes the increasing commodification of knowledge due to technology and the emerging knowledge economy. Crucial to this research is Ravjee's (2007) warning against the assumption that the use of edtech in higher education will improve the quality of learning and teaching and easily accelerate access to higher education. This highlights the need to problematise and deliberate the integration of edtech into learning and teaching in South African HE.

2.2.2 The research-intensive university

Medieval universities were conceptualised as sites of learning, and not research, as the focus was on preparing future generations of educated employees (King, 2004). However, the modern university is based on Humboldtian notions of academic work whereby research is perceived as inseparable from, if not identical to, learning and teaching (Fanghanel, 2011). This perspective idealised the idea of unifying research and teaching in a way that

produced learning for both teacher and the student, without reference to the world of work. Even though the Humboldtian notion of academic work as teacher-scholar research may hold strong ideological standing in the currency of academia, no coherent model has been developed for its implementation. This ideal may have suited the elite higher education institutions of the early nineteenth century, but in the context of twenty-first century massified higher education, practice must be reframed.

Due to massification and internationalisation, higher education today values research and innovation, which links it to economic imperatives. Council (2003) writes that generally within HE, there is a perception that at research productivity is valued more than teaching practices and effectiveness. While research is a priority both within and outside higher education, there should be a concurrent understanding that places value on developing the culture of learning and teaching. If not, the intellectual tradition of the university may collapse under the weight of the economic imperatives of the corporate world (McNeely, 2009).

In the South African context, the transition from an apartheid state to a post-apartheid state provided the conditions for real change at the various levels of the education system, of which higher education is upper-most. The tension between teaching and research remains at the epicentre of the research-intensive university. Most academic staff teach undergraduates and therefore "have little time to engage in research and professional development [learning]" (Mushemeza, 2016, p. 244). Higgins (2016) states that for a university to be relevant, its academics must engage in quality teaching and research that reflect the scientific and technological needs of society. Higgins's statement reads as if it is the duty of academics to remain relevant with regard to technological innovations. These innovations are driven by capitalist market forces often in the service of profit rather than education and the dictates of the discourse of 'new is always better' that was part of late-modern neoliberal, capitalist ideology. While the integration of edtech in L&T is important, there needs to be a balance between how this is done.

It appears that the use of technology within the global South ties to timelines of innovation and development that have no relation to needs, values and experiences. The Global South continues to be placed on the back foot having to adopt technologies designed in the centres of power, constantly having to play catch-up by being reminded by the Global North of what is needed. Part of the challenge of integrating edtech into learning and teaching in the South African context, I think, is the need to balance the aims of empowerment. This means that, firstly, students need to be given access to these technologies which, for better or worse, are powerful in the world and, secondly, educators and students need to engage in critical praxis, which is about resisting the hegemony of technicist discourses and global multinational technology giants with their profit-oriented empires. Critical practice is one way of challenging this hegemony in both thinking and in the use of technology through empowering students to do the same. This relates to how knowledge is generated and categorised and the ways of knowing and being that relate to CDP practice.

2.2.3 South African higher education policies and edtech

With various complexities and extensive scale of activities being undertaken at HE institutions, there is an emphasis on the management of people, multiple agendas, intricate systems and calls for enhanced reporting associated with greater accountability (Macheridis & Paulsson, 2021). This is due to the changes that are brought about by the integration of edtech into learning and teaching which intensify the need for democratic, well-informed policies to inform governance and leadership in higher education institutions given the complex

challenges that face them in the twenty-first century. Policies which address these needs appropriately but are not properly implemented are, of course, useless (Cerna, 2013). In South Africa, the existing policy documents refer, in diverse ways, to the need for the digital skills of citizens to be augmented in order for them to be able to participate actively in, and benefit from, the economy. Abrahams, Dwolatzky and Thukani (2019, p. 3) write: "Depending on factors such as scope, sector, context and timing of the policy, these documents may employ various taxonomy and parlance that directly or indirectly, and broadly or specifically, refer to digital skills".

In the South African context, there is recognition of the role of information and communication technologies (ICTs)[7] as a crucial factor in broadening participation and as a contributor to South Africa's economic growth and development in cross-cutting sectors. This recognition is acknowledged in policy documentation[8]. Technology implementation is viewed as more practicable in comparison to South Africa's expansive social transitioning initiatives. However, a critical shortcoming is the absence of a national vision for ICTs specifically within South African higher education that is bolstered by an encompassing organising structure with application strategies and monitoring and evaluation processes.

The move by the government in introducing the E-education bill for social and economic development was aimed primarily at basic education level. At the time of writing, there is still no policy that directly addresses policy regarding edtech at the higher education level. There is, however, a supervisory approval process in place. The South African Department of Higher Education and Training (DHET) and the Council of Higher Education (CHE) collaborate from a supervisory and approval position largely on quality matters for distance learning, even though there is no strategic national plan from the government as yet on blended learning. There is however a draft open learning policy that is used by some institutions to inform their distance and blended learning.

I wonder: if there was a policy on blended learning, what would its focus be, considering that South Africa is a developing country that has lofty ambitions of achieving accelerated development? Hoosen and Crouch (2021, p. 145) note that prior to the Covid-19 pandemic, the national priority was "to reduce the poverty, inequality and inequity in society before it focused on a budget on the uptake of edtech in basic and higher education." It would seem, then, that it was premature to push an agenda of moving toward edtech-mediated learning. I wondered what it would take for the government to be ready for this: would all forms of inequity and inequality have to be resolved first? However, the Covid-19 pandemic forced the change: the government had no option but to focus its efforts on promoting a blended modality for learning and teaching, and this suddenly became the new norm.

As this study focuses on the digital competence and critical digital pedagogic practice of academics, it is also prudent to take note of the policies and strategies that guide the professional learning of academics in higher education. The academic professional learning activities of universities in South Africa are guided by the '*Enhancing Academics as University Teachers'* framework that was published by the DHET in November 2018, which identifies strategic areas that constitute the key pillars, or critical success factors, to be addressed to enable academics to augment their practice. However, the framework is read with careful reference to context: while academic professional learning is crucial for academic practice, we must be cautious and not assume that the framework can do more than it can or that it is easy to implement. Of note is the lateness of emphasis placed on the professionalisation of academics in South African higher education, as formalising the profession of

[7] In the South African policy landscape, edtech are often referred to as Information Communication Technologies (ICTs)

[8] Department of Education, 2001; Department of Communications, 2013; Department of Higher Education and Training, 2014; Council on Higher Education, 2014, the 1997 White Paper on Higher Education, the 2003 draft White Paper on e-Education and in the ICT charter of 2004

academics in higher education is a crucial part of the system that underpins and ensures the steadfastness of the services that professionals offer to student success and scholarship (DHET, 2018).

2.2.4 Continuous professional learning: (CPL) of academics as a turbulent space of change

The issue of the continuous professional learning (CPL) of academics remains a salient concern in terms of how academics learn to teach, as many students remain frustrated in the education process specifically when they are facilitated by academics that are lacking in pedagogical rigour (Hooks, 1996). Hooks viewed her university years, and especially the classroom environment, as a "location of imprisonment and punishment as many of the professors lacked basic communication skills with no self-actualisation and used the classroom to enact rituals of control that were about domination and the unjust exercise of power" (Hooks, 1996, p. 5). Various critical pedagogues posit that there is an urgent need for educators to move beyond theory and consider the practicality of critical pedagogic practice (Giroux, 1988; Osborne, 1990; Sweet, 1998). With the integration of edtech into learning and teaching, the attention to CPL becomes crucial. To facilitate blended and fully online courses, academics need adequate engagement with CPL (Roy & Boboc, 2016). In the South African context, historically the 'continuities and discontinuities' that resulted from the mergers discussed in Section 2.2.1 have impeded academic practice due to the re-socialisation of academics within merged institutions and their acclimatisation into new institutional cultures (Badat, 2015). However, learning and teaching cannot remain static, due to their evolving nature. According to Tondeur et al. (2016), the integration of edtech into CPL needs a lifelong learning approach. This view is supported by other studies on longer edtech integration programmes where it was found that a six-week development programme "had little or no change on educator attitudes toward ICT integration" (Uslu & Bumen, 2012). Programmes for academics focussed on the integration of edtech with learning and teaching should take place in iterations over longer periods of time as changes in attitudes, values and socialisation do not happen quickly.

Much research demonstrates that CPL has a definitive connection to professional practice (Darling-Hammond et al., 2017). Neoliberalism in higher education affects all aspects of academic life, including CPL, which is widely viewed as being crucial to the growth of the higher education sector and student success (Dison & Bozalek, 2013). Earlier initiatives to enhance the professional learning milieu of academics focussed on teaching skills. Over time, work has been done to capacitate academics as professional educators drawing on theory and research to inform practice in complex contexts. Systemic aspects such as elevated levels of managerialism, lower levels of collegiate governance and increasingly market-like behaviours have been found to influence academics' decisions around their CPL negatively (Crawford 2010). Agendas around efficiency and performativity, the limitations of an anticipated career path as an educator in higher education and raised levels of government intervention in higher education (Ball, 2003, Lent et al., 2002, Habib, 2013) represent additional constraints affecting academic CPL. In the South African professionalisation of academic practice, Quinn (2012) argues that one-size-fits-all professional learning courses impede academics from working across different contexts even in the same institution. Quin (2012) cautions against focussing professional learning as a means of addressing the challenges that confront contemporary higher education.

Within the context of health science education, The World Health Organisation (WHO) posits that "teaching is not the most important activity of health science teachers, being considered complementary to, or even a diversion from, patient care and research which are perceived as more rewarding" (World Health Organization, 2013, p.

24). Perhaps this is the reason that critical pedagogy remains undervalued in health science education. More needs to be done to sustain career paths and structures with an incentive and system in place for health science educators. In relation to this is the need for academics (who have a dual obligation), specifically within the context of higher education to engage in adequate professional learning programmes that focus on new forms of digital competence[9] and skills. Pomerantz and Brooks (2017, p. 25) state that "only 9% of academics prefer to teach 'in a completely online environment' That means a whopping 91% of us don't. And I suspect that a good majority of that 91% would prefer to teach anywhere but online".

2.2.5 The evolving role of the academic in a digitally mediated L&T environment

A digitally mediated environment is one that uses technology to impart various types of knowledge. The educational field (be it basic education or higher education) is the most severely affected (Guillén-Gámez et al., 2020) due to the "incursion and development of emerging technologies that have brought about a social mutation" (Brown & Duguid, 2017, p. 18). The implication is digital transformation where academics are urged to develop their pedagogic digital competence to enable them to facilitate the curriculum effectively using edtech to improve learning and teaching (Krumsvik, 2014). The Commonwealth Digital Education Leadership Training in Action (C-DELTA) promotes digital education in Commonwealth nations through the conceptualisation of a framework for digital education. However, the mere use of edtech does not improve teaching if other important facets like context, values and beliefs, lived experiences of students, enabling structures, and so forth, are not considered. It seems that the naming conventions around digital skills and competences are many as they are composed of various dimensions that include the ability to use digital tools and communication applications used within networks to access and manage information. Niessen (2018, p. 4) states:

> Definitions of digital and information literacy are numerous. Within this pool of definitions, terms often are interchangeable; for example, "literacy", "fluency" and "competency" can all be used to describe the ability to steer a path through digital and information environments to find, evaluate, and accept or reject information.

Competence is referred to as possessing sufficient knowledge, skills and attitudes for personal development, social integration and active citizenship (European Commission, 2018). Digital competency is viewed as one of nine competences that one needs to participate as a citizen in the twenty-first century (European Commission, 2018). While 'digital competence' appears often in the literature, many articles view it as a generic skill that is not aligned to learning and teaching or to the professional work of educators. This is akin to technological knowledge that is synonymous to Koehler and Mishra's (2009) TPACK, involving the ability to engage in basic computer use in learning and teaching. Another type of digital competence is examined in literature that focuses on the ability of educators to integrate edtech into learning and teaching, pedagogic practice and critical decision making (Starkey, 2020). This is undergirded by the assumption that an educator should be able to negotiate and

[9] Levels of digital capabilities can be viewed as a continuum whereby digital literacy refers to an understanding of how to use edtech tools; digital fluency goes a step further, referring to the ability to create new content with these tools. Digital mastery is the ability to create new learning and teaching interactions, which reflect the interconnectedness of content areas, and makes use of a variety of strategies and assessment tools to design and develop learning experiences to reach all students. The mastery level is second nature to the individual.

solve problems to integrate edtech into learning and teaching successfully through a set of generic skills that can be used in personal and professional situations (Instefjord & Munthe, 2016).

Taking into consideration the various conceptualisations of the terms ‘skills’ and ‘competencies’, they originate from the technicist discourse. Frameworks employ these terms either in a behavioural approach (how performance is achieved) or in a functional approach (what performance appears like in the context of an occupation). The use of these terms is descriptive of tasks and standards that are reductionist due to their failure to capture the complexities and attributes that foreground social learning and teaching activities. They appear to be terms loosely used for performance measurement. The terms ‘knowledge’ and ‘understanding through a digital agency’ could be used as they enhance professional knowledge and practice in learning and teaching environments. By conceptualising digital agency, I alert the reader to the complex interplay between academics and edtech as the focus is to “retain the essential competencies, confidence and accountability in the digital space, to manage and adapt in the digital space as an individual and as a community” (Passey et al., 2018). In doing so, academic agency is augmented with digital agency.

2.2.6 Culture and identity within learning and teaching

Thomas et al. (2017) state that research around digital identities as an emerging field remains fragmented. They also refer to how managing differing identities in the online space is a challenge. In the online space there is “performance of digital self-hood” (Thomas et al., 2017, p. 53) that develops from engaging in online activities even though it remains impacted by divided contexts (asynchronous vs synchronous). Within the higher education context, student success and retention seem to be augmented by a tripartite relationship between context, institutional culture and relationship to place (Stuart, 2017). As more learning and teaching moves to the online space, it raises important questions around the locus of learning and teaching and its effect on both the students and the academic staff who occupy this space. While much research on student success and engagement in the online space has been done, “the views and experiences of academic staff at this coalface of learning and teaching remain largely unreported” (Glover et al., 2018, p. 1).

The exploration and impact of edtech on academic identities is greatly influenced by technological determinism (understanding the relationship between edtech and change). Clegg (2011, p. 176) states that “technologies and social relations that make up academic work is open to negotiation and contestation in relation to how we re/assemble them and make meaning”. In stating so, Clegg (2011) illuminates related concerns surrounding gender, class and location.

There is a need to disrupt the sentiment that academics have no voice in the adoption of edtech, hence challenging the predetermined forces of circumstance and efficiency in narratives of the relationship between the academic identity and edtech. Limited narratives on how digitally mediated learning and teaching environments may be deliberated and understood by academics is well noted by many researchers (Hanson, 2009; Selwyn, 2003, Cuban, 2001). Hence it is recognised that there is a need for research that includes the economic and social realities of academics to provide insight into their usage or non-usage of edtech (Selwyn, 2003). This notion highlights the issue of looking beyond academic generational deficits in teaching and learning in the higher education contexts, which falls beyond the scope of this study.

The formation of digital identities is aligned to the socio-emotional aspect of blended learning and teaching. In the online space, the goals, relationships and emotions related to learning and teaching are important and should be viewed similarly in the virtual space. However, identity (which organically emerges from social exchange) is less explored in online learning (keeping in mind that this study began prior to the Covid 19 pandemic). Since being physically present is redundant in the online space, it requires participation of the whole person and includes cognitive, emotional and social aspects (Wenger, 1998). Identity is constructed through ongoing interaction and negotiation between self and others; hence, whenever we socialise (Wenger, 2010). This gives a sense of who are we, or who we are becoming. When academics enter the online space, they present themselves to the online community through which identity is conceptualised and reconceptualised.

Interestingly, many studies focus on teacher professional identity in the basic teacher education context (Cross & Ndofirepi, 2015; Karaolis & Philippou, 2019). The limited research on identity formation of academics in higher education suggest that teacher professional identity remains a crucial factor in explaining teachers' professional lives: their motivation for learning and their effectiveness as teachers, their professional development and their attitude towards change in learning and teaching (Karaolis & Philippou, 2019).

This explanation has brought to surface associated culture around teaching practices in the online modality, and not only the continued importance of face-to-face teaching as compared to the rush to emergency remote teaching (ERT). Within higher education, the culture of L&T has developed over time and does not change very quickly. The dynamic drivers that determine this culture are the staff, students, processes, and regulations of the institution. As students move through and out of the institution, institutional culture is impacted most strongly by staff, norms and processes. Cloete (2017) posited that technology integration shapes institutional culture and links to the social and development aspects within the institution, since understanding how academics shape learning and teaching cultures – and, in the process, assert or reconstitute their identities, is crucial to attaining an understanding of CDP. In a similar vein, the term 'participatory culture' has gained much traction across multiple disciplines due to scholars seeking to respond to the affordance of edtech and new cultural practices (Jenkins & Ito, 2015). In critically analysing participatory culture at the real level, academics and scholars trace the path of how their thinking may have evolved in response to changes in the environment due to blended learning and teaching modalities. When the concept of networked communication emerged, not many people knew the shape it would take or how it would impact higher education institutions (Jenkins & Ito, 2015).

2.3 Pedagogic perspectives

The first lens employed in this review focuses on the higher education space, while the second lens builds on the foundation of pedagogy in alignment to the research question regarding academic knowledge of critical digital pedagogic practices. What follows is a review of the pedagogic perspectives and the knowledge base of academics within the digital context. The review of literature also links critical theory to critical pedagogic practice, coupled with the model of pedagogical reasoning and action (MPRA) giving rise to critical digital pedagogic practices.

2.3.1 The development of a knowledge base within the evolution of technology

The primary requirements of being a teacher are to possess knowledge of specific content, which becomes the domain. This is a small part of the trajectory of a teacher as specific skills are deemed to be necessary (Hannah, 2013). Teaching is more than just what is taught as it includes other "less visible and less socially recognised activities that teachers perform in the background" (Norman, 2016). The visible activities include planning and assessment. The invisible activities include the beliefs, assumptions and values that academics hold about L&T and how they use edtech in shaping their practice and culture. In this research, the term 'pedagogy' is employed in the broader sense as an indicator of how pedagogic practice links (in mode and style) to the broader institutional processes, cultural shifts, social structures and intellectual conditions, and not merely as a descriptor of core pedagogic practices in learning and teaching styles.

In the context of teaching, a central issue that often emerges is that a primary skill of the educator is knowing how to teach (knowledge base). It was common belief for a long time that the educator only needed to know particular content to teach (Fernandez, 2014). In looking at the practice of the educator, it can be concluded that it is not similar to knowing only specific content. If this was the case, then all teachers (school, university, researchers and content experts) would be excellent teachers. Fernandez (2014) posits, through research, that two forms of teaching practice co-exist that give rise to two conceptualisations about teachers' knowledge. The first type is formal knowledge, which refers to knowledge obtained by expert researchers and provided to teachers through professional development. The second type involves practical knowledge: what teachers know from their professional expertise (Fernandez, 2014). Over the years, various names have been attached to the concept of teacher knowledge. Cumulatively, they provide an overview of how teachers' knowledge has been researched over the years.

Practical knowledge originates from the teacher's professional knowledge (Borko & Putnam, 1995). Over time, various authors have formed propositions about what comprises practical knowledge. These propositions include personal knowledge (Connelly & Clandinin, 1985); situated knowledge (Brown et al., 1989); action-oriented knowledge (Carter, 1990) and tacit knowledge (Eraut, 1994). In this regard, (Verlopp, van Driel & Meijer, 2001) state that these conceptions indicate the knowledge and beliefs that may influence teachers in their practice. At the same time, the components of the characteristics of teachers' professional practice required a sort of situational, intuitive knowledge of one's rationality (Carter, 1990). In this regard, I synthesised various frameworks by highlighting their main components and types of knowledge. For comparative purposes, some of the most widely used frameworks are presented in Table 2.2.

Table 2.2 *Frameworks and types of knowledge*

Year	*Author*	*Domains*	*Types of knowledge*
1983	Elbaz	5	Knowledge of self, environment, content, curriculum development and instructional strategies
1986	Shulman & Sykes	8	General liberal education, understanding of student diversity and individual differences, performance skills, foundations of professional understanding, knowledge of content, content-specific pedagogical, general pedagogical principles and practices, curriculum
1986	Shulman	3	Pedagogical knowledge, content knowledge and curricular knowledge (PCK). This concept has been widely used and adapted since then
1987	Wilson, Shulman & Richert	7	Knowledge of content, general pedagogical, curriculum, pedagogical content, students & their characteristics, educational contexts and knowledge of purposes, aims, objectives and educational philosophies
1987	Shulman	7	Knowledge of content, general pedagogical, curricular, pedagogical content (PCK), learners and their characteristics, educational contexts, knowledge of purposes, educational purposes, educational values and philosophical and historical bases
1987	Shulman	MPRA	Model of pedagogic reasoning and action which presents how the practical knowledge of teachers can be further developed
1990	Grossman	4	Systematises Shulman's proposal into the knowledge of content, pedagogical content, general pedagogical and context knowledge
1996	Calderhead	5	Knowledge of self, subject matter, students' knowledge, curriculum and teaching methods
1997	Putnam & Borko	3	Knowledge of content, pedagogical content and general pedagogical knowledge
1999	Carlsen	5	Knowledge of context in general and specific, Knowledge of general educational context, general pedagogical knowledge; subject matter knowledge and pedagogical content knowledge
1999	Magnusson, Krajcik & Borko	5	Borrowed from Grossman's (1990) model and added access knowledge as a component of PCK and replace teaching content with orientations for teaching science.
1999	Morine-Dershimer & Kent	5	Relate their model to Shulman's (1986) and emphasise that PCK consists of knowledge of the purposes and educational objectives linked to knowledge of assessment procedures; pedagogical knowledge; curriculum knowledge; content knowledge; knowledge of specific contexts and knowledge of learners and learning.
2006	Mishra & Koehler	4	Construct the TPACK which constitutes a development of Shulman's (1986) PCK model to include the technology concept.
2008	Park & Oliver	6	Borrowed from Magnusson, Krajcik & Borko (1999) but added a sixth component called efficacy of the teacher.
2008	Rollnick, Bennett, Rhemtula & Ndlovu	4	Use the PCK as an amalgam of four areas of the knowledge base but state that the manifestations of these domains generate other domains like content representations, instructional strategies specific for content; curriculum saliency; assessment
2008	Abell	6	Borrowed from Grossman (1990) and Magnusson; Krajcik; & Borko (1999) thereby accounting for both components of the knowledge base of teachers and the components of PCK within the same model.
2013	PCK Summit Model: Helms & Stokes; Gess-Newsome & Carlson	5	A stepped model that starts with five domains of knowledge that is influenced by the professional knowledge of a specific topic. This passes through filters and amplifiers like teachers' beliefs and context. This is then adapted during class time and transforms to PCK which passes through another set of filters like students' beliefs and prior knowledge and finally, it is assessed through student outcomes. It constitutes a theoretical PCK and personal PCK. Very similar to Shulman's (1987) MPRA

Note. authors own

Table 2.2 demonstrates that certain types of knowledge influence how teachers facilitate within the L&T context since it affects student outcomes. Elbaz (1983, p. 202), speaking of teacher knowledge, notes: "The nature of this knowledge does not make it less valuable, just different from scientific knowledge." She identifies five components of knowledge and focuses on the importance of a teacher's personal characteristics. However, at that stage no research was carried out as to how personal qualities could be conceptualised as knowledge or a measure of one's competence.

Shulman (1987) asserts that the knowledge base required for teaching consists of content knowledge (CK), general pedagogical knowledge, curriculum knowledge and pedagogical content knowledge (PCK). He also states that it is important to have knowledge of students and their associated characteristics, the educational context, and the ends, purposes and values of education. PCK appears to be very important as it intersects content and pedagogy. Shulman's view is that possessing CK (having knowledge about a specific topic) and general pedagogic knowledge remained insufficient for good quality teaching and a combination of PCK (having knowledge about knowing how to teach a specific topic) is required which enables improved pedagogical representations (Smart, 2016). The representations refer to "taught topics in one's subject, forms of representation of ideas, powerful analogies, illustrations and examples which lends itself to the ways of representing and formulating the subject that make it comprehensible to others" (Shulman, 1987, p. 9). The PCK construct has been used in various literature about the knowledge that teachers possess, and it proves to be a useful model to "document the kind of knowledge that makes one a good teacher" (Fernandez, 2014, p. 80). In the same year that Shulman (1987) refined the construct of PCK, he presented the model of pedagogical reasoning and action (MPRA) to represent how a teacher's practical knowledge can be developed to include the process of reflection and reasoning. Shulman presented these two constructs in the same year as this may be his proposition that PCK is maybe developed through the process of pedagogic reasoning. The MPRA construct is expanded on in Section 2.3.4.

The technological, pedagogical and content knowledge (TPACK) framework put forward by Mishra and Koehler (2006) specifies what knowledge is required to teach through the use of edtech. It constitutes a development of Shulman's (1986) pedagogical content knowledge (PCK) model (Willermark, 2018). Shulman (1986) emphasises the importance of combining teachers' content knowledge (CK) with pedagogical knowledge (PK) and in the process the concept of PCK emerges and moves beyond subject matter knowledge to one that includes knowledge about how to teach specific content.

In further developing the model, Mishra and Koehler (2006) attached the concept of technological knowledge (TK) which refers to the knowledge of how one can work with and apply technological resources (Willermark, 2018). Hence, the framework, apart from emphasising each construct independently, also stresses a complex interplay of technology, pedagogy and content knowledge and how to apply this knowledge in various contexts. The TPACK framework appears in over 600 journal articles in various forms (Koehler et al., 2014) due to its conceptualisation of how technology can be integrated into teaching by taking a comprehensive view of the entire knowledge base that teachers need to master so that that they can effectively apply technology in their teaching. Much criticism of the framework has been cited due to the framework not being practically useful and its insufficiency in terms of the definitions of the various knowledge domains (Anderson & Krathwohl, 2001; Cox & Graham, 2009; Graham, 2011). Such scholarly debate and criticism of the TPACK framework illuminates the challenge of identifying the complex knowledge that the framework attempts to capture.

In their later work, Koehler et al. (2014) concede that the framework lacks a coherent and encompassing definition. Further criticism focuses on the frameworks' validity, as questions have been raised on "… the assumption that the different knowledge domains are difficult or impossible to distinguish in practice, especially between pedagogical knowledge and content knowledge" (Willermark, 2018, p. 317).

Various authors argue that it is difficult to apply the framework usefully in social research as it lacks strategies to deal with various operational problems, like the availability of hardware and bandwidth challenges (Angeli & Valanides, 2009; Brantley-Dias & Ertmer, 2013). Additionally, criticisms highlight the challenge of defining the point of intersection of technology, pedagogy and content in relation to distinguishing the various knowledge domains, which appear entangled in practice. The framework does not appear to be suitable for this study as what most authors have omitted is that TPACK is developed through the process of pedagogic reasoning (Smart, 2016).

Building on this overview of PCK and its development by various authors, it is pertinent that we observe some differences; however, its importance is overtly presented in research terms to understand the professional development of teachers in various contexts. The concept includes many key elements of the knowledge of teachers and its centrality in providing curriculum reform support in teacher education. Even though their knowledge, like TPACK, and pedagogical actions change in various ways when they integrate technologies in learning and teaching, their pedagogical reasoning or ways in which they reflect to make pedagogical decisions remains hazy; it is clear that much more research is required here. There is much to learn about how and why TPACK, as a crucial part of a teacher's comprehensive knowledge base, is facilitated and expanded within the processes that comprise pedagogical reasoning and action through reflection. This is not, however, within the scope of this study.

2.3.2 The link between critical theory and critical pedagogic practice

The origins and development of critical pedagogic practice can be traced to critical theory, which in turn stems from the legacy of the Frankfurt School with two conceptualisations. Critical theory is viewed as a set of ideas shared by a group of Frankfurt scholars who observed the influence of the impending growth of modern capitalism (that bases itself in absolutes yet is deficient in developing self-critique). The first conceptualisation of critical theory is to produce a rational thinking society that provides insight and looks at the needs and powers of humans by empowering them to change oppressive situations to achieve individual and group emancipation (Giroux, 2003). Critical theory views knowledge as socially constructed, legitimated and appropriated to enhance transparent ways of the construction and appropriation. The second conceptualisation of critical theory focuses on self-conscious criticism, which links to ideologies around freedom and reflexive practice. In summary, then, critical theory illuminates a two-prong approach: one of a critical process and the other as an arrangement of philosophical theories.

The Frankfurt School conceives that culture does not remain a neutral conceptualisation but, instead, is a production of association at a specific moment in time. With emerging technologies and associated developments of time, it seems that culture turned into a product. Giroux (2003) posits that this hegemonic control differed from previous models of authority that were constructed through violence. This new form of control was now sustained (not through violence) but through values and ideas extended by the masses. Higher education should play an overt role in strengthening this ideological control as a microcosm of cultural production that could reinforce critical practice.

Critical digital practice, as an approach to learning and teaching, encourages students to assert their rights and responsibilities instead of merely being governed (Rowe, 2018). Within the context of the classroom, students "are encouraged to act on the knowledge, values and social relations they develop by being responsive to problems that they identify in their own lives" (Giroux, 2011, p. 17). Freire's (1970) philosophy of L&T, which found expression in critical pedagogic practice, developed in response to his recognition of the role that systemic inequality and oppression played in shaping education. Freire's (1970) analysis showed that students were viewed as empty vessels into which educators placed knowledge, like deposits made into an empty bank account, and argued that this 'banking model' of education impeded students from developing critical thinking and ownership of knowledge. Freire (1970) argued that education delivered using this 'banking model' mirrored the relationship between oppressor and oppressed in the broader society. He saw that a model based instead on critical pedagogic practices could empower students to attain a "consciousness of freedom and recognise authoritarian tendencies" (Giroux, 2016, p. 297). Critical pedagogic practice is thus focussed, in part, on developing an understanding of how existing power structures manifest and reproduce culturally and how this impedes the freedom of certain people in the society. McLaren (1999, p. 441) contends that critical pedagogic practice "is a way of thinking about, negotiating, and transforming the relationship among classroom teaching, the production of knowledge, the institutional structure of the school, and the social and material relations of the wider community, society and nation state". The key concepts that are problematised in a Freirean approach are oppression, critical consciousness and dialogism. Hence, "the aims of critical pedagogic practice are to create a space that allows students to make up their own minds about what to think and how to act" (Jeyaraj & Harland, 2016, p. 589).

While many definitions have been put forward for critical pedagogic practice, and many articles argue for the importance of using critical pedagogic practice in learning and teaching contexts, very few describe a clear approach to implementing this, and even fewer document instances of its implementation. Hence, there is limited research on what critical pedagogic practice actually looks like, specifically in the online modality of learning and teaching. It is therefore necessary to understand some of the main constructs of critical pedagogic practice and its theoretical background (based on the Frankfurt School's critique of positivism) to better understand it.

Hegemony is one way that people in power evoke consent from the masses. If those in power do not use force, then their control over the subordinate classes will be impeded as the subordinate classes possess the beliefs and values that the dominant class should be the ones holding power. McLaren (2003, p. 77) argues that "hegemony is a cultural encasement of meanings that is entered into by both dominator and dominated whereby the dominator creates a worldview that justifies their power". Hegemony advances through ideology (the general belief that people use to explain the world and their interactions within it), as ideology gives way for justifying situations as it allows for careful selection in terms of how it is framed.

Within the context of critical pedagogic practice, history is important due to the link between the opportunity to criticise and reconsider the second conceptualisation of critical theory (ideas or concepts that have not been examined critically as they are deeply embedded in culture). The analysis of the Frankfurt School as the originators in thinking around critical pedagogic practice illuminates the need for reflexivity and reflection or self-critique. Their emphasis on history and its relationship with culture makes space for a critique of both and allows the role human agency in the construction of history and culture to be explored. Critical pedagogic practice recognises that the potential to construct positive social change is encased within human agency.

2.3.3 Principles of critical pedagogic practice

Some of the general principles related to pedagogy in the twenty-first century are that it advances the argument that HE institutions have always assumed an international character and that education is innately political which all academics ought to acknowledge (Knight, 2014). Globalisation imposes western episteme through the guise of opportunities that it offers and then covertly dictates to keep abreast of international patterns in the field of HE pedagogy without considering critical practice and context. The result is that western epistemological ideas continue to subtly influence the evolution of pedagogy in the local context, undermining the development of critical approaches to pedagogic practice and thus compromising the authenticity of transformation. The enactment of critical pedagogies links to the decolonisation discourse and its implications for higher education institutions. It advances the relationship of the institution and professional knowledge, democracy in powerful times and the way knowledge is accessed with a type of knowledge and practice that fosters democracy, equity and equality.

In a democratic context such as South Africa, social injustices are supposedly concealed through the creation of structures and legislation that promote integration and equality in society. Similar to critical pedagogies, Maringe (2017) speaks of a socially just pedagogy. A suitable definition of a socially just pedagogy (akin to CP practice) begs to view the concept in the opposite; to gauge a better understanding of it. If one looks at a context that places groups of people above others which is socially unjust with the aim of becoming socially just; then contextual dimensions are the crucial lenses through which socially just pedagogies may be enhanced (Maringe, 2017). Therefore, like critical pedagogic practice, a socially just pedagogy levels the educational field by equalising opportunities to society and providing a springboard to access various forms of knowledge, succeed and progress beyond. Hence, this advance in promoting agency allows the expansion of human capital as well as deal with local challenges through education. Consequently, universities could focus on developing pedagogies that are critical, socially just and relevant to the way knowledge is accessed and shared.

A socially just pedagogy promotes dialogical learning and teaching. The link to critical pedagogic practice is in the raising of and awareness process in motion which requires dialogue. Similarly, Krull and Hoosen (2022, p. 7) state “the course afforded us the opportunity to incorporate different voices from the university community” implying that as human beings, we do not co-create awareness in silence, but through words, actions and reflection. Such reflection, in the words of Agherdien, Ganas and Hlabane (2023, p. 273), has to bypass “a superficial compromise that alludes to going beyond subjective reflections and individual actions to include object-oriented, historical accounts, remediation (moving to different actions, activities and/or artefacts) and reinterpretation”. The use of dialogue remains a crucial element in the learning and teaching process. Brown and Renshaw (2006, p. 250) posit that “books and teachers and technology and books are the common binaries” which enhance the teaching and learning encounter. Maringe (2017) concurs with Bandura (1971) in prioritising the role of adult students in the process of acquiring knowledge considering prior knowledge, capacity to reconstruct learning and facilitation and the opportunity to network with other students to enhance a socially constructed understanding.

Dialogic learning should not be an abdication of responsibility for teaching with the assumption that students are indeed learning since there is a need to combine dialogism with critical consciousness for the enactment of critical practice. This combination is relevant to this study because they are predicated on the notion of student-centred learning and teaching practices. Critical consciousness is crucial and significant for Freire’s critical pedagogic

practice since its focus is on the concept itself. Freire (1970) identifies three levels of consciousness. At the intransitive level (lowest level), people accept life as it is and view change as the result of miracles. The mediocre level of consciousness, or semi-transitive level, where people have some awareness of challenges, may make changes incrementally but view the challenges as either normal or accidental. The highest level of critical transitivity is critical consciousness, where people view the challenge as structural – embedded in the social context. They interpret the challenge through the lens of complexity and thereby analyse reality. The final level of critical consciousness may be due to collective struggle (as is the case of collective resistance by non-whites during the apartheid era in South Africa) and should be viewed as praxis.

Dialogism, according to Freire (1998), forms the basis of critical pedagogic practice as it is a way of making the process student-centred. However, he contends that, that which needs critical thinking should be able to generate critical thinking. Dialogism requires using a language that is familiar to the student. In the South African context, there are eleven official languages, and it is not possible to expect an academic to dialogue with students in all these languages. The language of learning and teaching (LOLT) in higher education remains English, which retains its associations with colonialism. This is relevant to this study as critical digital pedagogic practice takes the lived experiences of students into account. However, the LOLT discourse is not the focus of this study. Academics should be open to listening to students regarding problems and raise questions to better understand these through a societal lens, so as to respond effectively. Agency, as a generative mechanism, comes into play as academics need to understand the lived realities of their students to help them improve and handle their complexities by using their voice.

Praxis, in critical pedagogic practice, relates to reflexivity, which embodies various qualities and includes reflective practice. It involves committing to the well-being of humans combined with the search for truth and having respect for all. This alludes to being able to engage, exercise, realise and practice ideas as students react to non-verbal and verbal actions. Action does not only refer to doing something. Action, in Freirean terms, alludes to activism or acting upon injustices through critical consciousness and dialogue. Boyce (1996) posits that, in education, praxis is the bridge between transformational action and theory and that praxis is the bridge between liberatory education and social transformation. For Freire (2000), praxis is the hinge between reflection and action and interpretation and change as posited by (Aliakbari & Faraji, 2011, p. 77) “Critical consciousness emerges through praxis as the authentic union of action and reflection and not as a result of intellectual effort alone”. Therefore, transition and change takes place when academics embrace critical pedagogic practice with the intention of making a difference in students’ lives through liberatory education with emphasis on student empowerment, allowing them to have a voice and thereby bridging their lived experiences and knowledge acquisition.

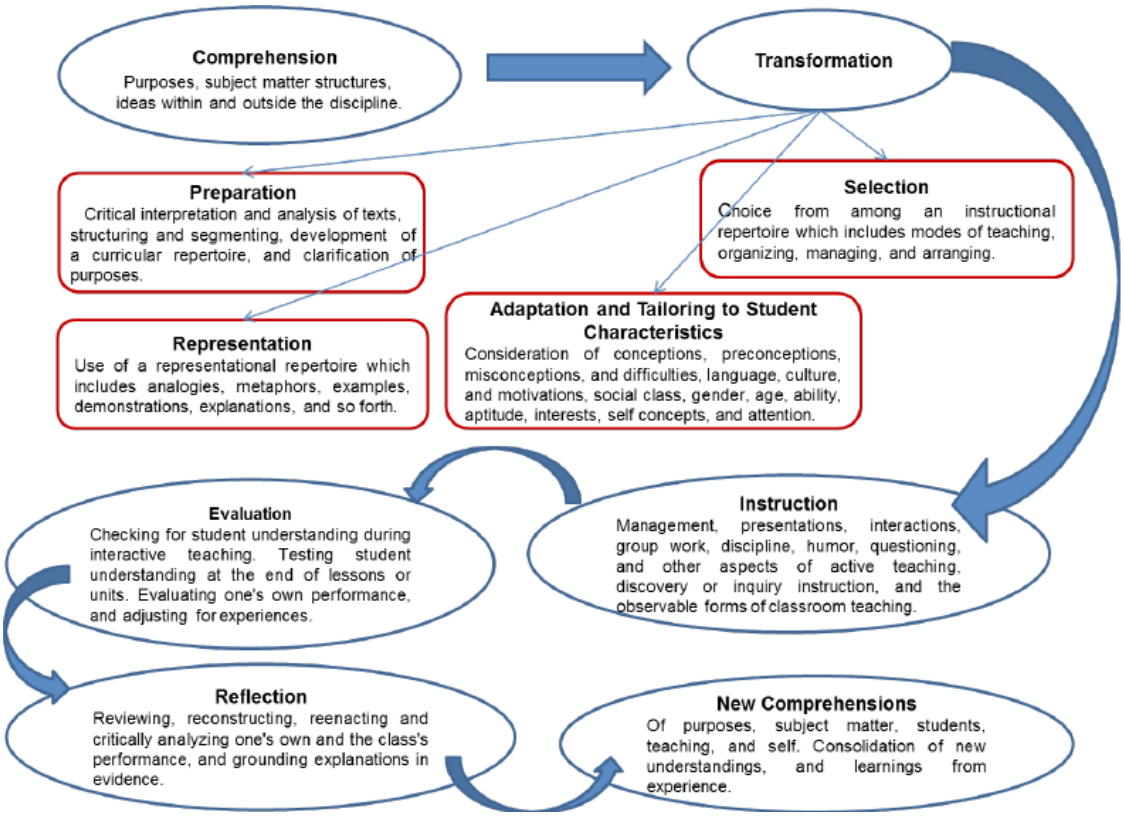
Critical pedagogic practice and pedagogic reasoning cannot exist as mutually exclusive to each other (Saxena, 2013). There is a need for the facilitator to firstly develop a critical understanding intrinsically before this operationalisation can be related to students so that they attain learning outcomes. Hence, pedagogical reasoning alone remains insufficient to address the challenges of learning and teaching using edtech (Saxena, 2013) as it requires critical pedagogic practice.

2.3.4 Shulman's (1987) model of pedagogic reasoning and action (MPRA) and signature pedagogies (2005)

According to Stenning and van Lambalgen (2011, p. 555), "reasoning is the combination and analysis of information in drawing conclusions and involved in all psychological processes like perception, memory, learning and emotion". It involves combining information intrinsically from memory and with information from perceptual input. Within the context of academia, perceived self-efficacy contributes to cognitive development and functioning as there are levels at which it can contribute to academic development (Bandura, 1971). In understanding reasoning within the context of learning and teaching, it is useful to establish a knowledge base (the skills required to know how to teach in any space) considering the reasoning processes needed to attain specific outcomes.

Shulman (1987) proposed a framework that focuses on the pedagogical knowledge and reasoning that teachers need for teaching and assessment. Shulman's (1987) model of pedagogic reasoning and action (MPRA) departs from Dewey and Dewey's (1915) construction of reflection which visualises three phases that the teacher experiences in teaching. Comprehension and preparation constitute the first phase; the middle phase incorporates teaching and evaluation; and the final phase constitutes reflection and new ways of understanding. Shulman's (1987) conceptualisation of the MPRA emerged through a project that he undertook to attain an understanding of teachers' knowledge base for teaching and their (pedagogical) reasoning. He explored how subject knowledge influenced teachers' thinking which provided a base for exploring "relationships of that knowledge to teacher planning of instructional units and teaching" (Shulman, 1987, p. 13). This conception further evolved into a complete model for pedagogical reasoning and action (MPRA), as illustrated in Figure 2.2.

Figure 2.2 *Shulman's (1987, p. 15) model for pedagogical reasoning and action (MPRA)*



Note. adapted by Fernandez, 2014, p. 82).

Shulman's (1987) model of teaching identifies six steps that he termed pedagogical reasoning. These steps begin with comprehension, transformation (in terms of content and knowledge), instruction, evaluation, reflection and finally end with new comprehensions. These steps are described in the graphic presented in Figure 2.2.

Shulman's view of pedagogical reasoning applies to the context of the skilled teacher who faces the challenge of using what they already understand and must merely prepare it for effective facilitation. Some studies have reconceptualised Shulman's stages, viewing the first three stages (comprehension, transformation and instruction) as pedagogic reasoning and the latter three (evaluation, reflection and new comprehension) as reflective practice (Keast et al., 2017). The cycle of pedagogic activities presented in Figure 2.2 demonstrates the starting point and terminating point of 'comprehension' as an act of comprehension. The model is an attempt to demonstrate reflective practice in the process of teaching but lacks rigour, as discussed further below. As the current South African context requires teachers to engage in teaching as an act of inquiry (Education & Training, 2011), the model may have some relevance. 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. Even though the model is used to understand the pedagogical reasoning used to make decisions about using edtech in learning and teaching, various authors (Smart et al., 2015; Smart, 2016; Finger & Finger, 2013) criticise the model since many academics in higher education institutions may engage only in pedagogical reasoning without critical pedagogic reasoning and merely teach with technology. Also, the model does not consider the scalability of pedagogical reasoning for a context where there are large classes, such as South Africa.

In 2005, Shulman also developed the notion of signature pedagogies, as "the types of teaching that organise the fundamental ways in which future practitioners are educated for their new professions or professional work" (Shulman, 2005, p. 52). Such pedagogies define what counts as valid knowledge in the discipline and how certain aspects become known and analysed focusing on expertise and authority. In a similar vein, Cronin (2018, p. 160) posited "Academics also work within specific disciplinary contexts (with their own unique cultures, structures, and forms of support) which play a role in educators' choices". Likewise, within the context of the health sciences, the idea of engaging students to think like medical practitioners is indicative of the nature of inquiry and has become what could be considered a signature pedagogy of health science education. According to Shulman (2005), signature pedagogies have the following characteristics: (a) a surface structure, including specific and discernible acts of teaching and learning; (b) a deep structure, including a set of acceptable tenets regarding how to best convey and teach the content to students; and (c) an implicit structure that is made of up a group of desirable beliefs, attitudes, values, and dispositions that are important to the profession. While Shulman's concept of signature pedagogy focuses on traditional learning occurring in the face-to-face classroom, he concludes that a signature pedagogy can be expanded on since "new technologies of teaching and computer mediated teaching … all create an opportunity for re-examining the fundamental signatures we have so long taken for granted" (Shulman, 2005, p. 59). This research builds on Shulman's work by investigating how academics' digital competence and knowledge of critical digital pedagogies shape pedagogic practice. CDP practice offers a prospect for academics in many contexts to improve pedagogic practice contingent to how they choose to exercise their agency in BL environments.

The adapted version (Appendix H) of Shulman's (1987) MPRA was employed as a part of this study's theoretical and analytical framework. In as much as it was discussed here, rather than in the section presenting the theoretical and analytical framework (Section 2.4), it advances the discussion on pedagogical perspectives in this review.

2.3.5 Critical Digital Pedagogic (CDP) practice

Various definitions of critical pedagogic practice exist, as discussed in Section 2.3.3, and trying to create a unified definition of the concept would refute the objective of critical pedagogic practice, which is to avoid a restricted narrative of critical pedagogies (Katz, 2014; Kincheloe, 2008; Gur-Ze'ev, 1998). Concomitantly, in conceptualising CDP practice, there is no singular definition that exist as it is an emerging field. However, for sense-making, 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) align critical pedagogy 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 (a learning and approach where teachers influence students through fostering critical consciousness). Hence, CDP practices are viewed as a transitioning of critical pedagogical values to the online context through deep reasoning. In part, to understand academics' CDP practices, this study has adapted Shulman's (1987) MPRA as a course review tool (Appendix H). I focused initially on the MPRA trajectory as it was important to know what was enacted and how it was enacted by others in the field to align to a CDP practice.

Few studies have been conducted on the knowledge and enactment of CDP practices, which similarly remains abstract and open to the interpretation of various pedagogues. Even though this emerging field is viewed as an

experimentation phase around knowledge on critical consciousness and conscientisation being exercised through L&T in the online space, it may leave the field subjective with limited guidance for future pedagogues (Bali et al., 2020). Nonetheless, some researchers have made small practical attempts at integrating technology into learning and teaching by coupling it with specific frameworks or models. Starkey (2010) proposes that Shulman's MPRA model (discussed in Section 2.3.4) be used for online learning and teaching in the high school context. The technological, pedagogical and content knowledge (TPACK) framework has been used to examine the integration of edtech into the pedagogical choices of pre-service teachers in the USA (Graham et al., 2012). The outcome of this research showed that TPACK is a lens that can be used to look at the learning and teaching decisions that facilitators make; however, it focuses on integrating technology into teaching with no focus on CDP knowledge and practices. According to Boyd, (2016, p. 167) "Freire did not take a stand against using technology in the praxis of critical pedagogic practice. He suggested the importance of being 'critical' in the use of technology in the classroom and to utilise it to create new channels, methodologies and relationships between learners and technology". Enacting CDP practice requires an awareness of the limitations of edtech, and inquiry should be prioritised over the use of technology.

Finger and Finger (2013) explored a fifth-grade teacher's experience using edtech and concluded that the teacher's beliefs were crucial when enacting TPACK. As part of her study, Smart (2016) explored the relevance of Shulman's (1987) MPRA to teaching using edtech. Smart (2016) explored the links between technological, pedagogical and content knowledge (TPACK) and pedagogical reasoning and action. She found that, in order to develop TPACK; one must first engage in the process of pedagogical reasoning (Smart et al., 2015). Smart (2016) concluded that to understand pedagogical reasoning using edtech, one must first find out what influences a teacher when they engage in pedagogical reason. She concluded that various factors influence how primary school teachers reason pedagogically about the use of edtech. Smart's (2016) study demonstrated that further research is needed on integrating the MPRA with edtech, as her study was conducted in the context of a small primary school in Australia that focused on five teachers at three different career stages. Therefore, research in a HE setting could yield a more focused understanding of how pedagogical reasoning integrating edtech operates in context.

Since learning is a social process, there should be some form of pedagogical reasoning that provides the teacher with an indication of where they need to make changes to the benefit of students. Interestingly, I have also noticed that in the contexts where learning and teaching is enacted through the use of edtech, not much has been researched around the enactment of CDP practices. Further, pedagogical reasoning is a part of enacting CDP practices because, irrespective of the modality employed, the facilitator reasons and consequently actions it to improve future L&T practice. The educator may decide how best to enact a CDP practice in alignment to tool use and identify reasons for their use and how tools would socialise students in acts of practicing freedom through access to different knowledge forms. Hence, all of these aspects require first-hand pedagogical reasoning on the part of the facilitator.

Waddell and Clariza (2018) attempted to enact CDP practices in HE through digital storytelling in a diversified classroom. In this way, students were encouraged to analyse, discuss, collaborate and interact prior to creating infographics while reflecting on "power structures and cultural dynamics involved with generating and conveying scientific information within an increasingly technology-driven society" (Waddell & Clariza, 2018, p. 230). Bali et al. (2020) enacted CDP practices in Egypt through emphasis on the use of edtech for social justice purposes

while inspiring her students to be critical around their use of technology. She engaged in sensitisation around 'digital agnosticism' to ensure that her students evaluated technology critically – instead of being driven by technology – thereby taking ownership of their learning. However, due to the political climate in the study context, the enactment of CDP practices was not always welcomed by students, who did not generally approve innovation in the classroom due to their fear of knowledge suppression by the educator as in a traditional classroom (ibid). This may have been due to students being so entrenched in not having access to the dominant syntax that when CDP practices were enacted they doubted the intentions of the facilitator.

Perhaps in small, yet incremental, ways, many educators are implicitly enacting CDP practices without realising it. Even though educators may be subject matter experts (SMEs) within their disciplines, they may not possess a critical understanding of how to teach in online environments as many of them may have only engaged in preliminary kinds of continuous professional learning (CPL) programmes before they facilitated learning in the online space. Their CPL generally involves how-to lessons to scaffold better practices. Therefore, as stated in the introduction to this chapter, CDP practices cannot be viewed as a set of best practices or tools. Critical pedagogic practice as explored in the narratives of hooks, Freire and Giroux, among others reflects on assumptions that are made about integrating technology into learning and teaching, its policies, economics and practice – and is not merely about its use. The focus can then be on the 'why' and 'whether' instead of only on the 'how' of edtech. At the onset of thinking about the 'why' and 'whether', the focus is on the process that unfolds when learning and teaching moves online and not only on the tools and lesson planning. Critical pedagogic practice asserts that learning and teaching is about being part of a process, about being critically conscious of facts and ideas and not only about being knowledgeable on content. Hence, CDP practice needs to ask pertinent questions on how the environment, network or tool makes it possible for academics to become critical in their approach, thereby infusing the same to their students as practice – as the learning and teaching engagement should make the student and the facilitator agents of their own learning. These aspects of reasoning and practice differentiate an overt CDP practice from one that merely engages with teaching with technology.

2.4 Theoretical analytical framework: Critical realism, social realism and the model of pedagogical reasoning and action (MPRA) as framework

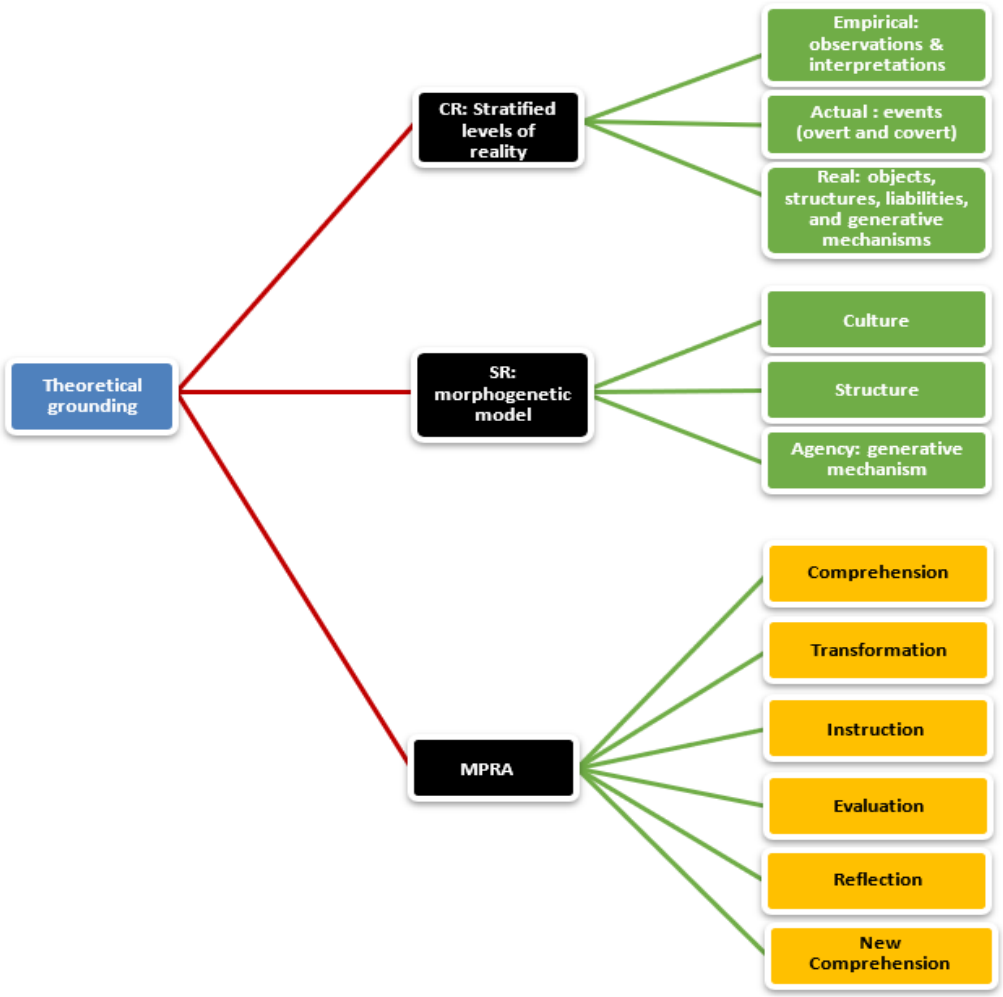
This section describes the philosophical standing and theoretical underpinnings of this study (represented visually at the end of this chapter, in Figure 2.8) to understand how academics' digital competence and knowledge of CDP shaped their pedagogical practice. In part, I had to also investigate which mechanisms contingently enabled or constrained academics' CDP in their learning and teaching processes and how individual agency enhanced and supported critical pedagogies. Pedagogy, perspectives on education and the pressure to engage in online modalities, are often rooted in epistemological frameworks or the institutional discipline of a research enquiry. Hence, the need for a theory that provides "…a system of interconnected ideas that condense and organise knowledge about the world at large" (Neuman, 2006, p. 55). This translates into the need for an intellectual structure that explores and explains the ontological and epistemological underpinnings of this study to provide a base for understanding the social phenomena examined.

Sayer (1992) posits that there a movement within the social sciences argues for the value of engaging realist ontology. Therefore, this study draws on Bhaskar's (1978) critical realism (CR) extended into Archers (1995)

social realism (SR) as a theoretical, analytical framework. The CR framework allows for "ontological depth and explanatory critique" (Bhaskar, 1998, p. 48) of the conditions and mechanisms that shape the decisions of academics with regard to L&T. CR serves this study well because it is recognised in the L&T discipline as a promising philosophical channel to deal with objectivism-relativism chasms (Mingers, 2004; Smith, 2010; Volkoff et al., 2007).

According to Figure 2.3, CR is the primary lens used in this study and Archer's (1995, 1996, 2000) SR is based on Bhaskar's (1978, 1979) CR. Therefore, it is here that I begin my explication of this theoretical analytical framework that is supported by Archer's SR and morphogenetic/morphostatic (M/M) model. Mukute and Lotz-Sisitka (2012, p. 364) view the under labouring as "deeper understandings of the structure-agency change [Morphogenetic] process [which is Archer's theorising] and can only be realised when working with the theoretical tools afforded by a combined use of critical realism". Shulman's (1987) model of pedagogical reasoning and action (MPRA; discussed in 2.3.4) was employed to understand pedagogic practice with the integration of edtech and the impact on pedagogical reasoning as depicted in Figure 2.3. The MPRA employed a few steps; comprehension, transformation, instruction, evaluation, reflection and new comprehensions that provide focus in analysing data on pedagogic practice.

Figure 2.3 *Theoretical grounding of the study based on critical and social realism and the MPRA*



Note. Author's own

Although knowledge claims remain a social product (relevant to SR), they can be objectively true about an independent, or other, reality (relevant to CR). The point of departure used in this study is the perspective of academic staff at a research-intensive university. Since academics were the primary instruments of teaching and facilitation, an investigation of their actions and beliefs aided the understanding of their use of CDP practice. The manner in which I explored and explained the primary constructs of this study related to my thought processes that were embedded in CR, SR and the MPRA; especially in terms of the kind of questions that this study posed, the kind of data that I collected and the type of reasoning that I engaged in. The frameworks and model served as a guide in terms of how the world is viewed, especially within the domain of research. Similarly, Agherdien, Henning and Van der Westhuizen (2007, p. 20) posit "such frameworks are epistemological devices that account for the knowledge that is produced in a study. They also account for the type of design of an inquiry. They locate the position that a researcher takes in accounting for knowledge-interpretation and knowledge-making".

2.4.1 Critical realism

Critical realism, (CR) as a meta-theoretical position augments a philosophically informed account of social sciences that informs empirical investigation. It offers the prospect of focussing on the *real* challenges that are faced and their underlying causes. The critical realism that Bhaskar (1978) theorises is 'critical' in the way that it embodies a concern for social justice. Delving into the mechanisms and structures that operate at the real level provides an understanding of how they work jointly to produce experiences and events and, in so doing, foster change. Therefore, it is useful to investigate how academics' digital competence and knowledge of critical pedagogies shape their practice. Critical realism defends a philosophical approach that is not restricted to theorising the world in terms of how we view and experience it; it sets out to identify generative mechanisms to analyse society. Critical realism asserts that the world exists independently of our knowledge about it. Reality is theorized as being stratified into three levels loosely nested into one another (Cox, 2016): the empirical level, the actual level and the real level. These are discussed in detail in this section.

(a) Strata of reality

Bhaskar (2010, p. 2) argues that, even though critical realists accept the reality of discourses and events, "we will only be able to understand and change the social world if we identify structures at work that generate those events and discourses at the various levels". As depicted in Table 2.2, the first level of stratification is the *empirical level* where experiences and observed events are understood through human interpretation. The second level is the *actual level,* where events occur, whether observed or not, both overtly and/or covertly. The third level is the *real level,* which consists of objects, structures, liabilities and generative mechanisms within the structures that cause events at the empirical level to occur. The features of these levels are depicted in Table 2.3.

Table 2.3 *The levels of stratification in critical realism*

Stratified Ontology of Critical Realism			
	Domain of real	**Domain of actual**	**Domain of empirical**
Structure, mechanisms	x		
Events	x	x	
Experiences	x	x	x

Note. Adapted from Bhaskar (1978, p.13)

In keeping with the levels of stratification, or deep ontology, the way knowledge is obtained should not be confined to only observing the series of events "where one thing follows another with empirical/observable regularity" (Danermark et al., 2002, p. 5). It is crucial to deeply consider the structures of reality and transfactual conditions since "generality does not lie on the face of the world, but in the hidden essence of things" (Bhaskar, 1978, p. 218). Steered by my understanding of this stratified nature of reality, I embarked upon exploring the trackable events, practices and processes which are the result of complex interactions in the real domain. The focus of this research is on these complex interactions – their outcomes as well as their generative mechanisms.

Hence, I used a realist approach in my endeavour to realise the intangible in my understanding of academics' digital competence and knowledge of critical pedagogies and how this shaped their practice.

(b) Transitive and intransitive realms of knowledge

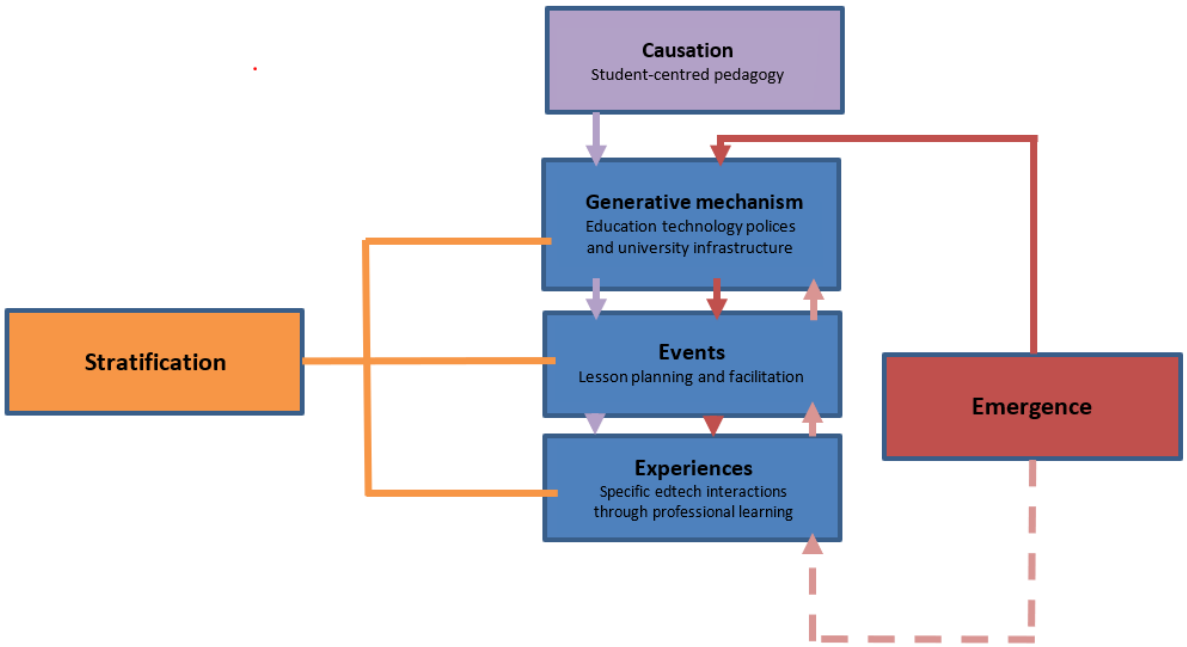
In CR studies, the differentiation between transitive (changing) and intransitive (relatively enduring) quadrants of knowledge is based on the notion that what we know about the world from our experience of it must not be conflated. Realists forewarn against the epistemic fallacy where people believe that what they view is all that there is (Bhaskar, 2008). The type of knowledge that is provided is dependent on the problems that we have and that we ask in relation to the world around us (Danermark et al., 2002). Placing emphasis on the fallibility of all knowledge highlights the transitive dimension of knowledge "as the best truth about reality we have for the moment" (Danermark et al., 2002, p. 23). This view makes up our observations and theories about reality. Sayer (2000) uses an appropriate example of the round earth and the flat earth view and reiterates that when a theory changes (transitive dimension) we should not assume that what it describes (intransitive dimension) changes too.

(c) The tenet of emergence

Aligned to the stratification of reality is the construct that reality is a system of emergent entities (Bhaskar et al., 1998); this is central to critical realism. Entities refer to "things which 'make a difference' in their own right, rather than as mere sums of their parts" (Edwards et al., 2014, p. 6) and possess causal powers and properties that generate real effects (Easton, 2010; Mingers, Mutch, and Willcocks, 2013). Emergent entities explain the connection between the various layers of reality, as one level of emergence gives rise to identifying an occurrence at the next level. Bhaskar (2010, p. 20) posits that our knowledge of the world is framed through the emergence of events when he describes "the multi-tiered stratification of reality".

In research, emergence can be traced through the actions of humans. A suitable example is the case of an academic who engages in a student-centred pedagogy and allows students to use their mobile devices for access. The generative mechanism that could support or disable the academic's initiative and would result in the emergence of things like the planning of lessons and the manner of facilitation, would be the edtech policies or the infrastructure that the university provided for access. In terms of a chain of events, the academic would then provide a description of their experience with engaging in a student-centred pedagogy that could be observed and reported on by the researcher. Bhaskar, (1979, p. 54) refers to this sort of tracking and exploration as the "relational internalities" that transpire across the three domains as a result of causal powers. The diagram in Figure 2.4 illustrates the connection between generative mechanism, causal powers, emergence and stratification within the three domains of reality. In this example, the facilitator may want to engage in a student-centred pedagogy that requires students to use edtech. The generative mechanisms will enable or disable the facilitator's attempt and the outcome will be the emergence of other experiences or events. Hierarchically, the three domains follow the uni-directional arrows, beginning from the real domain (generative mechanisms) and moving downwards towards the actual domain (events), then down to the empirical (experiences) domain. Despite this, the properties of emergence are viewed as a two-way association among the levels. Emergence could be viewed from the bottom-up (dotted line) or top-down (continual line).

Figure 2.4 *The tenet of emergent entities*



Note. authors own

Specifically related to this study is the idea of emergence within the social world that is related to the identities and roles of academics and the associated powers that are attached to their contexts, positions and relations. Bhaskar (1979, p. 55) notes that "in the social world, individuals and institutions operate in different structures that create difficulties for deciding by virtue of what structure a specific power exists".

(d) Causality and generative mechanisms

Generative mechanisms refer to the causal power of things, structures or constellation of activities that provide explanations for empirical outcomes (Lawson, 1997; Bygstad et al., 2016; Hedström & Ylikoski, 2010). A careful consideration of the concept of causation could thus offer an indication of what allows generative mechanisms to exist. Bhaskar (1978, p. 186) states that "causation can only be known and not shown to exist". Hence, causal powers are actualised on a dependency of conditions to accompany powers. One example may be academics that have the need to use a specific edtech application, but the use of the application may depend on other conditions like electricity or bandwidth. If the conditions are met, the potential power of the academic can be viewed in the way that the application is exploited for learning and teaching purposes. The causal powers can be viewed by looking at the stratified layers of reality.

For critical realists such as Bhaskar (1978), Collier (1994), Sayer (1992), Archer (1998) and Cruickshank (2003), this stratification helps them explain how mechanisms are generated for tracking movements from events to experiences as it differentiates events from being hidden or what produces the events, if not the two domains would fold into one. Therefore, critical realism views causation through emphasising more than the cause-and-effect partnership. For critical realists, there is a search for true central purpose and that is to search, illuminate and explain the causal powers that are in operation at the ontological level of reality.

Even though social studies may be unobservable, they can be viewed to be real and potent as they cause a change in detectable human behaviour. The causal criterion enables unobservable events to be known due to their effect on observable events through "focusing beyond appearances and events and understanding the connections that produce the reality we experience" (Wheelahan, 2010, p. 98).

2.4.2 Social realism

While Bhaskar's (1978) CR philosophy offers a way to stratify the levels of reality (empirical, actual, real) and acknowledge and theorise the generative mechanisms to explain HE contexts; Archer's (1995) SR framework and M/M model are useful to determine the role of agency as the generative mechanism. This generative mechanism drives academics' digital competence and CDP practice as well as the impeding and enabling factors that bear influence at the real level of stratification.

Some key differences between critical realism and social realism observed in the literature are summarised in Table 2.4, to aid an understanding of their different but complimentary roles in the theoretical analytical framework of this study.

Table 2.4 Key differences between critical realism and social realism

Critical realism (CR)	Social realism (SR)
A philosophical theory advanced by Bhaskar originating in the 1970s	Developed by Archer (1995, 1996, 2000, 2007, 2010), underpinned by Bhaskar's critical realism
Related concepts of critical realism focus on stratified ontology of the empirical, actual and real domains.	Related concepts of social realism focus on the interplay between agency and culture, or agency and structure, that can enable a meaningful analysis of social configuration within a cultural domain. The specific contribution is 'reflexivity' as a mechanism through which social forms are mediated.
Offers a perspective on making sense of knowledge about reality that is possible to be known although it may not be apparent.	Engages with aspects of knowledge about agency (self), structure (social structures), and culture (cultural systems)
Reality is stratified according to a natural world or a social world.	Reality is stratified according to a social world.
The natural world consists of the physical and social worlds.	The social world consists of social structures, cultural systems, and agents.
When there is an understanding that reality exists on different levels and in different domains, then knowledge about reality can be developed.	Recognises that knowledge is socially produced under given historical conditions, within forms of sociality that are enduring and extensive in time and space and have their own distinctive structures, powers and limitations.
In terms of methodology, critical realists stress the need for a social ontology linking structure and agency (via the notion of emergent properties) to guide empirical research.	Archer developed her social ontology from structures (structural emergent properties, or SEPs) and culture (cultural emergent properties, or CEPs) to give a detailed account of people's emergent properties (PEPs) and agency.

In SR, Archer (1995) argues for the acknowledgement of agency as a generative mechanism to explain relations in society. A specific generative mechanism of SR is 'reflexivity' and 'reflectivity' through which social forms can be mediated. As the use of edtech is "a social activity that is shaped within social practices" (Pratt, 2014, p. 1), it influences agents who interact with each other within a culture that is affected by stable factors. These factors are referred to as the "social domains of structure, culture and agency" (Archer, 1995). Structure is viewed as the material conditions that impact on phenomena while culture refers to ways of interacting in social settings; agency is conceived to focus on reflexivity and the autonomy of people and groups (Boughey & Niven, 2012).

The way in which critical pedagogic practice incorporates edtech could be influenced by the university structure and culture. Academics who use edtech are, in fact, engaging in social practices underpinned by global, institutional and individual factors influenced by other individuals and factors. These interactions are separated into structure, culture and agency because "…analytical dualism illuminates a better understanding of hidden and dormant mechanisms" (Archer, 1995, p. 143). Analytical dualism is discussed in the next section.

(a) Analytical dualism

Conflationary theorising does not allow for an understanding of how human agents and structures relate; and Archer (1996, p. xix) views this as a fundamental error that impedes the "explanation of cultural dynamic". As a result, Archer raises the principle of analytical dualism which provides a methodological form for analysing the interplay between agency, culture and structure over time and space. Each of these lenses has emergent properties from the data of this study (according to the five themes) grouped beneath them as structurally emergent properties (SEPs), culturally emergent properties (CEPs) and personal emergent properties (PEPs). Archer's (2003) analytical dualism principle postulates that structure, culture and agency remain analytically distinct yet separable to allow investigation of the role that they play in the transformation of each one over time. Hence, in analysing the relationship between the 'people' (agency) and the 'parts' (structure and culture), structural and cultural mechanisms as either enablements or constraints can be identified.

(b) Structure, culture and agency

Structure and agency, according to Archer (1995) are the key constructs of social life and persist in enquiry into how structure influences agency. The ability that individuals possess to make differences through their actions during learning and teaching is defined as agency (Chambers, 2013). Academics, as agents, play a role. What is crucial is the voice, beliefs, biases and feelings within this role in terms of the enabling factors that this role provides. Reflexive deliberations mediate between structure and agency, since they are the subjective parts that are "always in interplay with the causal powers of objective social forms" (Archer 2003, p. 130). This implies that agents' projects (that activate constraints and enablements) must be understood in relation to their social contexts. Even structure and agency are related; understanding the difference between the two concepts is a prerequisite to understanding how nature and society work (Danermark et al., 2002).

Archer (1996) reiterates that a rudimentary challenge in social theory emerges from conflating the 'people' (agency) and the 'parts' (structural or cultural). Structural and cultural contexts in which agents reside shape the situations which confront them and the ways that they respond to the enablement and constraints in these contexts, which are dependent on the agent's concerns. For something to be an enablement or constraint, it must stand in a

position showing so (Archer, 2003). Archer argues that it is personal concern that drives the agent's actions and how they deal with enablements or constraints. She argues for the importance of agency, in contrast to Giddens (1984), who argued that structures are more important. The connection between agency, culture and structure refers to discourses from a social realist position and being part of the cultural system that enables or constrains factors, particularly in higher education institutions.

Bhaskar's (1978) three domains are mapped onto Archer's (1995) social domains (adapted from Boughey and Niven, 2012, p. 644) in Table 2.5. This mapping illuminates how the 'real' spans across all three domains and helps to investigate the generative mechanism that give rise to academics' digital competence and knowledge of critical pedagogic practice.

Table 2.5 Mapping of Bhaskar's (1978) three domains of reality onto Archer's (1995) social domains

Bhaskar's reality domains	**Archer's map of social reality**		
	Structurally emergent properties (SEPs)	Culturally emergent properties (CEPs)	Agency: Personal emergent properties (PEPs)
The real	Material conditions impacting	Cultural registers impacting	Individual and group reflexivity and autonomy
The actual	Technology related events		
The empirical	Experiences and observations of university academics		

Within the structural domain (the first column in Table 2.5), the real points to material conditions that are shaped by the university like the roles of policies, the academics and the university. The material conditions influence academics' digital competence and pedagogical practice directly or indirectly and are viewed as structurally emergent properties (SEP). The 'real' is also shaped through culture(s) or culturally emergent properties (CEP); an example is how online L&T strategies and policies were implemented or the language, ideas and beliefs of digitally fluent academics within HE. Hence, the university's policy about transitioning to online as facilitated through the integration of edtech could possibly create an enabling culture where academics view it as a necessary means to reach students (in the case of the lockdown period during Covid-19) or resist the use of edtech. These cultures can only be revealed by investigating the generative mechanism that causes such behaviour. The 'real' also reveals the academics' group reflexivity and agency. This could be viewed through their goals and interests at an individual level.

(c) Mediation and the morphogenetic model

Modern critiques call for HE studies to prioritise socio-cultural or psychological approaches that lean toward a disciplinary allegiance to psychology or sociology (Kahn et al., 2012), while others argue for an approach that encompasses individual agency and socio-cultural structure in HE (Haggis, 2003; Ashwin, 2008). As Archer's (1998) M/M framework explores the interplay between agency and socio-cultural factors over time when things

either change or remain as they are, it fills the gap raised in the former narrative. The interaction between the SEPs, CEPs and PEPs necessitates an explanation of social formation and change.

Archer (1995, p. 177) describes the structurally emergent properties (SEPs) as "those internal and necessary relationships that entail material resources, physical or human, that generate causal powers proper to the relation itself"; in nature, they are homogenous and irreducible to their components. Two types of SEPs prevail, according to Archer (1995); namely, first-order emergent properties (that condition the agent's positioning and are responsible for involuntary placement in society) and second-order emergent properties (a consequence of relations between structures, which provide guidance to agents about possible courses of action available to them in terms of situational logics). Archer (1995) further postulates that four second-order SEPs emerge from two crucial articulations: firstly, that there are necessary or contingent relations between SEPs; and, secondly, that these relations stand as either complementary or contradictory to each other. Table 2.6 summarises these four second-order SEPs and their associated situational logics.

Table 2.6 *Second-order structurally emergent properties (SEPs)*

Second-order SEPs	Situational logic	Description
Necessary complementarities	Protection	Institutions are mutually reinforcing and work in teams to support each other, consequently creating a situation whereby everybody has something to lose due to disruption.
Necessary contradictions	Compromise	Two or more institutions are necessarily and internally related, yet their operations can threaten the endurance of the relationship itself.
Contingent complementarities	Opportunism	The relationship between institutions is contingent and their interests are highly compatible. Gains can be explored from the opportunities provided.
Contingent contradictions	Elimination	The relationship between institutions is contingent and their interests are contradictory. Greatest gains for one side coincide with maximum loss for the other side. Formation of new forms of social cleavage that threaten stability.

Note: Adapted from Archer (1995, p. 218)

Culture is viewed in the same way as structure because it provides directional guidance to human agents. Second-order culturally emergent properties (CEPs) focus on the effects of having beliefs and ideas that stand in logical relationships with other beliefs and ideas (Archer, 1995). Once again, these relationships can be contradictory or complementary. Archer (1995) postulates that second-order CEPs imbue their holders with differing situational logics and directional guidance. Table 2.7 summarises the four second-order CEPs and their associated situational logics.

Table 2.7 *Second-order culturally emergent properties (CEPs)*

Second-order CEPs	Situational logic	Description
Concomitant complementarities	Protection	Mutually beneficial relationship and increased cultural density
Constraining contradictions	Correction	Irreconcilable differences between ideas; either one or both has to adjust to operate in the same system
Contingent complementarities	Opportunism	"They objectively increase opportunity for cultural free play for novel combinations and applications…" (Archer 1996: 244)
Competitive contradictions	Elimination	Opposition of ideas is a matter of socio-cultural contingency and not systemic inescapability; however, holders of such ideas eliminate some of the ideas, as they cannot be held together

Note: Adapted from Archer (1995, p. 244)

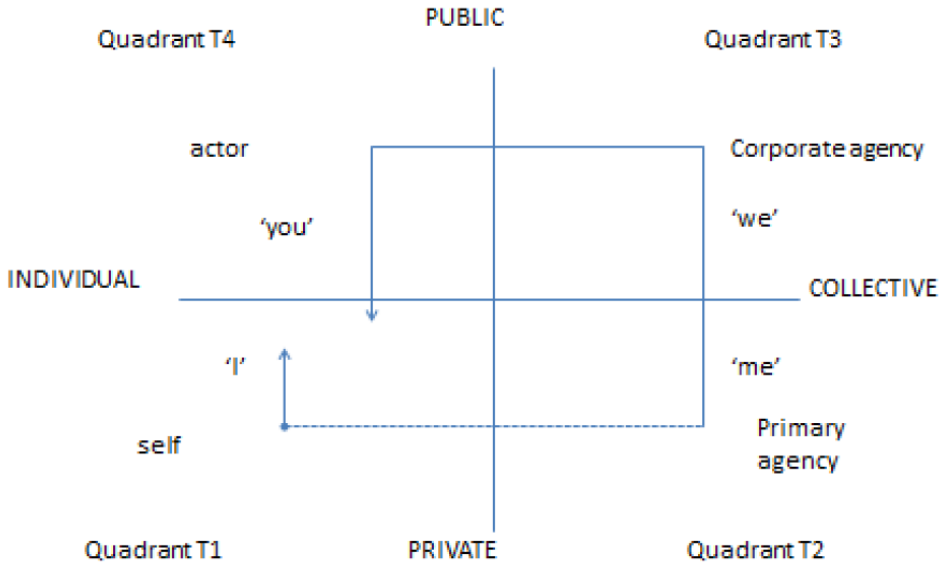
In terms of personal emergent properties (PEPs) and 'people', a stratified view of the person as human, social actor and social agent (all of whom possess different emergent properties yet intricately linked to each other) is employed by Archer (1995). Figure 2.5 affirms the life path of the academic through action beginning at the 'self' in quadrant 1. There are two types of agents, the primary agent and the corporate[10] agent. For agents to be viewed as corporate means that they stand as a collective of social agents with defined goals that reflect the self and articulated reasons for driving action in the framing and reframing of culture and structure. Hence, PEPs of corporate agents reveal a "capability to articulate shared interests, organising for collective action, organising for social movements and exercising corporate influence for decision-making" (Archer, 1995, p. 259). In quadrant 2, the academic begins to learn about the self and "involuntary social characteristics" (Archer, 2003, p. 124) as primary agents through reflexive and reflective practices. These characteristics are attained from the academic's social background. One way of establishing agency, in this study, would be to establish close ties with the Centre for Learning, Teaching and Development (CLTD) for CDP support. Quadrant 3 is a consequence of interpersonal links and relationships with others that equate to a 'we' while transitioning to a corporate agent. Quadrant 4 occurs when the corporate agent transitions, through internal and external conversations (reflective and reflexive processes), to being an actor by taking on roles to achieve concerns.

According to Archer (1995), this path demonstrates the power of agency when interplayed with structure. The pathway from quadrant 1 to 4 is ongoing as some agents change (morphogenesis) while others prefer to reproduce actions (morphostasis), however, the internal conversations continue through each of the quadrants as the distinct types of agents emerge in support of concerns like the enactment of CDP practices. "Agents remain agents of something" (Archer, 1995, p. 257) implying that they are agents of the socio-cultural system which they are born into (collectives or groups in a similar position) and agents of the systemic features that they transform (as

[10] In this study, the term 'corporate' stands in no relation to the business world and is a term that Archer (1995) employs.

collectives or groups that may be changed in the process). The social actor who is viewed in the singular (unlike the agent) emerges from the social agent and involves personifying a social role (Archer, 1995).

Figure 2.5 *The agent's life course*



Note. Sourced from Archer (2003) as adapted by Cox (2016)

Primary agents remain different from corporate agents only due to limited rigour and assertion in structural and cultural reframing. However, this does not imply that they do not continue imposing their effects on structure and culture. Both primary and corporate agents have PEPs that allow them to reconcile the conditioning influences of CEPs and SEPs, and this is the focal area in Archer's (1995) conceptualisation of human agency.

Figure 2.6 illustrates the trajectory of emergent properties of structure and culture impinging on agents who formulate projects that can interact with social powers (Cox, 2016). There are three instances that mediate between agency and structure (Archer, 2003). In Figure 2.6, the first instance is when enablements and constraints transpire out of cultural and structural environments in an objective way. The second instance involves the agent surveilling, in a reflective manner, the three orders of reality (work, nature and practice) due to their concerns. The final instance is when the agent engages in a course of action upon "non-reflexive social powers" (Archer, 2003, p. 130). In this way, all agents do not respond in the same manner; therefore, they will exercise agency according to their evaluation of the situation. Emotions manifest in all three orders of reality (Archer, 2003).

Figure 2.6 *The agent's trajectory from concerns to practice*

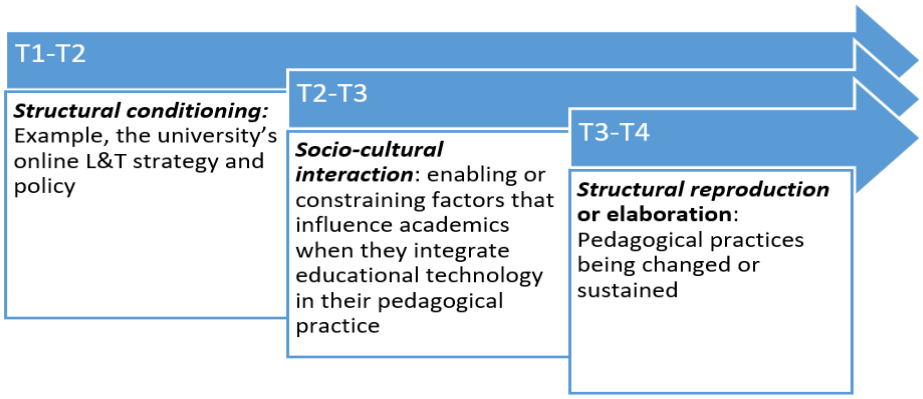


Note. Adapted from Archer (2007a)

Of equal importance is that most empirical studies have not focused on all three instances, thereby flouting the mediative role of agents (Archer, 2003). In doing so, the uniqueness of agents' personal characteristics is overlooked, since each agent is reflexive in a unique way. This is significant for this study since the mediative nature of agency could provide an explanation of how academics' digital competence and knowledge of critical digital pedagogies shape their practice.

Archer's (1995) analytical dualism provides the foundation on which the cultural system can be distinguished from the socio-cultural interaction that operates in sequence. The impact of this sequence leads to changes in morphogenesis (elaboration) or morphostasis (maintenance). Figure 2.7 depicts how I employed the morphogenetic approach, as adapted from Archer (1995, p. 157), to illuminate changes in relation to structure, culture and agency over time. I employed the M/M cycle whereby the beginning of one period was simultaneously the end of another period (refer to section 3.7 for further elaboration). A useful example would be the announcement of important structural change in the university's online learning and teaching strategy and policy documents (labelled as T1-T2). As a result of this, a socio-cultural interaction (labelled as T2-T3) would overlap and assume various forms that could either enable or constrain how academics integrate edtech in their pedagogical practice. Subsequently, when pedagogical practices are analysed at the end of the period (T3-T4), academics would either sustain (structural reproduction) or change (elaboration) their pedagogical practices.

Figure 2.7 *Example of use of the morphogenetic cycle*



Note. Adapted from Archer (1995, p. 157)

Employing the M/M framework and analytical dualism allows for the examination of agential mediation of both structural and cultural inconsistencies over a period. This is only possible after separating the 'parts' (structural and cultural conditioning), specifically focussing on the critical pedagogic practice and digital competence of academics at the university. As a result, it would be possible to trace the trajectory of change in cultural and structural domains. Analytical dualism serves this study well as it addresses how academics utilise their personal powers to function in a way in their decision to incorporate edtech critically in pedagogic practice.

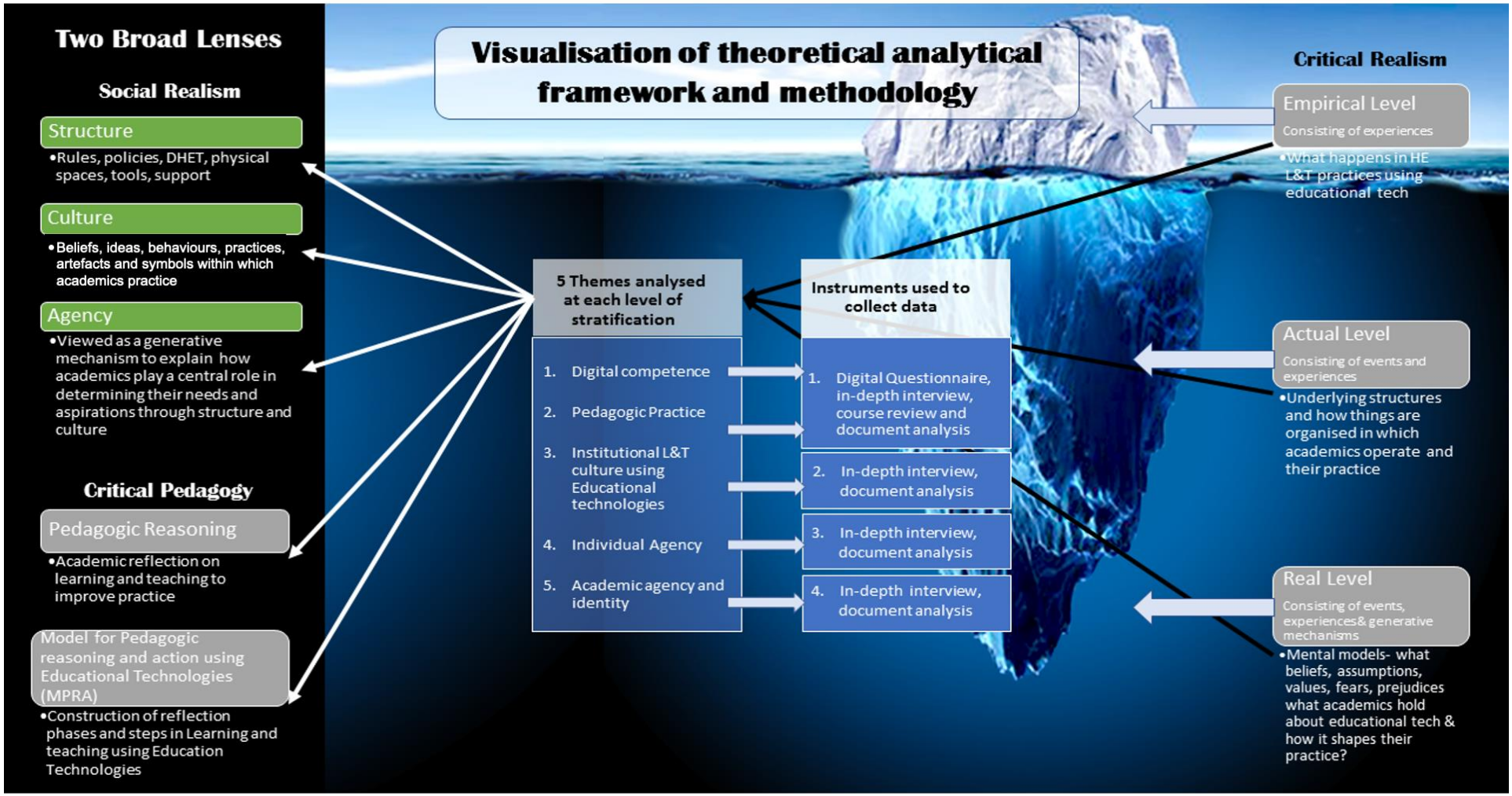
(d) Criticism of Social Realism

In as much as Archer's (1995) SR framework contributes to the study with regard to reflexivity and the conflation of structure and agency, I noticed a gap in the framework in terms of the insufficient consideration given to the differing positions of agents within social structures and how these positions influenced their reflexivity. In a similar vein, Caetano (2015) and Golob and Makarovič (2019), who focused on how social origins of agents affected internal conversations and agency, note the same limitation. According to Luckett (2012), the situational logic typology and morphogenetic cycle remain abstract and difficult to engage with, while separating the CEPs and SEPs prove difficult as a methodology.

A complete visualisation of this study's theoretical and analytical framework as discussed in this Section (2.4) is depicted in Figure 2.8.

Visualisation of the theoretical analytical framework

Figure 2.8 *Theoretical and analytical framework and methodology*



Note. authors own

2.5 Summation of chapter and the contribution of key theorists to this study

The contribution of the work of key theorists to this study is immense. Freire's (1970) notion of critical practice is a stark reminder to all academics of their duty to conscientise students through the enactment of CDP in L&T practices. However, the complexity and cultural features of HS education renders the traditional notion of critical practice to mean a higher priority of teaching to heal and save lives instead. It is possible that L&T could focus on the problems, issues and real-world experience of students through project-based learning, but the priority of the medical educator supersedes this traditional notion of critical practice. The MPRA supports the notion that L&T practice commence as an exercise of reasoning and continue as a path of reasoning coupled with reflective practice.

CR and SR, as philosophical tenets, provide the grounds for an explanation of events and outcomes in terms of how and why L&T practices occur in the way they do. specifically in terms of unpacking the influence of the health science context and what knowledge shapes pedagogical practice. In a similar vein, I demonstrated that for academics, distinguishing between their real, physical and virtual selves can seem rather unsettling. I suggested that L&T in the online space warrants a rethinking of structures within the existing institutional cultures and identity, in terms of how this interplay is affected by individual agency in pedagogical practices. This is because the online space may be shaping a different identity into which participants must be socialised. In sum, then, I argued for agency as the generative mechanism within structures and existing culture.

This chapter staged the argument that CDP practices cannot be viewed merely as a set of best practices or tools. For students to engage critically with knowledge that focuses on issues related to culture, power and pre-disposed histories to enable them to articulate their positions in their struggle against any injustice, CDP must be enacted. Thus, it is crucial for academics to understand deeply what it means to implement a CDP. I have drawn on literature around critical pedagogies (Freire, 1970) and those that integrate edtech as well as Bhaskar's (1978) CR, Archer's (1995) SR and Shulman's (1987) MPRA to conceptualise CDP for this study.

Chapter 3 Research methodology and design

3.1 Introduction

In Chapter Two, I emphasised that critical realism (CR) and social realism (SR) served together as the meta-theory for this investigation into the critical digital pedagogical practices (CDP) used by academics as they integrated edtech into learning and teaching. I begin this chapter by restating the research questions to lay the foundation for explaining the research design and methodology that underpinned this research. This chapter describes how the theoretical analytical framework served as the 'golden thread' that guided the research design and implementation in terms of the collection and analysis of data. This chapter thus demonstrates the alignment between the objectives, the methods and the purpose of the research to clearly establish the links between the theory that guided this study and the data that resulted. This chapter also addresses the validity and reliability of the study and discusses the limitations and ethical considerations associated with this research. For ease of reference, Table 3.1 was inserted as a list of acronyms employed in this chapter.

Table 3.1 *List of acronyms commonly employed in Chapter 3*

CEP	Culturally emergent property	HS	Health science	SoCM	School of Clinical Medicine
CDP	Critical digital pedagogy	L&T	Learning and teaching	SoHS	School of Oral Health Sciences
CPL	Continuous professional learning	M/M	Morphogenesis/Morphostasis	SoTS	School of Therapeutic Sciences
CR	Critical realism	MPRA	Model of pedagogical reasoning and action	SR	Social realism/realist
FHS	Faculty of health science	PEP	Personal emergent property	TPACK	Technological, pedagogical and content knowledge
HE	Higher education	SEP	Structurally emergent property		

3.2 The research question

This research is located at the level of the 'real' within the domain of agency, which I argue is the focal area and generative mechanism within structures and existing culture. The study draws on critical and social realism as a meta-theoretical framework. The study thus focuses on how a set of academics in a specific context understood, practiced and reflected on their CDP practices given the enablements and constraints they experienced as a result of the cultural and structural systems in their environment.

I find it useful to restate the research question at this point to lay the groundwork for the discussion of the research design and methodology that follows.

> *How do academics' digital competence and knowledge of critical digital pedagogies shape pedagogical practice?*

3.3 Research paradigm

According to Smart, (2016) research paradigms are the invisible presumptions that researchers employ when they make sense of, analyse and discuss data. This study aligned to the qualitative, interpretive paradigm, as one of the aims was to investigate the practice of academics within the Faculty of Health Sciences at Wits to determine their adoption of CDPs. In part, I also had to make sense of the levels of digital competency held by academics in the Faculty of Health Sciences. In doing so, I explored what differentiated CDP from simply teaching with edtech at each level of digital competence.

Birkinshaw et al. (2011, p. 1872) state that "direct, first-hand engagement is one of the distinguishing features of qualitative research". On the other hand, with quantitative paradigms, it is the availability of data sets that induce the idea of quantitative research analysis which can be conducted away from the phenomenon of interest (McNulty et al., 2013). In this study, a quantitative paradigm would not be effective for gathering first-hand accounts, as these are not represented in the secondary data that is reported in the HE sphere. In comparison to quantitative research, LeBlanc & Schwartz (2007) state that undertaking qualitative research requires first-hand contact with the actors [participants] and this can present challenges in terms of access to the research site. In my case, access to the research site did not prove to be a challenge as I am an academic working at the site (the Faculty of Health Sciences) and the sample was drawn from my colleagues at the site.

Whilst emphasising an epistemological stance (Drislane & Parkinson, 2011) state that qualitative research uses methods like in-depth interviews, participant observation or case studies that result in narrative, or rich, descriptive accounts of a setting or practice. A common aspect of a qualitative research paradigm relates to the focus on events that occur in natural settings, and they engage these events in their complexity. Qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meaning people bring to them (Denzin & Lincoln, 2002). While qualitative research thus involves interpretation of the phenomenon from the researcher's standpoint, it is important that qualitative researchers strive to maintain objectivity in their research to achieve as complete and fair an understanding of the phenomenon as possible. According to Peshkin (1993), qualitative research studies have considerable strengths that manifest within the paradigm. In essence then, qualitative research studies:

- Are descriptive as they reveal the nature of certain situations, processes, systems and relationships.
- Are interpretive, as they aid the researcher in obtaining new insights and theoretical perspectives about phenomena apart from discovering problems that exist within a phenomenon.
- Verify the validity of assumptions, theories or generalisations within real-world contexts.
- Provide a vehicle through which the researcher can evaluate the effectiveness of innovations, practices and policies.

This study therefore aligns to the qualitative interpretive paradigm that assumes a relativist ontology [one with multiple realities] and a naturalistic methodology (Denzin & Lincoln, 2002). With a naturalistic methodology, the researcher co-constructs an understanding of lived realities through participation. While I employed a particular stance to identify the research participants by initially administering the online survey in this study, this by no means implied a mixed methods paradigm. The methodology for this study cannot properly be described as a mixed methods approach because there was such limited use of quantitative methods that its use and value in responding to the research sub-questions remained minimal. It may have provided baseline information to add

to the 'thickness' of the understanding of the digital competency of academics. I have used quantitative data to create a stepping stone to specific aspects of the qualitative research; thus, while it provided me with a foundation for my exploration, the exploration itself was qualitative. In sum, this was the one aspect which I used to select participants for further research but none of the analysis was informed by extensive quantitative methods. In a similar vein, Berman (2017, p. 7) states:

> The use of both qualitative and quantitative data collection methods in a single study is not sufficient enough to categorize a study as 'mixed methods.' Mixed methods research needs to have more than one dataset. To take a mixed methods approach you would have to design additional quantitative components to the study that are carried out either concurrently or consecutively and that adhere to criteria for rigorous quantitative research.

Hence, it is crucial that the requirements for rigorous quantitative research are heeded to when designing and conducting any component of the study, which this study does not. This was because the research as a whole was not expressed in numbers, statistical methods or measurements to confirm or refute a hypothesis.

3.4 Research methodology

I employed a employed a multiple case study methodology at a single institution. Within the qualitative paradigm, case studies share with other forms of qualitative research the search for meaning and understanding with the researcher as the primary instrument of data collection and associated analysis (Merriam, 1998). Case studies are defined in numerous ways and a standard definition does not exist. However, Benbasat et al. (1987, p. 370) state:

> A case study examines a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups, class, programme, organisations, etc.). The boundaries of the phenomenon are not clearly evident at the outset of the research and no experimental control or manipulation is used.

Stake (1995, p. 11) describes the case study approach as "the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances". He argues that the possibility of others using different 'words or methods' is quite strong, when examining a comparable situation, placing it in the interpretive paradigm.

A case study is an in-depth description and analysis of a bounded system (Yin, 2011). This bounded system refers to a single entry around which there are boundaries (ibid). A case study is viewed in the light of an empirical inquiry which investigates a contemporary feature within a real-life setting and situates itself as the ideal when boundaries between phenomena and context are not clear (Stake, 2005). Yin (1984, p. 108) highlights the real-life context of the research, noting that "examination takes place in situations in which the boundaries between the context and phenomenon are not clear". The crucial elements of case study research are shown in Table 3.2. These elements distinguish case study research from various forms of research and speak to the crucial aspects of the research design and methodology.

Table 3.2 *Case study elements and descriptors*

	Description
The case	The object of the case study is identified as the entity of interest or unit of analysis The programme, individual, group, social situation, organization, event, phenomenon, or process
A bounded system	Bounded by time, space, and activity Encompasses a system of connections Bounding applies frames to manage contextual variables Boundaries between the case and context can be blurred
Studied in context	Studied in its real-life setting or natural environment Context is significant to understanding the case Contextual variables include political, economic, social, cultural, historical, and/or organizational factors
In-depth study	Chosen for intensive analysis of an issue Fieldwork is intrinsic to the process of the inquiry Subjectivity is a consistent thread—varies in depth and engagement depending on the philosophical orientation of the research, purpose, and methods Reflexive techniques pivotal to credibility and research process
Selecting the case	Based on the purpose and conditions of the study Involves decisions about people, settings, events, phenomena, and social processes Scope: single, within the case and multiple-case sampling Broad: capture ordinary, unique, varied and/or accessible aspects Methods: specified criteria, methodical and purposive; replication logic: theoretical or literal replication (Yin, 2017)
Multiple sources of evidence	Multiple sources of evidence for comprehensive depth and breadth of enquiry Methods of data collection: interviews, observations, focus groups, artefact and document review, questionnaires and/or surveys Methods of analysis: vary and depend on data collection methods and cases; need to be systematic and rigorous Triangulation is highly valued and commonly employed
Case study design	Descriptive, exploratory, explanatory, illustrative, evaluative Single or multiple cases Embedded or holistic (Yin, 2017) Particularistic, heuristic, and descriptive (Merriam, 1998, 2009) Intrinsic, instrumental, and collective (Stake, 1995, 2005)

Note. Sourced from Harrison et al. (2017), Merriam and Tisdell (2009), Stake (1995, 2005), and Yin (2017).

Qualitative research designs engage methods that are different from those used in quantitative designs. Qualitative designs can be as systematic as quantitative designs; however, the emphasis is on the data gathering process for

naturally occurring phenomena (Birkinshaw et al., 2011). I used the case study method as it enabled me to get a "close and detailed view of the social phenomenon" (Danermark et al., 2002, p. 201). By collecting data from multiple sources, I was able to uncover generative mechanisms as the case study approach aligned with the theoretical analytical approach of this study. This allowed for deeper understanding of the synergy of the parts (cultural and structural) and the people (agential). I then connected the generative mechanisms that enabled or constrained academics in their use of CDP practices in learning and teaching.

While case study methodology is renowned for its ability to manage the "complexity and embeddedness of social truths" (Cohen et al., 2002, p. 256), it has been criticised since findings cannot be generalised and it has an inclination toward observer bias (Wikfeldt, 2016). These aspects are dealt with in Section 3.9.

Three cases were investigated in this study. The Faculty of Health Sciences (FHS) was the first case study. The second case study was a combination of the Department of Family Medicine and Primary Care, within the School of Clinical Medicine (SoCM) and the Department of Oral Rehabilitation within the School of Oral Health Sciences (SoOHS). The third case study comprised the School of Therapeutic Sciences (SoTS). The Department of Family Medicine and Primary Care and the Department of Oral Rehabilitation were combined as one case study because, as a collective, their emphasis is on practice that focuses on directly healing patients through diagnosis, treatment, surgery, and prognosis. However, the School of Therapeutic Sciences is viewed as a case on its own as it provides more theoretical support for clinical practice in its mandate to cure patients. The emphasis in therapeutic sciences is an enhanced understanding of the consequences for an individual related to health conditions, rather than a study and cure of the health condition itself. The data that was collected in each of these case studies are discussed in Chapters Four, Five and Six.

3.5 Methodological consequences of a critical realist study

As this study followed the stratified ontology of CR and SR, Easton's (2010) three-stage guideline was used in the study's design because of its focus on investigating causality (generative mechanism). The first stage homes in on identifying and developing the phenomenon of interest relating to specific events and looks at the cause of the events linked to the phenomenon to occur. In this research, academics' digital competence and knowledge and practice of critical pedagogies when integrating edtech into learning and teaching was defined as the research phenomenon. The case study's focus was a sample of academics in the FHS.

The second stage focuses on picking out the crucial elements that are characteristic of the phenomenon being focused on – "their powers, liabilities, necessary and contingent relationships" (Easton, 2010, p. 123) and again asks "what caused the events associated with the phenomenon to occur?" (Easton, 2010, p. 123). The FHS and its office, the office of the Deputy Vice-Chancellor: Academic, the Centre for Learning, Teaching and Development (CLTD), the academics who were purposively selected for the three case studies and the institutional policies and documents relating to L&T served as the crucial entities in this study.

Easton's (2010) third stage highlights the crucial aspects of the different forms of data collected and is described as the data collection stage. I explored actual processes and events, like the university's imperatives on formalising the use of edtech in learning and teaching, by examining all relevant institutional documents. As critical realists engage in "mapping the ontological character of social reality which produce facts and events that is experienced

and empirically examined" (Archer, 1995, p.165), this research aimed to inquire about culture, structures, people and what affects human action and interaction. It was difficult, on logical grounds, to know for sure that an account of all observed occurrences would be true for unobserved occurrences also. For meaning-making, I did not assume that observing an academic teaching and incorporating education technology correctly met the criteria for an advanced level of digital competency, or even that the self-reported use of edtech in the digital questionnaire reflected continued effective pedagogical practice. Instead, I employed a "stratified ontology" (Archer, 1998, p. 27) to explain the relationship between the structured layers, processes and agents that underpinned the levels of empirical, actual and real.

To understand the real level, two important aspects needed to be considered (Sayer, 1999). First, "whatever exists", irrespective of whether it is natural or social and second, the real is viewed "within the realms of objects, power and structures" (Sayer, 1999). Examples are academics' desire to use edtech in their teaching after observing a colleague do so or being relegated to using technology as the only option for L&T in early 2020 due to the Covid-19 pandemic. This act alluded to possessing a desire at the individual and social level; even if the desire is not acted upon, it can be real. Alternatively, the university's online L&T strategy that encouraged academics to engage in blended learning and teaching was perceived as both a tangible (document) and a philosophical object (idea that is abstract) within powers and structures.

Critical realists are of the view that "the world should not be defined loosely based on experience and empirical observations (Archer, 1998, p. 21). Therefore, to address sub-question one, a digital questionnaire was administered that included a section asking academics to rate their own level of digital profiling to assess their digital ability. Concomitantly, I looked at academics' actions, in terms of their use of edtech, by selecting a sample of their courses. Through the information gained from the questionnaire and the course review, I crafted an interview schedule that focused on their beliefs, values, biases, experience and feelings.

The three levels of stratifications (empirical, actual and real) comprise "generative mechanisms, events and experiences" (Bhaskar, 1978, p. 32). Lawson (1997, p. 20) explains that "[g]enerative mechanisms refer to the acting or working of a structured thing". Events are viewed as "the external and visible behaviours of people, systems and things as they occur or have happened" (Easton, 2010, p. 120). (Bhaskar, 1978, p. 32) views 'experiences' as "something based on sense-perception". At the level of the real, these three components are intertwined. Mechanisms cause events; unexperienced or inferred from their effects to occur. These events are caused by structure and the power of things that can be possessed with or without being actualised. One assumption of this study was that academics possessed digital competence and knowledge of critical pedagogies because they had participated in professional learning programmes at the CLTD. Even though this competence may be detected, it can exist with or without being actualised.

When examining the actual (second or middle) layer of stratification, (Collier, 1994, p. 15) states that "it consists of a series of events that occur or may not be experienced" and may be interpreted as "the actual level being a sub-set of the real level". Since the real level refers to structures and powers, the actual level questions "that which happens if and when these powers are activated, to what they do and what eventuates when they do" (Sayer, 2000, p. 12). At the actual level, I examined "generative mechanisms" (Collier, 1994:44) as, in this study, academics attended professional learning programmes to augment their digital competence and knowledge surrounding critical pedagogies when using edtech. To assess the manner in which their pedagogy informed the use of edtech, I interviewed them to find out if they used edtech in their basic course design and, if they did, how they effected

it. The reason for this stance was that they could have been using tools in ways that could not be observed directly and thus would not otherwise be apparent to me.

The empirical, or uppermost, level comprised experiences based on sense-perception and observation (Bhaskar, 1978). Even though events can be produced by mechanisms, they are independent of experiences (Bhaskar, 1978). According to Sayer (1999) experiences may or may not be observable. So, for example, even though academics may incorporate edtech into their learning and teaching, what influenced their approaches may not be observable. In this instance, I added suitably crafted questions into the interview to make sense of their thoughts, beliefs and reasoning over a period. This approach was used to ascertain participants' understanding and practice of critical pedagogies and explore the factors driving their use of edtech.

As some academics experience some form of apprehension and anxiety at the actual level, due to insufficient exposure to edtech in their formative educational experiences and professional orientations, it could impact on their academic identity (Clegg, 2000). For this reason, I interviewed them in two phases so as to observe the development of their academic identity in this regard over time.

3.6 Sampling

This study was confined to three case studies within a single institution, as discussed in the research methodology section and in each of the case study chapters. I engaged in purposive sampling which involved selecting participants "…on the basis of their typicality, possession of specific characteristics or their position within a particular context at a given time" (Cohen et al., 2002, p. 21). The purposive sampling approach was particularly suitable for this research as there was a need to access people "who possess knowledge due to their position, power, experience or expertise" (Ball, 2003, p. 220).

A sample is "a subset of a population selected for any given study … the study's research objectives and the characteristics of the study population [such as size and diversity] determine which and how many people to select" (Denzin & Lincoln, 2002, p. 225). Generally, it is not good practice to isolate sampling decisions from the rest of the research design (Maxwell et al., 2009) which is why I have elucidated my sampling approach for each of the tools. Methodological and ethical challenges are also, presented briefly due to my positionality as an academic at the university situated at the CLTD within the FHS. According to Unluer (2012, p.1) "It is crucial for researchers to clarify their researcher roles especially for those utilizing qualitative methodology to make their research credible". My role is to assist those academics in curriculum mapping, design, development and CDP practices. Insider-researchers tend to know the politics of the institution, not only its formalised hierarchy but also how the institution functions. This includes knowing how to approach people in a specific way (Unluer, 2012). Therefore being an insider researcher may have posed a challenge, it also made it easier for me to identify potential research participants. The sampling approach for each of the data collection methods is further elucidated in Sections 3.7.2; 3.7.3 and 3.7.4.

I used maximum variation sampling as a sub-sampling method as it "ensured that the conclusions adequately represented the entire range of variation rather than only the typical members or a subset of this range" (Maxwell et al., 2009, p. 35). This type of sub-sampling enabled me to include high, average and basic cases in relation to academics that integrated edtech into their learning and teaching. Hence, the information gained from the online

survey that I administered to the academic staff in the FHS made the maximum variation sampling easier. Based on the response of participants to the questionnaire that was administered to the FHS, I selected and invited nine participants from the SoTS, five participants from the SoCM and three participants from the SoOHS. Five participants from the faculty and university leadership and management[11] cohort were also invited. These five participants were known to be instrumental within the university and faculty in the conceptualisation and development of blended learning structures. Refer to Appendix E.

Determining the optimal number of research participants proved to be a challenge initially. Two aspects assisted me in arriving at my decision. In a qualitative study where focus is more on meaning-making instead of general hypothesised statements, a single rate of occurrence in a data set is as significant as numerous rates of occurrences (Mason, 2010). Secondly, data saturation occurs when the collection of data reaches a point where little new information is being yielded (Maxwell et al., 2009). Hence, I selected the first group of seventeen academics with the contingency that another group of seventeen participants would be invited, interviewed and their courses reviewed depending on whether data saturation had been reached with the initial sample.

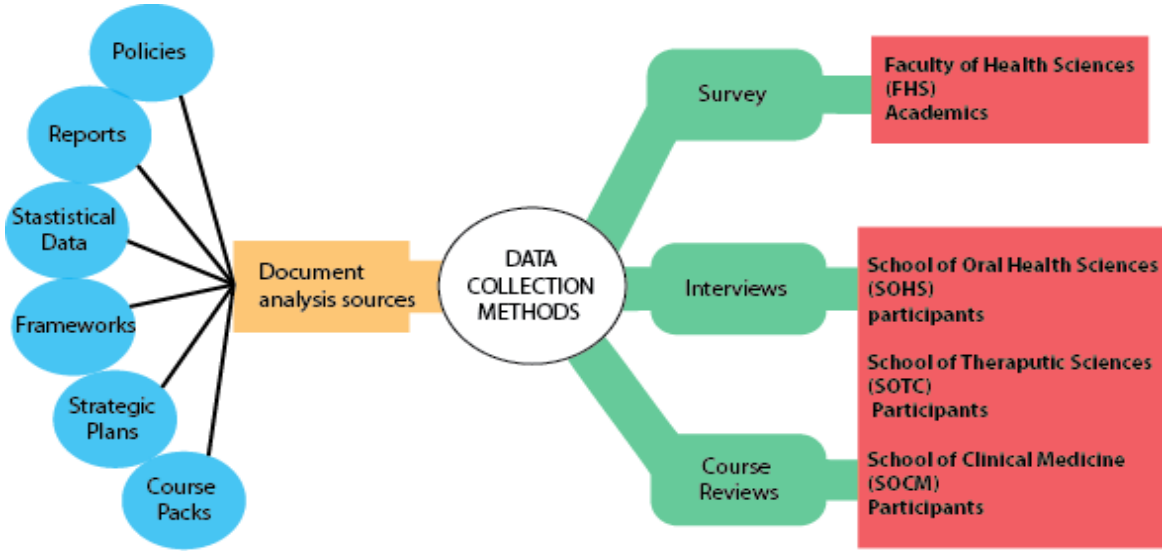
I contacted the research participants both telephonically and via email. I provided a brief, thick description of the study and an explanation of their anticipated role. I explained the study carefully to each of them and emphasised that their names would not be disclosed and would rather be represented by pseudonyms. In relation to the seventeen academics involved in learning and teaching, I explained that my research was not an evaluation of their digital competence and pedagogical practice or an evaluation of their courses during the course review process. I explained the same protocol to the five participants from the leadership and management cohort by emphasising that they would be interviewed only, due to the positions they held in the university and faculty. I concluded by confirming participants' interest in participating in this study and requested their permission to send them the informed consent form (Appendix C) and the participant sensitisation form (Appendix B) for this study, which they signed and returned to me. Twenty-two participants engaged in this research.

3.7 Data collection using Archer's M/M framework and Shulman's MPRA

There is a need for meticulous data collection, which includes multiple sources of evidence, an information database, carefully designed steps to follow and sustainability of the chain of evidence through maintenance of data records (Yin, 2017). There are various sources of data that researchers use in a case study methodology as "no individual source has total advantage over other sources" (Yin, 2017, p. 5). Broadly, this study used four types of data sources and instruments: namely, institutional documentation; course reviews; interviews and surveys, as detailed in Figure 3.1.

[11] In this study, leadership refers to a participant who is part of the senior executiveship of the university and faculty while management refers to those managers from the university and faculty who report to the senior executives.

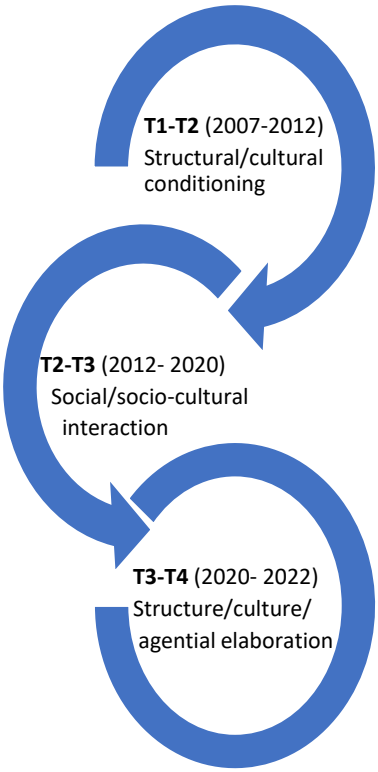
Figure 3.1 *Forms of data collection and data sources used in this study*



In Section 3.7.8, at the end of the discussion of data collection methods, a comparison of key strengths and weaknesses of each method and data source is provided, in Table 3.3.

This study combined Archer's morphogenetic/morphostatic (M/M) framework (1995, 1996, 2000) and Shulman's (1987) MPRA as a methodological toolkit while concomitantly recognising the crucial aspects of chronological authenticity and analytical dualism (see Section 2.4.3). Therefore, Archer's three morphogenetic stages of conditioning (T1), social and socio-cultural interaction (T2–3), and elaboration (T4) and Shulman's six stages of pedagogic reasoning and action were carefully considered throughout the research methodology and design. However, I decided to employ the M/M cycle in a manner whereby the beginning of one period was simultaneously the end of another period. So T2 is the end of the first period (T1-T2) but simultaneously the beginning of the second period (T2-T3). Hence, my reshuffling as *T1-T2* 2007-2012, *T2-T3*: 2012-2020 and *T3-T4*: 2020-2022. When I use the word 'time', I meant a period in time and not a point in time. In this study, each period is a period of several years signifying time intervals. In these time of periodisation's, there were some overlap. Since time is continuous and cannot be stopped, I employed the morphogenetic cycle similarly.The periods of the M/M cycle were also employed in relation to the different phases of data collection in the study. This periodisation is presented in Figure 3.2.

Figure 3.2 *Morphogenetic stages and data collection phases*



As depicted in Figure 3.2, at T1-T2 structurally emergent properties (SEPs) and culturally emergent properties (CEPs) exist in the form of academics' pedagogical practices (critical pedagogic practices), their respective courses on the university's LMS (edtech and digital competence) and all institutional documents that relate to learning and teaching at the university. Cumulatively, the SEPs and CEPs contribute to structural and cultural conditioning that form the situations in which academics involuntarily find themselves, which also influence them to take various courses of action in a non-deterministic manner. At T2-T3, academics (within the context of their concerns, projects, positions and specific roles) interact, thereby activating the personal emergent properties (PEPs) of human agency. The last stage (T3-T4) in the M/M cycle involves structural and cultural reproduction (morphostasis) or change (morphogenesis), which are outcomes of social interaction. To strengthen the data collection instruments it was necessary to engage in a pilot study; this is presented in Section 3.7.1.

3.7.1 The pilot study

Prior to collecting data, a pilot study was conducted in November 2019 as a vehicle to test and improve the data collection instruments and process used in this study. The pilot instrument served this study in the sense that it influenced this chapter specifically. I sent an email and invited eight colleagues who had attended professional learning programmes at the CLTD from each of the five faculties within the university to participate in the pilot study. They readily agreed to participate in the pilot. Initially, the research instruments (the digital questionnaire, in particular) were designed to include thirty questions. After the pilot study, I was advised (through feedback) to reduce the number of questions in the questionnaire and include some of them in the in-depth interviews. Six of

the pilot participants stated that the questionnaire would not be completed in the twenty-five-minute time span as I had assumed. After considering that the questionnaire would be administered to participants to whom time was of essence, I duly reduced the number of questions to twenty and invited some of my colleagues at the CLTD to complete them so that I could monitor their average completion time. They were able to complete them within the anticipated time. In terms of myself as an instrument of research, I realised that I needed to consider inviting colleagues to review the research instruments, simulating actual data collection procedures and so forth with reasoning strategies as suggested by Salant and Dillman (1994), as shown in Table 3.3.

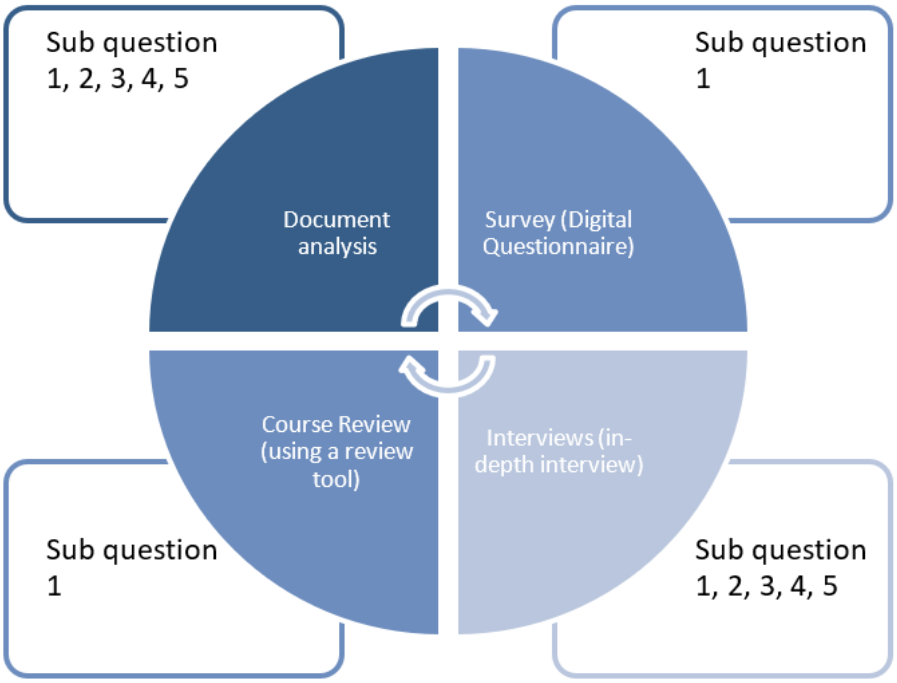
Table 3.3 Steps in piloting the research instruments in the design process

	STEPS	REASONING
1	Ask colleagues to review the survey critically.	To see if the wordings and instructions are clear and if the questionnaire and interview instruments will accomplish the objectives of the study.
2	Select individuals that are similar to the study's participants to pre-test the instrument.	To ensure that the population in the study is represented.
3	Simulate the actual data collection procedure.	To ensure that the researcher is prepared and uses the correct data collection methods and principles.
4	Obtain feedback about the form and content of the instrument.	To ensure that the questions are understood and clear.
5	Assess whether the questions produce the information needed.	To satisfy the purpose of the research.
6	Try the tabulation and analysis.	To ensure that the instruments yield data that can be analysed in the manner that is required.
7	Revise.	To check the final draft.

3.7.2 Primary data

The revised research instruments were used to gather primary data in this study. Additionally, the methodological consequences of a critical realist study, discussed in Section 3.5, provide some detail on the data collection process. Figure 3.3 illustrates the breakdown of data collection methods and sub-questions related to this research.

Figure 3.3 *Data collection method and sub-questions*



3.7.3 Survey method and sampling approach for surveys

The survey was administered to the entire FHS staff who were considered eligible for participation if they had access to the internet and email, as well as being willing to consent to participation. Non-academic and administrative staff were excluded as it was assumed that they were not directly involved in the pedagogical practice of L&T in the faculty.

Collecting information from a group of individuals by asking them to respond to a set of questions is synonymous to a survey (Check & Schutt, 2012). A huge increase in technology-mediated communication is reflected in survey research (Fricker & Schonlau, 2002). The popularity of online surveys has increased because of their usefulness for large, scaled studies, accessing participants in various locations and automation of data collection (Fricker & Schonlau, 2002). Some research studies have documented equal or improved levels of participation when online surveys were used, compared to traditional face-to-face surveys (Vazzana et al., 2000). However, in the HE context, Fricker and Schonlau (2002) state that staff and students within universities are more disposed to participate in online surveys. With this in mind, I employed Lime Survey (an online survey tool) when administering the online digital questionnaire. Another factor supporting this decision was that prospective participants' email addresses were already loaded in a common staff directory (address book) on Outlook (the university's email system). This simplified the task of contacting prospective participants to invite them to participate in the survey. I was also aware that using a digital questionnaire could impact on the response rate, as it seemed that a physical survey, completed with a pen, took longer to complete.

The Lime Survey programme helped me to manage the process of inviting participants and gathering data via the survey, as it had a tool that integrated with the institution's email system, which included a link to the survey as

well as reminders to complete the survey. I decided to limit the number of reminders to two. I took advantage of the option to personalise the invitation and reminder, which helped to create a 'soft' approach to contacting prospective participants for the study. The Lime Survey programme also had an option for recipients of the email to select to be removed from the list and receive no further communication about the study. Lime Survey did not impose a limit on the number of participants, the number of surveys that could be created, or the number of questions each survey could contain. Participants had the option of remaining anonymous or the programme could track the IP address of each participant.

All academic staff in the FHS were invited via an email to log into the Lime Survey and complete the digital questionnaire. (The content of the questionnaire is provided in Appendix F). As I felt that participants would be more likely to complete the survey if they understood its value, I explained its purpose, how the data would be used, and how the results could benefit them. I was the only person who had access to the survey responses. Based on the results from the survey, I recorded the IP addresses, using codes rather than their real names, of those participants that appeared to be suitable candidates for further participation in the study.

3.7.4 In-depth interview method and sampling approach

Selecting the sample for interviews did not pose a challenge as I already worked closely with most of the academic staff in the FHS and members from the university and faculty leadership and management team. The online survey served the purpose of allowing me to identify prospective research participants for the in-depth interviews who engaged in blended L&T practices. Furthermore, the information gained from the online survey made maximum variation sampling easier. Based on the response of participants from the survey, I selected and invited nine participants from the SoTS, five from the SoCM and three from the SoOHS. Five participants from the university and faculty leadership and management cohort were also interviewed.

The in-depth interview as an instrument of data collection is a special case of social interaction between persons and, as such, is subject to rules and restrictions as is the norm for any social interaction (Yin, 2011). Some strengths of interviews are that they tend to have a higher response rate than other data collection approaches and that they are flexible, giving the interviewer control over both the environment and the question order as the interview proceeds. Among the drawbacks associated with interviews, the consequences of cost, time spent in interviews and lack of accessibility to participants should be considered (Neuman, 2006; Schumacher & McMillan, 2006).

According to Yin (2011), interviews constitute an important process through which knowledge is constructed about the world in normal everyday human interaction. However, the outlying difference between normal conversation and interviews is the objective; the roles of researcher and participant also appear to be different (Kvale, 1996; Rubin & Rubin, 2011).

Three types of interviews are common in social research; namely, informal conversation interviews, an interview guide approach and standardised open-ended interviews (Schumacher & McMillan, 2006). Questions within these types of interviews can be structured, semi-structured or narrative. An important feature of the interview is its intention to hold structure yet concomitantly appear flexible (Stake, 2005). I used the various sub-themes that I intended to explore, in alignment to the five key themes emanating from the research questions, that I considered

carefully as I drew up the interview schedules for leadership/management and for academics. (The interview schedule is provided in Appendix G).

While I offered to meet participants at their offices (which were located on different campuses) for the interviews, all of the participants opted to meet via MS Teams. This proved an advantage during the second phase of interviews in 2021, when the Covid-19 pandemic necessitated the practice of social distancing to prevent the spread of the virus. Each interview session was recorded, with the participant's permission.

During the interview, I prompted each participant to share his/her thoughts regarding the use of edtech in teaching and learning, following the research themes. I listened, and gently probed for deeper information. I used the opportunity to ask the 'what, how and why' of the learning and teaching methodology. My intention was not to explain critical pedagogic practice to the participants, but to allow them to answer the questions in their own words and to trace their beliefs, thinking and reasoning with regard to their pedagogical practice in terms of using edtech in learning and teaching.

The in-depth interview format afforded me the opportunity to explore in depth the reasons, opinions and beliefs that underpinned participants' answers. Beliefs lead to reasoning which ultimately leads to action. This, in due course, provided the explanatory evidence which constitutes a critical element of qualitative research at the PhD level. Additionally, while the emphasis on depth, nuance and the participant's language was a way to understand meaning, the interview data needed to be captured in its natural form. The recordings were transcribed verbatim, and the resulting texts were analysed. There were no instances where permission to record was refused, but I also took extensive notes. I included quotations to facilitate engagement with the substance of the interview schedule (Appendix G), to allow for easy access to the voices and opinions of participants.

3.7.5 Online course review method and sampling approach

Seventeen participants who participated in the in-depth interviews were the same participants whose courses were reviewed in chapter five and six. Bilash (2009, p. 10) notes that, within the pedagogic perspective, "classroom observation is a way to view real-life teachers in real-life teaching situations". In this study, I did not observe the academics teaching but rather explored their pedagogical actions by reviewing a selection of their courses and associated edtech use. The purpose of reviewing courses on the LMS was to capture the temporal and contextual details undertaken in the specific course chosen by the participant. At the same time, it gave me an opportunity to capture digital artefacts produced by the participant. The online course review, as a data collection method, involved immersing myself in the setting where research participants engaged in course development as a part of enacting an online pedagogy, while I made notes in a review tool. The course review tool was employed as a rubric to attain an understanding of participants digital pedagogy in the online space. Qualitative criteria were created and annotations taken to investigate whether participants met, partially met or did not meet specific criteria. These criteria supported the learning objectives or competencies of the course design according CDP standards. To note if criteria were met or not, I calculated an average based on Shulman's stages of pedagogic reasoning (refer to Appendix H). To calculate the percentages attained by each participant, I worked according to the number of criteria met, not met or not fully developed. Thereafter, I divided the total column by the total number of criteria expressed as a percentage. The review tool is provided in Appendix H.

Data collection using the review method can be structured (using specific variables as set out in a pre-defined schedule) or unstructured (in an open or free manner without pre-determined variables). The advantage of using

the course review as a data collection method is that the researcher had direct access to the research phenomena: it is a flexible way of generating a permanent record of phenomena that can be used at any time. In addition, it eliminates the risk that the researcher's presence could influence how participants behave. The disadvantages can include longer time requirements and the potential for reviewer bias.

As I conducted the reviews, I found it challenging to know what to look for whilst keeping the review, and my interpretation of data that I encountered during the view, distinct. Shulman's (1987) six phases became useful as they offered a balanced way around each participant's practice. The six phases included comprehension, transformation, instruction, evaluation, reflection, ending finally with new comprehensions. These phases were used as variables of interest that provided specific focus to this research in terms of how participants engaged in critical pedagogic practice, as the model had been adapted to include the use of edtech. Evidence stemmed from one principal source: namely, the examination of artefacts, such as the participant's skill in planning the course or in communicating. To calculate the percentages attained by each participant, I worked according to the number of criteria met, not met or not fully developed. Thereafter, I divided the total column by the total number of criteria and multiplied this by one hundred to attain an average percentage per column.

3.7.6 Secondary data

Documents with information relevant to the phenomenon under study can serve as another useful source of data in addition to the primary data that is collected. I used secondary data as it aligned to what Sumner and Tribe (2004) conceive as focused on data collected by others in direct relation to the objectives and questions of the present research. I engaged in institutional document analysis to socialise myself in terms of the historical, current cultural and structural conditions that influenced academics in terms of their pedagogic practice.

I began by surveying relevant higher education policy documents, institutional reports, the institutional website and other policy documents to generate a robust sense of the pedagogic context and to obtain a grasp of critical issues that pertained to L&T practice in the case studies. I reviewed each participant's course in terms of the mapping, design, development and facilitation (refer to Appendix H). Policies, strategies and planning documents were analysed. Since most of these documents are internal documents they appear on the reference list with no online links, however they are available upon request. Together, these documents presented sufficient evidence for me to establish a starting position for the T1-T2 period (some structural and cultural conditions) of this study. It must be noted, though, that when analysing secondary data, attention was paid to definitions, the currency of texts and their sources.

3.7.7 Summary of strengths and weaknesses of data collection methods

Table 3.4 provides a summary of key strengths and weaknesses of sources of evidence associated with the different data collection methods that were employed in this study.

Table 3.4 Sources of evidence: summary of strengths and weaknesses of different data collection methods

Data collection methods	Strengths	Weakness
Primary data		
Interviews	• Targeted, as they focus directly on the case study topics • Insightful, as they provide explanations and personal views like perceptions, attitudes and meanings.	• May be biased due to poorly articulated questions • Response bias • May be inaccuracies due to poor recall • Reflexivity as the interviewee may say what the interviewer wants to hear
Surveys	• Substantial saving of money and time • Can ensure anonymity • Minimizes interviewer bias	• There could be a low response rate • No control over the research setting
Course reviews	• Direct access to research phenomena • A flexible way of generating a permanent record of phenomena to be used at any time • No impact of researcher's presence; e.g., influence on participants' behaviour	• Requires more time • Potential for researcher bias
Secondary data		
Document analysis	• Stable, as it can be viewed repeatedly • Unobtrusive, as it is not created because of the case study • Specific, as it can contain the exact names, references and details of an event • Broad, as it can cover a long span of time, many events and many settings	• Retrievability: documents can be difficult to find • Biased selectivity if the collection is incomplete • Can reflect unknown bias of any given document's author • Access can be deliberately withheld

Note. Adapted from Yin (2017, p. 102)

Table 3.4 shows that evidence in a case study can stem from various sources. The main aim is to collect data about human behaviour and events. It is important to note that in Table 3.3, none of the sources has a total advantage over the others. In fact, they are rather complementary because the analysis of documents assisted in focussing on the questions in the interview schedule as well as in understanding what to look out for in the course reviews.

3.8 Data analysis

To align the study to the ontology of CR philosophy discussed in Section 3.5, it was crucial that the data analysis approach move from the empirical data that was generated through the survey, interviews, course reviews and document analysis to the undergirded generative mechanisms through abstracted re-description (Crinson, 2007).

In other words, I had to always consider how the key ideas gathered from the literature review synthesised with the study's theoretical analytical framework to prepare the foundation for data analysis.

Leedy and Ormrod (2005) posit that there is no single 'right' way to analyse the data in a qualitative study. Generally, the analysis begins with a large body of data which is searched to identify emerging themes and recurring events, sorted and categorised by these themes, after which the themes and categories are re-evaluated (Glaser & Strauss, 1967). Creswell and Poth (2016) describe a spiral approach to data analysis whereby the researcher goes through the data several times, considering and refining certain aspects with each iteration. Maxwell (2012, p. 125) states that, in any realist study, data is viewed and understood as:

> … usefully seen, not simply as 'texts' to be interpreted, or as the 'constructions' of participants, but as evidence for real phenomena and processes that are not available for direct observation. These data is used to make inferences about these phenomena, which is then tested against additional data.

The data analysis strategies that I used in this study varied and were employed on the basis of the manner in which I could work with integrity with the data to address the research sub-questions. At all times, I was mindful that I had to adopt an explanatory stance, as is the norm with critical and social realist ontology. I began, from a wide angle, to allow the data to make meaning while at the same time providing me with a space for early insights. This was done through theorising the morphogenetic/morphostatic model (M/M), its cycles and the stages in the model of pedagogical reasoning and action (MPRA) to begin to make links between structural conditioning, social interaction and designs of structural elaboration (morphogenesis or morphostasis) as it unfolded within the critical digital pedagogic practice of the sample in this study.

3.8.1 Transcribing

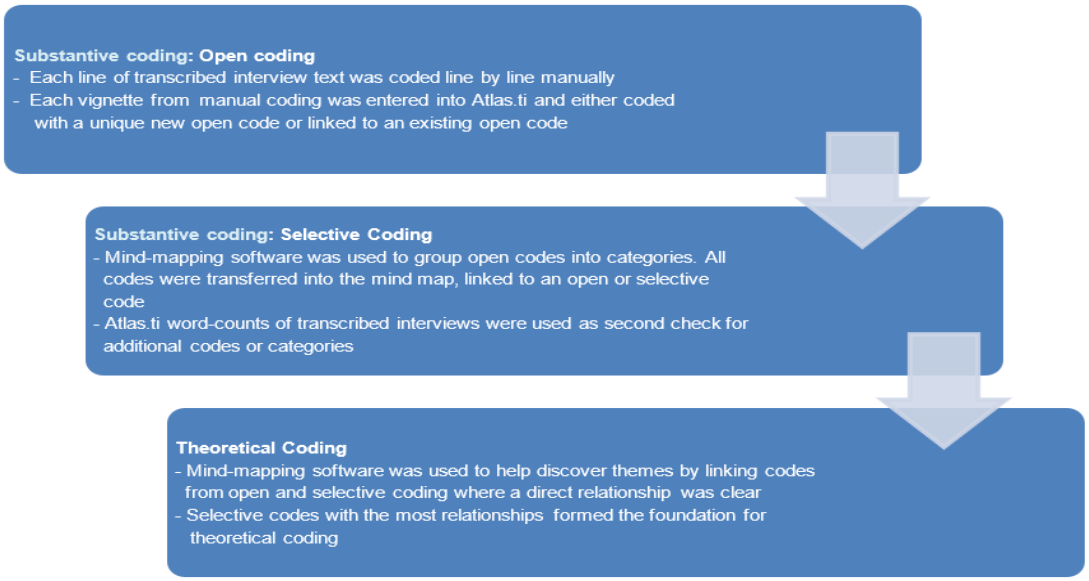
The data was transcribed from the interview recordings made on MS Teams as well as my own voice recordings, that I made as side notes during the course reviews on the hand-held voice recorder. As the first step in data analysis, and to make inferences as posited by Maxwell (2012), I read through the interview transcripts, course review notes, survey data and documents several times so that I could begin to form some tentative ideas about categories and relationships in the data. Maton, (2001) describes this process as the first step in soft coding as it involves intuitive and natural conceptual categorisation of the contributions from research participants. I often found myself to be 'in conversation' with the data that I collected. It became a habit of mine to 'chat' with the data, asking it questions such as 'What are you trying to tell me? Is there something deeper that I cannot see for now? How do you explain that particular relation or contradiction?' I believe that these questions revealed my stance as immersed in the data. There were no rigid prescripts for making sense of it all as even though words translated into meanings, I still had to sort, interpret, consider and conclude on something that related to a specific theme in this study.

3.8.2 Coding and categorising to aid analysis

As a short phrase in qualitative studies, a code is an "attribute for a portion of language-based or visual data" (Saldaña, 2021, p. 3). According to Maxwell et al. (2009) the main types of coding that enable categorising data during analysis are organisational, substantive, and theoretical, as illustrated in Figure 3.4. I understood that this

strategy allowed me to make comparisons between codes in the same category and between categories that generated themes.

Figure 3.4 *Substantive and theoretical coding process*



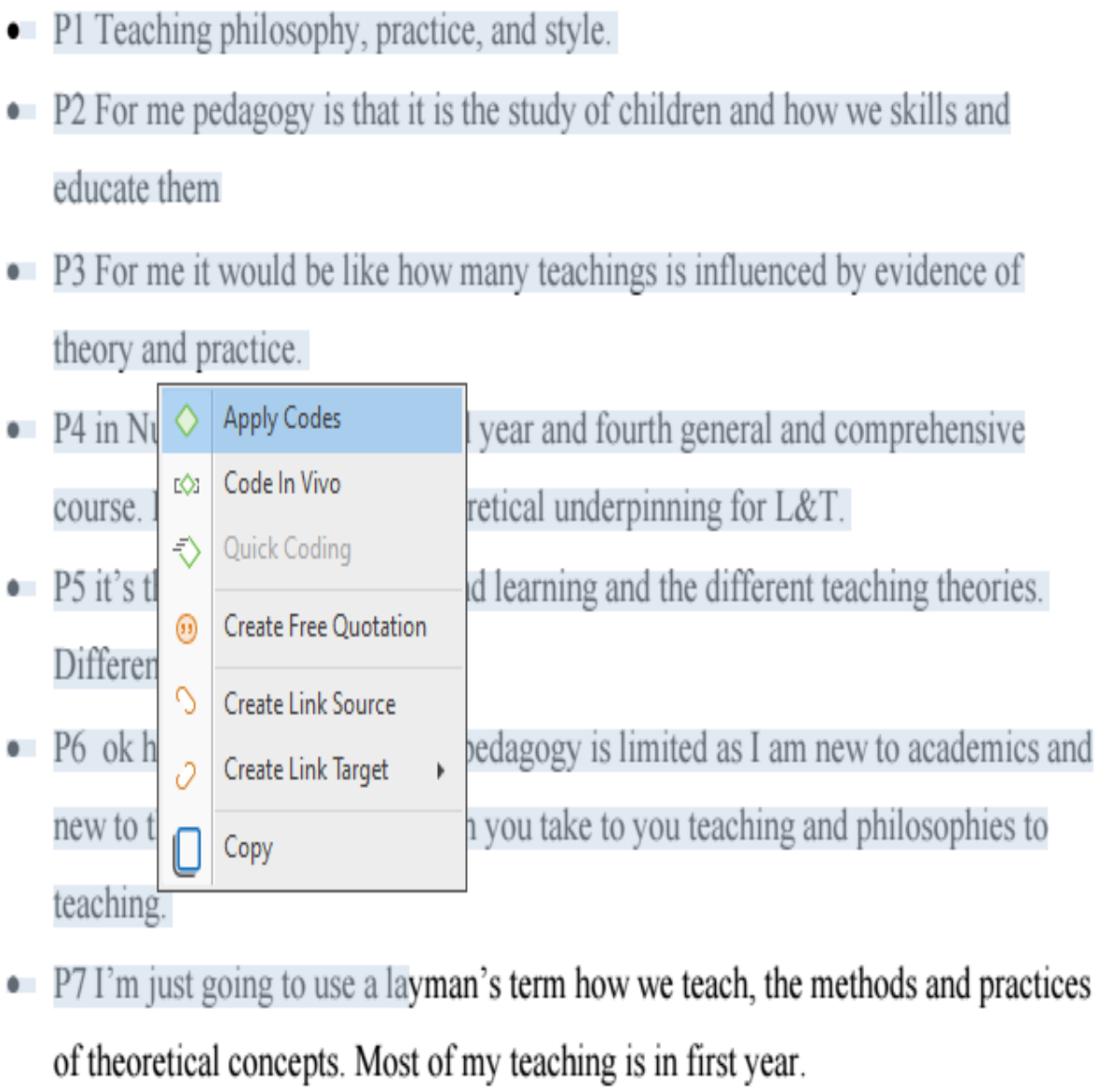
The next stage was the engagement of a theoretical saturation process for all the related concepts. This was employed to excavate further the properties and dimensions of each category. This process continued until no further properties emerged, due to saturation.

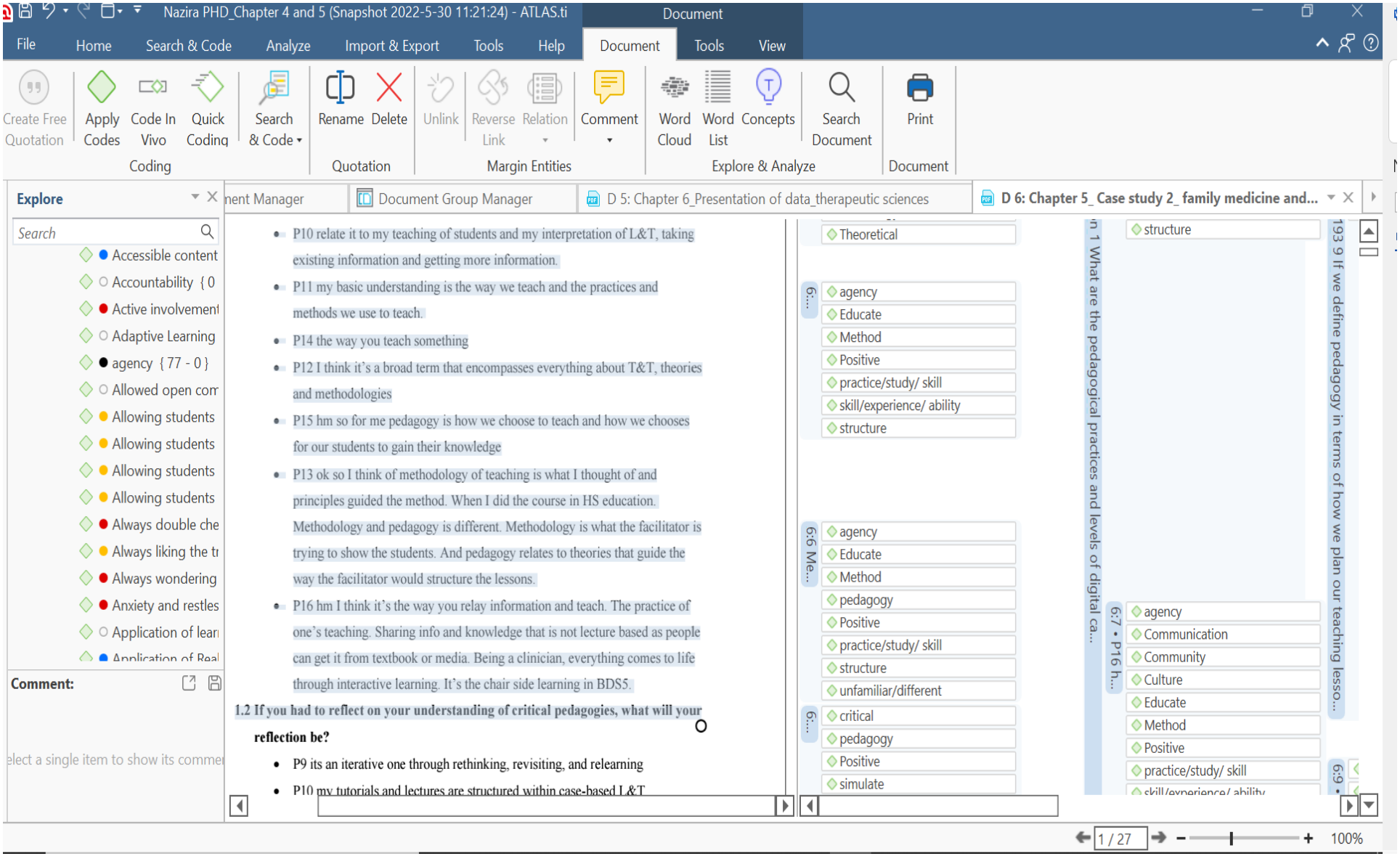
(a) Open coding

The initial step was to code the data from the interview transcripts, institutional and other external documents line-by-line. According to Saldaña (2021, p. 10), it is rare that "anyone will get coding right the first time as qualitative inquiry demands meticulous attention to language and deep reflection on the emergent patterns and meanings of human experience". This meant that I needed to code for a refined and attuned perspective with clear visualisations. For this, I used Schutz's (1962) theory, which focuses on first and second-order constructs. Britten, et al. (2002, p. 211) explain that "Schutz used the term first order construct to refer to the everyday understandings of ordinary people and the term second-order construct to refer to the constructs of the social sciences".

The screen snapshots (in Figure 3.5) of the coding process that was used to establish first-order constructs from the interviews and documents is represented as the lead-up to Figure 3.6.

Figure 3.5 *Screen snapshots of the coding process used to establish first-order constructs*




Nazira PHD_Chapter 4 and 5 (Snapshot 2022-5-30 11:21:24) - ATLAS.ti
Document
File
Home
Search & Code
Analyze
Import & Export
Tools
Help
Document
Tools
View
Create Free Quotation
Apply Codes
Code In Vivo
Quick Coding
Search & Code
Rename
Delete
Unlink
Reverse Link
Relation
Comment
Word Cloud
Word List
Concepts
Search Document
Print
Coding
Quotation
Margin Entities
Explore & Analyze
Document
Explore
Search
Accessible content
Accountability { 0
Active involvement
Adaptive Learning
agency { 77 - 0 }
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Allowing students
Allowing students
Allowing students
Allowing students
Always double che
Always liking the t
Always wondering
Anxiety and restles
Application of lear
Application of Real
Comment:
elect a single item to show its comme
nent Manager
Document Group Manager
D 5: Chapter 6_Presentation of data_therapeutic sciences
D 6: Chapter 5_ Case study 2_ family medicine and...
P10 relate it to my teaching of students and my interpretation of L&T, taking existing information and getting more information.
P11 my basic understanding is the way we teach and the practices and methods we use to teach.
P14 the way you teach something
P12 I think it's a broad term that encompasses everything about T&T, theories and methodologies
P15 hm so for me pedagogy is how we choose to teach and how we chooses for our students to gain their knowledge
P13 ok so I think of methodology of teaching is what I thought of and principles guided the method. When I did the course in HS education. Methodology and pedagogy is different. Methodology is what the facilitator is trying to show the students. And pedagogy relates to theories that guide the way the facilitator would structure the lessons.
P16 hm I think it's the way you relay information and teach. The practice of one's teaching. Sharing info and knowledge that is not lecture based as people can get it from textbook or media. Being a clinician, everything comes to life through interactive learning. It's the chair side learning in BDS5.
1.2 If you had to reflect on your understanding of critical pedagogies, what will your reflection be?
P9 its an iterative one through rethinking, revisiting, and relearning
P10 my tutorials and lectures are structured within case-based L&T
Theoretical
6:...
agency
Educate
Method
Positive
practice/study/ skill
skill/experience/ ability
structure
6:6 Me...
agency
Educate
Method
pedagogy
Positive
practice/study/ skill
structure
unfamiliar/different
6:...
critical
pedagogy
Positive
simulate
structure
n 1 What are the pedagogical practices and levels of digital ca...
193 9 If we define pedagogy in terms of how we plan our teaching lesso...
6:7 • P16 h...
agency
Communication
Community
Culture
Educate
Method
Positive
practice/study/ skill
6:9
1 / 27
100%

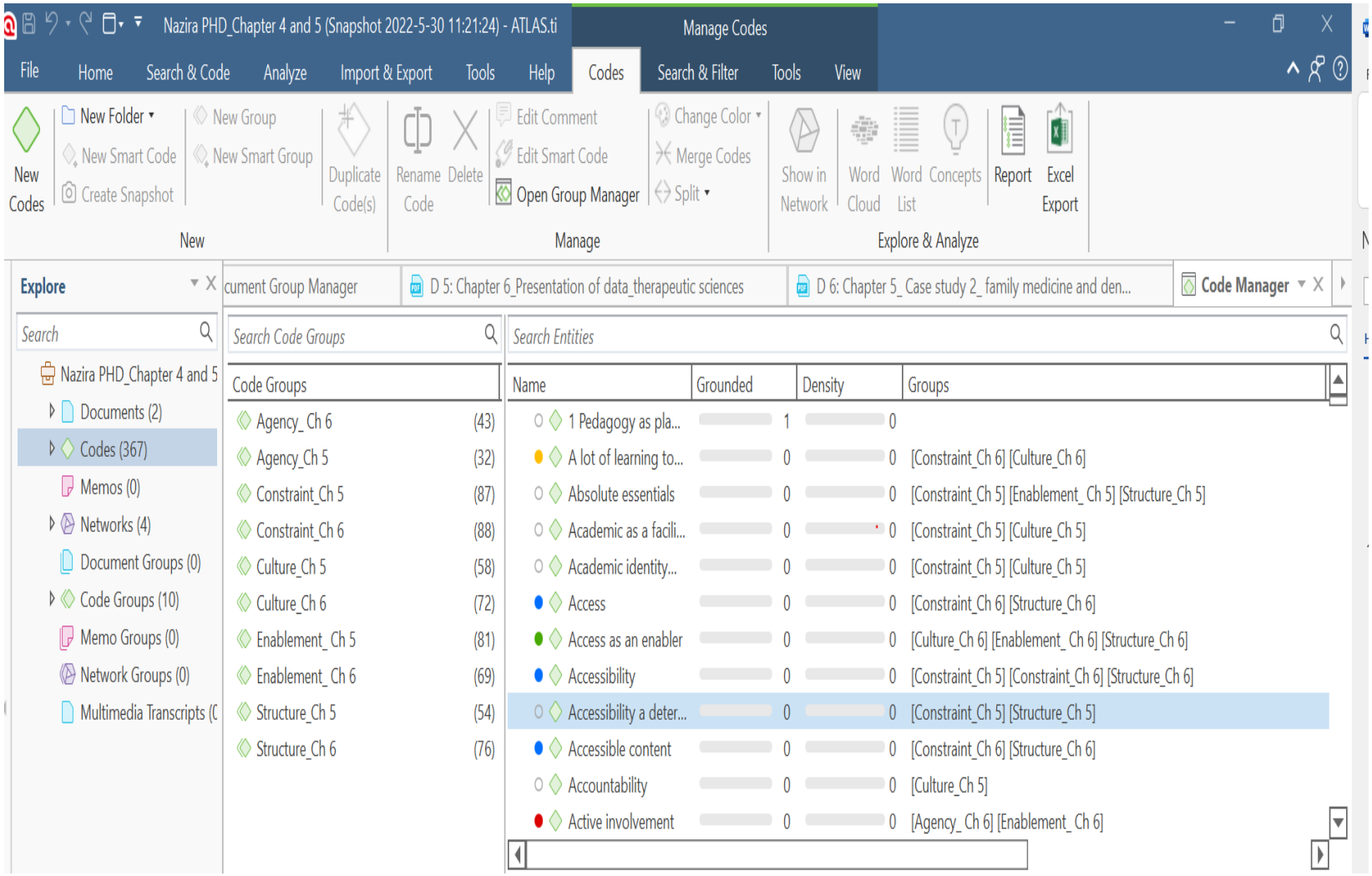

Nazira PHD_Chapter 4 and 5 (Snapshot 2022-5-30 11:21:24) - ATLAS.ti
Manage Codes
File
Home
Search & Code
Analyze
Import & Export
Tools
Help
Codes
Search & Filter
Tools
View
New Codes
New Folder
New Smart Code
Create Snapshot
New Group
New Smart Group
Duplicate Code(s)
Rename Code
Delete
Edit Comment
Edit Smart Code
Open Group Manager
Change Color
Merge Codes
Split
Show in Network
Word Cloud
Word List
Concepts
Report
Excel Export
New
Manage
Explore & Analyze
Explore
cument Group Manager
D 5: Chapter 6_Presentation of data_therapeutic sciences
D 6: Chapter 5_ Case study 2_ family medicine and den...
Code Manager
Search
Nazira PHD_Chapter 4 and 5
Documents (2)
Codes (367)
Memos (0)
Networks (4)
Document Groups (0)
Code Groups (10)
Memo Groups (0)
Network Groups (0)
Multimedia Transcripts (0
Search Code Groups
Code Groups
Agency_ Ch 6 (43)
Agency_Ch 5 (32)
Constraint_Ch 5 (87)
Constraint_Ch 6 (88)
Culture_Ch 5 (58)
Culture_Ch 6 (72)
Enablement_ Ch 5 (81)
Enablement_ Ch 6 (69)
Structure_Ch 5 (54)
Structure_Ch 6 (76)
Search Entities
Name
Grounded
Density
Groups
1 Pedagogy as pla... 1 0
A lot of learning to... 0 0 [Constraint_Ch 6] [Culture_Ch 6]
Absolute essentials 0 0 [Constraint_Ch 5] [Enablement_ Ch 5] [Structure_Ch 5]
Academic as a facili... 0 0 [Constraint_Ch 5] [Culture_Ch 5]
Academic identity... 0 0 [Constraint_Ch 5] [Culture_Ch 5]
Access 0 0 [Constraint_Ch 6] [Structure_Ch 6]
Access as an enabler 0 0 [Culture_Ch 6] [Enablement_ Ch 6] [Structure_Ch 6]
Accessibility 0 0 [Constraint_Ch 5] [Constraint_Ch 6] [Structure_Ch 6]
Accessibility a deter... 0 0 [Constraint_Ch 5] [Structure_Ch 5]
Accessible content 0 0 [Constraint_Ch 6] [Structure_Ch 6]
Accountability 0 0 [Culture_Ch 5]
Active involvement 0 0 [Agency_ Ch 6] [Enablement_ Ch 6]

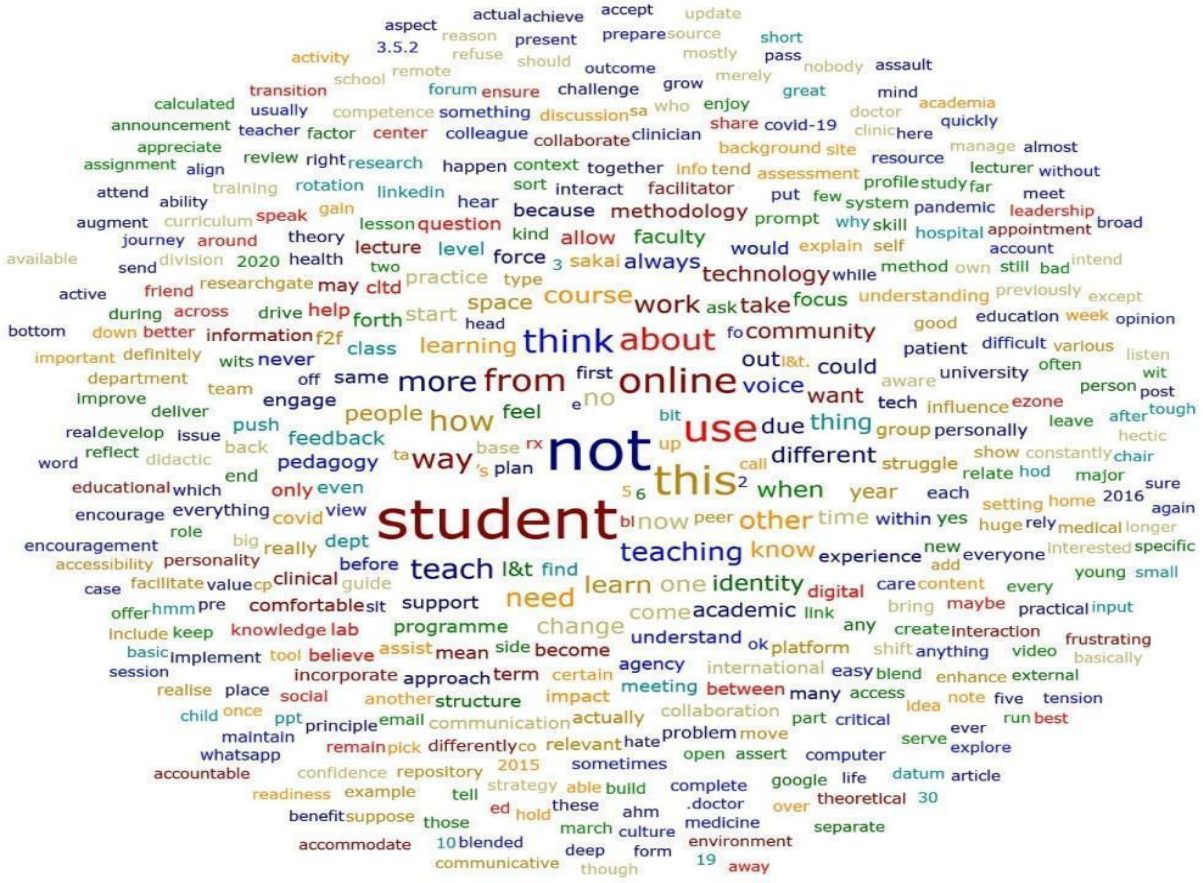
Figure 3.6 *First-order constructs from the coding process*

Institutional documents: first order constructs

Enablement		Constraint	
T1-T2			
1 DHET Report of the Task Team on HE Teaching Development Grants (TDG) focused on supporting teaching development to improve learning		1 DHET Report of the Task Team on HE Teaching Development Grants (TDG) recognised the lower status accorded to teaching and teaching development	
2 Teaching & Learning plan 2010-2014 expressed idea of teaching with edtech in Goal 12		2 The Triennial Review Report of the CLTD illuminated its competing mandate on academic and support service role	
3 CLTD responsible for all staff training, curriculum design, QA, and talent management at Wits		3 The Triennial Review Report of the CLTD stated that the centre insufficiently communicated with academics, schools, and faculties	
4 eLearning strategy and tactics framework intended to support eLearning at Wits		4 The Triennial Review Report of the CLTD indicated that the centre used training data insufficiently to develop pointers for strategic interventions with & for academics	
5 The FHS developed the PG Dip: Health Science education to augment teaching practice of professionals in the faculty		5 eLearning strategy focused on graduateness at the expense of teaching for critical conscientisation and citizenship	
		6 The eLearning strategy and tactics framework reported that the Wits network remained unstable for teaching using edtech	
T2-T3			
6 DHET continued to support and develop teaching practice through the TDG		7 MoA continued between FHS and DoH on the appointment of joint staff as university teachers	
7 Wits enhanced teaching through digital literacies and technologies through the TDG		8 FHS criteria for appointment and promotion of teaching staff required only a professional health degree in specific discipline to teach	
8 Wits focused on the development of university teachers and teaching practice through the TDG		9 an academic qualification was required to teach in nursing	
9 Wits implemented policy on staff development to promote innovation and global competitiveness in teaching practice		10 DHET 2013/2014 White paper for post school education recognises that HE needs to expand access due to massification which is unaffordable	

At the same time, using Atlas.ti, a word cloud was generated that was edited by removing the adjectives. The word cloud demonstrated that those texts with larger sizes were mentioned more often and were deemed to be of greater importance to the participants.

Figure 3.7 *Word cloud with large font texts demonstrating their importance to participants*

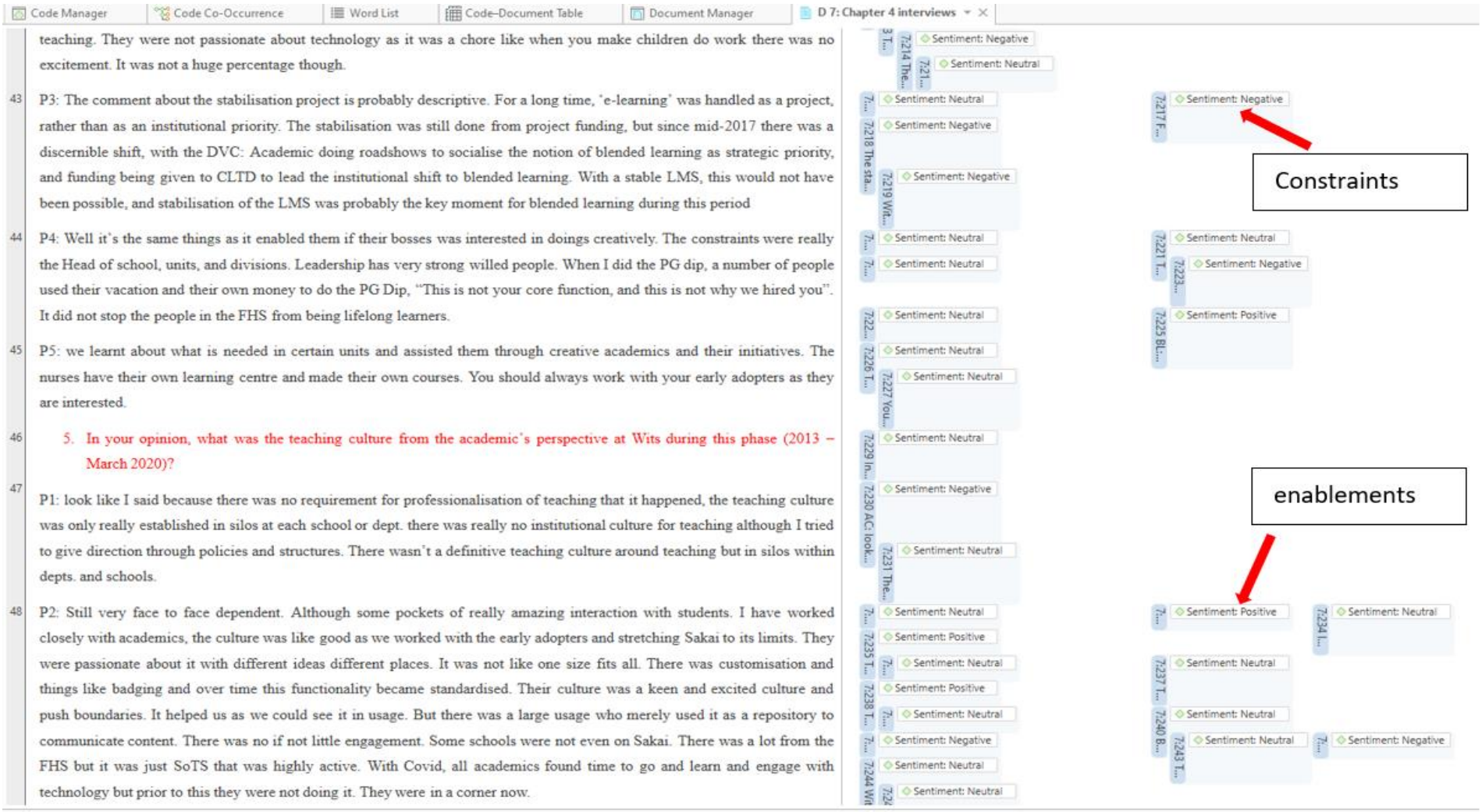


(b) Focused coding and dominant coding to generate categories

Since the analytical framework used in this study was informed by critical realism and social realism, coding was organically located at the 'real' level in the structure, culture and agency domain. This meant that, in as much as I was tempted to discover themes organically as I engaged in coding and analytic reflection (Saldaña, 2021), I had to discipline myself to follow the realist methodology. Furthermore, as Saldaña (2021, p.13) points out, there were "other rich discoveries to be made with specific coding and categorising methods that explore such phenomena as participant process, emotions, and value". Consequently, I reverted to the interview recordings and transcriptions to hear and look deeper into the first-order constructs.

Figure 3.8 depicts how dominant codes emerged from focused codes that had a similar meaning even if the exact wording was not used. A dominant code from one case study was 'joint staff appointments'; this included a number of more limited codes like 'joint staff identity and values', 'not being a full-time staff member' and 'the service delivery part is strong'. Based on the manner in which the participants responded to the interview questions through their tone, frustration, pauses, relief, gratitude, thankfulness and so forth (as illustrated in Figure 3.8); *two broad categories* or code frames emerged organically where positive sentiments related to *enablements,* and negative sentiments related to *constraints*.

Figure 3.8 *Example of categories assigned in Atlas.ti based on participant's response*



In a similar vein, Archer (2007, p. 17) posits that "structural and cultural properties objectively shape the situations that agents confront involuntarily, and inter alia possess generative powers of constraint and enablement in relation to their own constellations of concerns". Coded data from the interviews and institutional documents were aligned to the two categories, while the data from the course reviews and surveys were presented as they appeared according to the periods of this study. The list of codes created in Atlas.ti is provided in Appendix K.

(c) Theoretical coding

The alignment of dominant codes to either the enablement or constraint category emerged as second-order constructs at a granular level. It was crucial to attach theoretical or axial codes (structure, culture, agency) to the analysis as there was a need to view the data in different ways to make sense of the patterns and meanings that emerged as structural, cultural or agential enablements or constraints in this study. This was done through ensuring theoretical sensitivity (always considering that the constructs arising from the application of social realism exist independently of theories about them). Tables 3.5 and 3.6 provide a snapshot of the second-order constructs with the axial codes inserted.

Table 3.5 Example of second-order constructs from interviews with axial codes

Enablement	Axial Codes (S C A)	Constraint	Axial Codes (S C A)
1 Pedagogy as planning of lessons and teaching methods	A	1 Critical pedagogy as content delivery through group work in the online space	C A
Pedagogy as teaching students to be critical	A	Acknowledging no understanding of critical pedagogies	A
Pedagogy as providing access to knowledge	A	Critical pedagogy as teaching to attain competent doctors and dentists	C
Pedagogy as relevant learning to students and communities through community practice	S	2 Did not see the need to use edtech in teaching	C A
Critical pedagogy as shift from didactic to transformative teaching	A	3 Limited meetings on technology integration with no momentum thereafter	S
2 Technology preference due to interest	A	Focus on f2f teaching	C A
Mentorship models and ICT	C A	Leadership encouraged only certain individuals	S A
Technology preference due to early privilege	A	Co-teaching as constraint to using online space	S C A
Preference to edtech due to tenacious attribute	A	Lectures as didactic teaching	C
3 Self-efficacy and perseverance	A	LMS as content repository	S C
Limited meetings on technology integration with no momentum thereafter	A	Use of Google drive viewed as online teaching	C
Very few early adopters	C A	Edtech viewed as value less	C A

Table 3.6 Example of second-order constructs from documents with axial codes

Enablement	Second -order construct	S C A	Constraint	Second -order construct	S C A
			T1-T2		
1 DHET Report of the Task Team on HE Teaching Development Grants (TDG) focused on supporting teaching development to improve learning	"The TDG should be utilised to support teaching and develop this understanding and approach, and so enhance the status of teaching and teaching development"	S	1 DHET Report of the Task Team on HE Teaching Development Grants (TDG) recognises the lower status accorded to teaching and teaching development	"The lower status accorded to teaching, and the recognition of teaching development as a legitimate academic activity and area of expertise and scholarship is also of concern"	S C
2 Teaching & Learning plan 2010-2014 expresses idea of teaching with EdTech in Goal 12	"GOAL 12: By 2012 All courses will have an appropriate blend of contact and electronic learning components that mutually support and enhance the learning experience"	S C	2 The Triennial Review Report of the CLTD illuminates its competing mandate on academic and support service role	"The Centre undertakes an impressive range of training in generic skills with less of a focus on the explicit teaching and learning development of academic staff than on other areas"	S C
3 CLTD responsible for all staff training, curriculum design, QA and talent management at Wits	"the Centre's main functions include the delivery of training and development interventions to all employees at the University"	S C	3 The Triennial Review Report of the CLTD states that it lacked strategies to communicate with academics, schools and faculties	"The Quality Improvement Unit recommends that CLTD considers using innovative strategies to communicate its services to the University community, including strategies to enhance partnerships with schools and faculties"	S C
4 eLearning strategy and tactics framework to support eLearning at Wits	"This eLearning strategy is developed to guide the implementation of eLearning at Wits"	S	4 eLearning strategy focuses on graduateness, with limited focus on teaching for critical conscientisation and citizenship	"The Wits graduate should be prepared to be familiar with communication and information technologies that will enable participation in the world of work beyond the University"	S
5 The FHS developed the PG Dip: Health Science education to augment teaching practice of professionals in the faculty	"The Postgraduate Diploma: Health Science Education (PG Dip: HSE) has been launched to improve the teaching practice of professionals in the faculty"	S C A	5 The eLearning strategy and tactics framework reports that the Wits network remained unstable for teaching using EdTech	"The Wits network needs to be made stable both internally and externally, and more compatible with the academic demands of a world class university"	S C
					S
			T2-T3		
6 DHET continues to support and develop teaching practice through the TDG	"The TDG should be utilised to support teaching and develop this understanding and approach, and so enhance the status of teaching and teaching development"	S	6 MoA continues between FHS and DoH on the appointment of joint staff as university teachers	"The employment contracts of joint staff members will state that their job requires them to take responsibility for academic and clinical activities agreed by both parties"	S C A

'Nominal colour coding' (Bianco et al., 2015, p. 85) was used to associate a specific set of primary colours to the set of dominant and axial codes (structure, culture, and agency) to overtly express the significance of each as the primary constructs of this study, as shown in Figure 3.9. This also made it easier for the reader to decipher, as the use of only one colour would not show the differences for ease of reference. Blue was used to denote structure, yellow for culture, and red for agency.

Figure 3.9 *Attachment of colour to dominant and axial codes*

	Code	Axial code 1	Category 1	Axial code 2	Category 2
2	A lot of learning to do to teach the students		Constraint_Ch 4	Culture_Ch 4	
3	Access		Constraint_Ch 4		
4	Access as an enabler			Culture_Ch 4	Enablement_
5	Accessibility		Constraint_Ch 4		
6	Accessible content		Constraint_Ch 4		
7	Active involvement	Agency_ Ch 4			Enablement_
8	agency	Agency_ Ch 4			
9	Allowing students diverse ways of doing things			Culture_Ch 4	Enablement_
10	Allowing students the freedom to choose			Culture_Ch 4	Enablement_
11	Allowing students to choose their own groups for group work		Constraint_Ch 4	Culture_Ch 4	
12	Allowing students to discuss projects and referring to it as student centered teaching		Constraint_Ch 4	Culture_Ch 4	
13	Always double checking myself as I doubt myself in the online space (self-doubt in the online space)	Agency_ Ch 4	Constraint_Ch 4		
14	Always liking the traditional way of doing things		Constraint_Ch 4	Culture_Ch 4	
15	Always wondering if I was doing the right thing	Agency_ Ch 4	Constraint_Ch 4		
16	Anxiety and restlessness and concerns	Agency_ Ch 4	Constraint_Ch 4		
17	Application of Real world case studies		Constraint_Ch 4		
18	Assessment in online		Constraint_Ch 4		
19	autonomy as a personal good	Agency_ Ch 4			
20	tech was forced even though we were not keen to use		Constraint_Ch 4	Culture_Ch 4	
21	Being forced to use technology		Constraint_Ch 4	Culture_Ch 4	Enablement_
22	Being forced to use technology that allowed open communication between colleagues which never happened before		Constraint_Ch 4	Culture_Ch 4	Enablement_
23	Being in the online space has made me more confident of my potential				Enablement_
24	Being more a didactic teacher		Constraint_Ch 4	Culture_Ch 4	
25	blended learning				
26	change		Constraint_Ch 4		
27	Change in teaching culture		Constraint_Ch 4	Culture_Ch 4	
28	Changing the curriculum				Enablement_
29	Choice of tools		Constraint_Ch 4		
30	CLTD CPL courses				Enablement_
31	Collaboration between students, academics and other stakeholders			Culture_Ch 4	Enablement_

Since cross-cutting codes emerged, secondary colours of the primary colours were used (blue and yellow= green, red and yellow=orange, red and blue=purple) as a code leading to the cross-cutting codes. These are visually presented in Chapter Seven (Section 7.3) as part of the critical realist data analysis process.

3.8.3 Combining categorising and connecting strategies

If data is connected using specific connecting strategies, it is easier to understand the data in context so that it is not fractured and decontextualised (Maxwell et al., 2009). As this study integrated approaches from education (social sciences) to advance an understanding viewed through the use of edtech, it was interdisciplinary in nature. Therefore, I noted at all times that it could mediate cultural boundaries due to the combination associated with disciplinary traditions and etiquette and ways of viewing the world. The focus of critical realist studies does not sit at the level of events when investigating phenomena, as in positivist studies, but instead focuses on excavating, through a deeper ontology, the mechanisms (normally generated by the workings of objects) that produced those events. Hence, my methodological stance in this study was to surmise how the events that were observed could be explained through a theoretical model of structures and generative mechanisms. I was mindful that the outcome of a mechanism could be contextual, as it was dependent on other mechanisms.

There is no common body of knowledge on a more precise identification of generative mechanisms (Bygstad & Munkvold, 2011). To understand the causal impact of critical digital pedagogies and digital competence on the pedagogical practice of academics supported by critical and social realist philosophy, a search for "connections and relations, not directly observable" (Danermark et al., 2002, p. 91) was made. To do this, I engaged in a process of redescribing and recontextualising "the phenomenon in the frame of a new set of ideas" (Danermark et al, 2002, p. 91) by combining the categorising and connecting strategies.

I searched initially for common features and similarities, and then identified how they influenced one another to illuminate the connections between them. I was always mindful that data includes mental phenomena and processes that are not visible; in recognition of this, it was necessary to engage in reasoning strategies (Danermark et al., 2002). For this purpose, I chose abductive, inductive and counter-inductive reasoning to serve as analytical tools.

(a) Abductive, inductive, and counter-inductive reasoning

Abductive reasoning refers to the reconsideration of phenomena by developing deeper conceptualisations of the various activities that research participants engaged in by looking beyond what is obvious to reach insights into the phenomenon or event under study (Danermark et al., 2002). In this way, observable events are redescribed in a way that allows uniformities and patterns to emerge which, when added to the study's theoretical framework, allows for the construction of plausible explanations of the causal or generative mechanisms of the event (Vincent & O'Mahoney, 2018). In simpler terms, abductive reasoning involved reasoning to arrive at the best possible explanation. Even though abduction is not specific to critical realism, I noticed that it is the first move that any realist makes.

Through abductive reasoning, I re-contextualised the attitudes and views of participants to identify the trends in the different case studies toward critical digital pedagogic practice. This was facilitated through critical and social realism, the morphogenetic/morphostatic framework and Shulman's (1987) model of pedagogical reasoning and action (MPRA) (in chapter two). I had no empirical evidence, so I reasoned from the available empirical evidence (the research data) to describe data that was not visible. This re-contextualisation allowed me to comprehend the event (or non-event) in more depth to identify possible generative mechanisms (attempting to constantly formulate an explanation for an observed event) for the CDP practice of academics.

Using inductive reasoning, I focused on forming generalisations based on observations or what was known about the study's participant group as I used particular observations to reach broader, more general conclusions. Inductive reasoning may be compared to making assumptions based on data. I worked on the premise that a particular statement or stance is true because other stances were true. This involved exploring possibilities by drawing conclusions from the patterns, themes and interrelationships that guided me through the study's analytical principles that emerged from the data.

I wondered: if this is what inductive reasoning brought up at the empirical and actual levels, then what would the opposite do? I needed to counter my own argument. Once I had considered what appeared on the surface, I needed to excavate deeper to reason what was different in terms of what the study's theoretical analytical framework stated and where it countered? Logically, counter-induction, as a tool, would allow me to call something into

question by developing something against which it could be compared. Danermark et al (2002, p. 37) state that, to reveal the generative mechanisms, some of which may be non-material and unobservable, we must

> … Endeavour to speak of the mechanisms that produce courses of events and go beyond more superficial and accidental circumstances, including ideologically conditioned understandings of various kinds.

Similarly, to qualify my argument, I anticipated the opposition by counter-reasoning to demonstrate why it was not as valid as my original reasoning or premise within the specific case study. While analysing data in this study, I examined the data for patterns of behaviour with regard to academics' digital competence and knowledge of critical pedagogies and how these shaped their pedagogical practice. I attempted to connect accounts of each participant's experience of attitude toward, and enablements and constraints in relation to, CDP practices. I introduced the third dimension of theoretical analysis. This theoretical coding, implemented from a critical realist point of view, was used to generate descriptions of the constant conjunctions of events (descriptions of observed relationships in the world as they have validity because they are repeated over time in constant observation). The constant conjunction of events manifested in the interview data, survey data, course review data and the relevant institutional documentation.

The patterns that emanated from the data assisted in the construction of premises and counter-premises as potential justifications for these patterns of behaviour and the presence or absence of critical digital pedagogic practice. As a result, I had to go back to the data set to excavate further for evidence to substantiate the premise. The use of counter-inductive reasoning assisted me in formulating explanations of causality in relation to underlying generative mechanisms (refer to Appendix G). Hence, I worked with empirical data and actual accounts of events, as I could not see causality, but I could propose causality on the basis of what I inducted and countered. I tried to establish an explanatory principle that linked an observed entity to unobserved entities on the basis of reasoning to the best possible explanation and then engaging in counter-inductive reasoning.

3.8.4 Using computer-aided qualitative data analysis software (CAQDAS)

My decision to use CAQDAS, specifically, Atlas.ti as a tool to help manage data analysis requires some clarification. I was cautioned about using a software application to conduct qualitative analysis and data integration by various colleagues, both from the CLTD and the Wits School of Education (WSoE). Their main reason was that software is unable to perform the creative and intellectual functions of a human mind in analysing qualitative data. I agree that a software application cannot take the place of the imaginative capacities that are used in the analysis of data. Even though the software assisted me in developing an understanding of the patterns and relationships in the data, the notion that it transformed the process of data analysis alone, was not true. The software allowed me a certain amount of flexibility in handling the data but did not play a role in interpreting the data. My decision to use Atlas.ti was also influenced by circumstantial factors. Due to the Covid-19 pandemic, academics at our institution were required to move all of our work-related materials to our homes for emergency remote teaching (ERT) to comply with social distancing to avert the spread of the virus. As I worked on my research both at home and in the office, there was a risk that I could misplace critical data and information that I kept in various places in my office. It thus made sense to migrate all of my work to my computer, backing up the data on my external hard drive. I took pictures of all the little pieces of paper that were pinned up in my office and placed them in my online research folder with all the other online data that I had collected.

Secondly, as principal researcher and 'walking archive' for the case studies, I decided to enlist digital means to organise the data in the light of my circumstances, where I had to create visualisations of the data for each of the case study data presentation chapters. Adding to this was the personal and professional complexity of competing priorities as well. Due to these complexities, I regarded Atlas.ti as a tool that assisted me in managing my time. Atlas.ti may have reduced some aspects of my heavy workload but did not assist me in the discovery of emergent patterns and themes in the study. These patterns emerged gradually as I spent time reflecting on the data from each of the case studies. Hence, the creative aspects and intellectual tasks of arriving at categories, comparisons and inferences to interrogate the data relied on the human aspects of 'doing' and 'being'.

3.9 Validity and reliability

The traditional terms by which the quality and trustworthiness of research are assessed include reliability, validity, objectivity, and generalisability (Hammersley et al., 2000). However, (Guba & Lincoln, 1994) proposed alternative constructs relevant to qualitative research namely; credibility, dependability, confirmability, and transferability. The credibility of qualitative research depends on the ability and effort of the researcher, since "the researcher is the instrument of research" (Patton, 2002, p. 14). It is critical that any research study avoids bias in the interpretation of its results as these can influence the integrity of the study (Lincoln & Guba, 1985; Merriam, 1998). However, the traditional constructs of reliability and validity are not treated as separate in the qualitative research paradigm. They are often associated with similar terminology such as transferability, credibility and trustworthiness. In this study, I engaged participants in a respondent validation process whereby I presented a copy of each interview transcript to the corresponding participant to verify and make changes if needed; they then sent the copy back to me to effect the changes. This study did not aim for generalisability. However, certain insights and features that emerged are applicable to HE institutions across developing countries globally. The validity and reliability of this study are discussed in-depth in Chapter Eight.

3.10 Ethical considerations

Qualitative researchers are "guests in a private space of world, where their manners should be good and their code of ethics strict" (Stake, 1978, p. 214). With regard to this study, consent was obtained from the institution by providing a thick description, in writing, of the envisaged purpose and scope of the study (Appendix A). A letter of approval was required to invite the designated schools and departments to serve as case studies for the 2020, 2021 and 2022 academic years. In terms of my engagement with the research participants, I conducted a sensitisation session where I provided them with a clear explanation of the proposed research (Appendix B). I also obtained informed consent from all participants whom I invited to participate voluntarily in the study, first through a verbal briefing, then through a signed consent form that I emailed to all participants (Appendix C).

Application was made to the Human Research Ethics Committee at the university and approval was granted (Appendix D). It was a common understanding that participants would not be forthcoming with information if they perceived a risk in disclosing the level of information required; therefore, I ensured that their identities were protected during the study and in the reporting of the research. The confidentiality of all participants was

maintained at all times, with data coded to protect participants' right to privacy, both at times of publication and during any reviews with supervisors and colleagues. Hence, the use of pseudonyms was employed, as shown in Table 3.7. However, there were two participants who, due to the positions they held, did not mind if their names were disclosed by others in interviews and course reviews.

Table 3.7 *Data coding using pseudonyms to ensure confidentiality*

1. Interview	P1_Leadership
2. Interview	P2_Management
3. Interview	P3_Management
4. Interview	P4_Management
5. Interview	P5_Leadership
6. Questionnaire/interview/course review	P6_ SoCM
7. Questionnaire/interview/course review	P7_ SoCM
8. Questionnaire/interview/course review	P8_ SoCM
9. Questionnaire/interview/course review	P9_ SoCM
10. Questionnaire/interview/course review	P10_ SoCM
11. Questionnaire/interview/course review	P11_ SoHS
12. Questionnaire/interview/course review	P12_ SoHS
13. Questionnaire/interview/course review	P13_ SoHS
14. Questionnaire/interview/course review	P14_ SoTS
15. Questionnaire/interview/course review	P15_ SoTS
16. Questionnaire/interview/course review	P16_ SoTS
17. Questionnaire/interview/course review	P17_ SoTS
18. Questionnaire/interview/course review	P18_ SoTS
19. Questionnaire/interview/course review	P19_ SoTS
20. Questionnaire/interview/course review	P20_ SoTS
21. Questionnaire/interview/course review	P21_ SoTS
22. Questionnaire/interview	P22_SoTS
School of Clinical Medicine	**SoCM**
School of Oral Health Science	**SoHS**
School of Therapeutic Science	**SoTS**

3.11 Limitations of the study

This study was confined to three case studies within a single institution at a specific moment. The case study approach employed in this research may have limited the extent to which it was possible to fully investigate the practice of academics in HE institutions to determine their adoption of CDP practices However, while a comparative study conducted across more institutions could have yield a broader set of data, the focused case study approach facilitated a deeper level of analysis of the impact of a new mode of delivery for teaching and learning (edtech) affected the pedagogic practice of participants.

Key challenges encountered by academics in the context of the study were the need for transformation in areas that are still affected by the inequitable structures and allocation of resources that occurred under apartheid, including aspects of basic social development, which continue to present barriers in the uptake of edtech and Blended L&T practices for both students and lecturers. Thus, while the uptake of edtech by health science schools

internationally was explored in this research, the primary focus of this study was how academics in the health sciences responded to these contextual challenges. Within the context of HE there are multiple systemic structures and mechanisms that influence the CDP practices of academics. The focus of this study was CDP knowledge and practice; it was beyond the scope of this study to explore all of the factors that influence CDP practice.

Additionally, there is a need to acknowledge the limits of the course review process in alignment to the qualitative paradigm that this study employed. The course review tool was used as a rubric to attain an understanding of participants digital pedagogy in the online space. Criteria were created and annotations taken to decide on whether participants met, partially met or did not meet specific criteria. These criteria supported the learning objectives or competencies of the course design according CDP standards. To note if criteria were met or not, I was forced to calculate an average based on Shulman's stages of pedagogic reasoning (refer to Appendix H). For further clarification on the research paradigm refer to section 3.3.

3.12 Summation of chapter

This chapter presented a concise account of the methodology, design and analytical path of the study underpinned by a critical realist philosophy and ontology. I emphasised, throughout the chapter, the compatibility of the theoretical analytical framework that was adopted for this study. I explained how abduction, induction and counter-induction were used to excavate beyond the superficial level to obtain an understanding of the unseen generative mechanisms that were responsible for causality at the cultural, structural and agential levels. This, in turn, influenced the critical digital pedagogic practice of research participants and highlighted the strength or limitation of their agency through the decisions that they made in their pedagogic practice. Further, I presented the measures that I took to ensure the generalisability, confidentiality and validity of the research process.

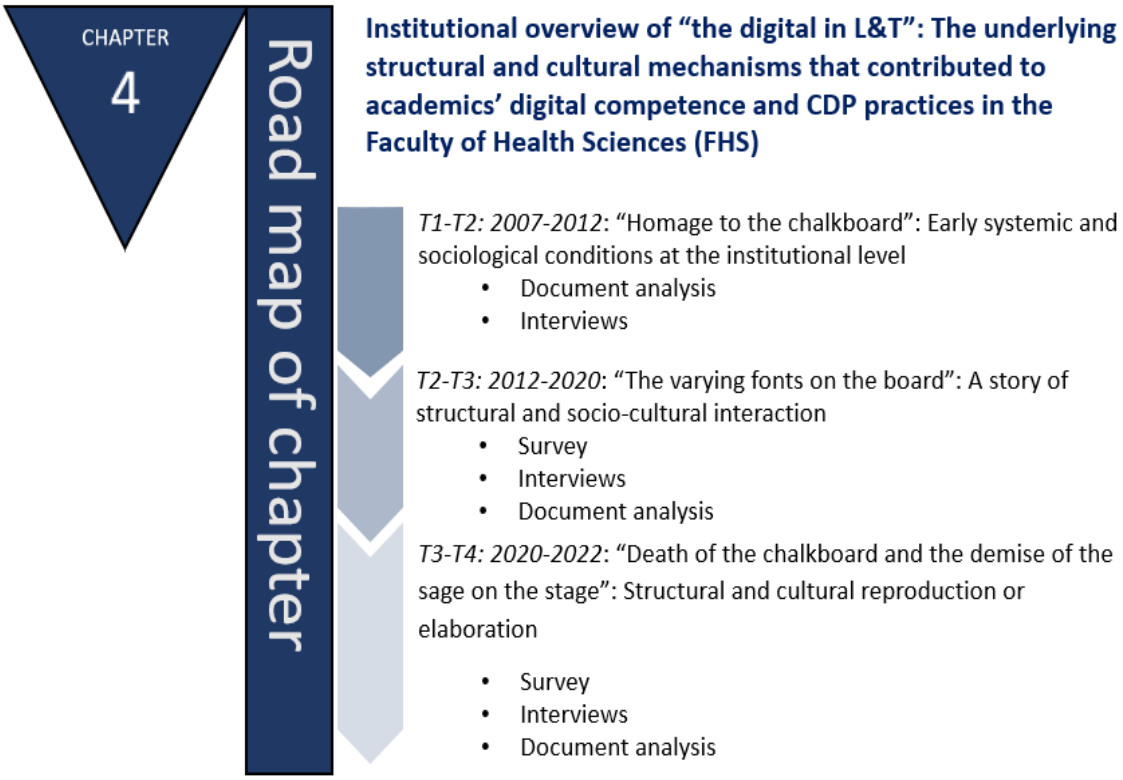
In the next chapter, I present findings from the FHS case study, which relates specifically to research sub-question one*: What are the pedagogic practices and levels of digital competence of academics?*

Chapter 4 The Faculty of Health Sciences within the context of the institution: The underlying structural and cultural mechanisms that contributed to academics' digital competence and CDP practices.

4.1 Introduction

This chapter presents data related to academics' levels of digital competence and knowledge of critical digital pedagogic (CDP) practices in the Faculty of Health Sciences (FHS). The online survey, interviews and document study[12] constituted the data sources for this part of the study as illustrated in Figure 4.1. A complete list of documents analysed is provided in Appendix L.

Figure 4.1 *Road map of chapter*



The survey identified academics' self-reported competences according to four categories: namely, background information, technical competencies, administrative competencies, and pedagogical competencies. Data is presented according to the three periods of the M/M cycle. For example, for the macro and meso level structural conditions at T1-T2, refer to Chapter two (2.2) where the historical and material constructs of the structural system

[12] Since most of these documents are internal documents they appear on the reference list and in Appendix L with no online links, however, they can be made available upon request.

components at the macro (global) and meso (national) levels that influenced academics in their edtech integration and, by association, their levels of digital competence, are discussed. For ease of reference, Table 4.1 was inserted as a list of acronyms employed in this chapter.

Table 4.1 *List of acronyms commonly employed in Chapter 4*

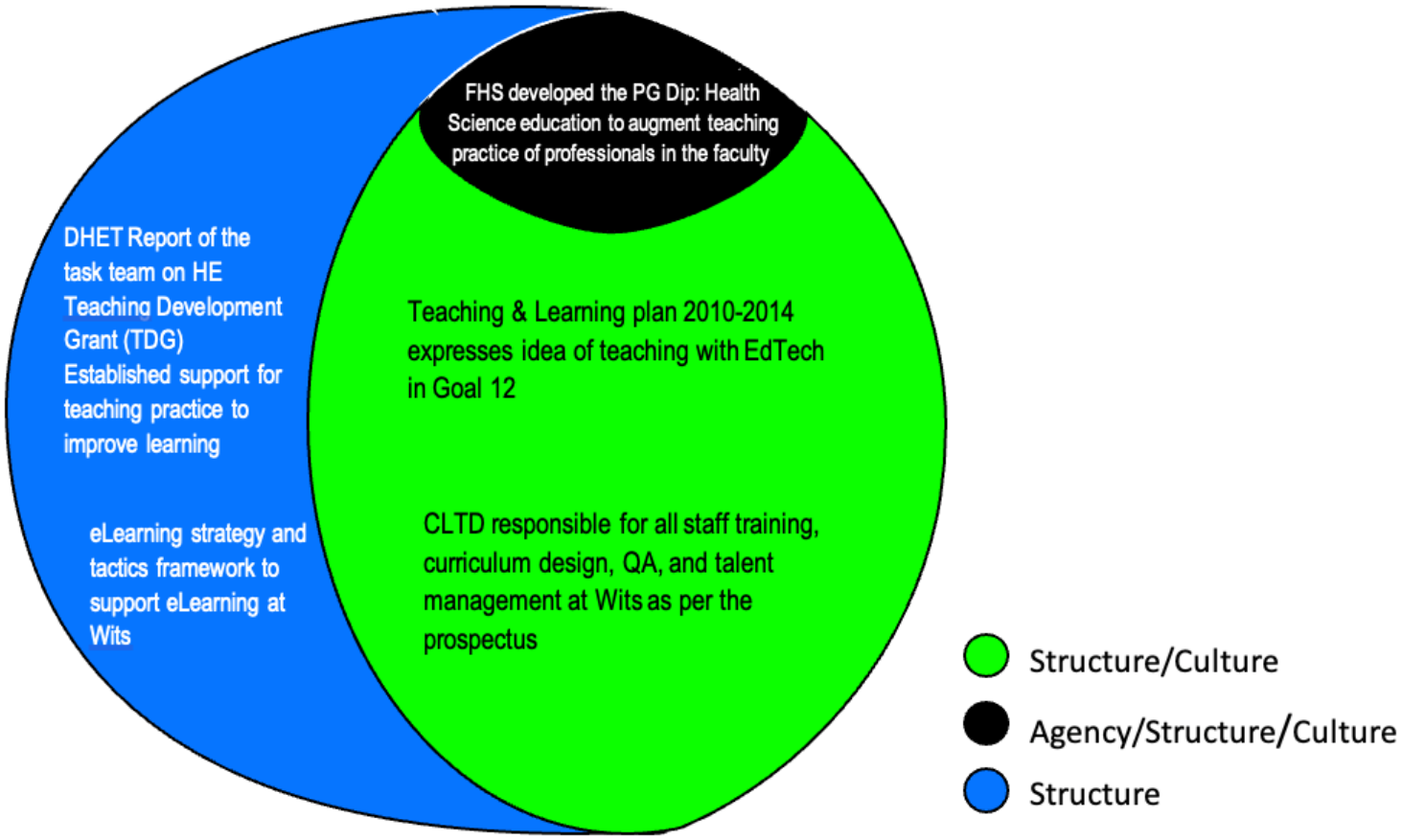
CDP	Critical digital pedagogy	DT	Digital transformation	LMS	Learner management system
CHSE	Centre for health science education	ERT	Emergency remote teaching	M/M	Morphogenesis/Morphostasis
CLTD	Centre for learning teaching and development	FHS	Faculty of health science	SoCM	School of Clinical Medicine
CPL	Continuous professional learning	HE	Higher education	SoHS	School of Oral Health Sciences
CR	Critical realism	HS	Health science	SoTS	School of Therapeutic Sciences
DHET	Department of higher education and training	L&T	Learning and teaching	SR	Social realism/realist

4.2 T1-T2: 2007-2012: "Homage to the chalkboard": Early systemic and sociological conditions at the institutional level

Wits University is structurally configured as five faculties with each having a number of schools, departments, and research centres. The interview data reflected the views of management and how they mechanised digital transitioning and pedagogical practices at Wits. Hence, it related to how structural and cultural influences at Wits have, through emergent properties, conditioned the agency of academics through constraining or enabling them in relation to pedagogical practices and levels of digital competence. The following are the visualisations of data from the document study and interviews which were weaved together and explained in narrative form thereafter.

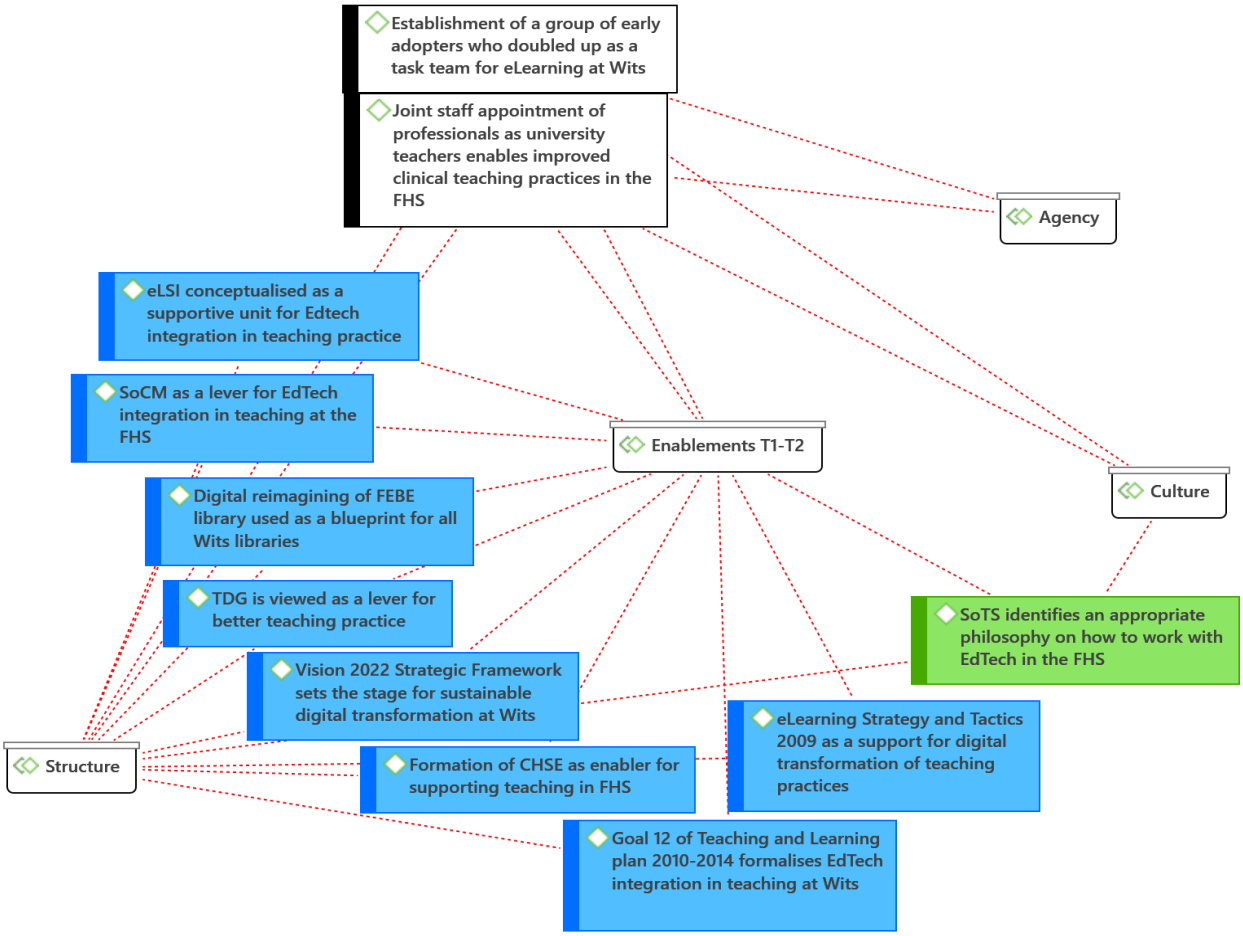
4.2.1 Enablements to CDP practices

Figure 4.2 *Visualisation of document study enablements and evidence from documents*

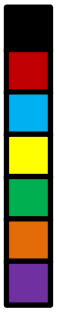


Evidence from documents
"The TDG should be utilised to support teaching and develop this understanding and approach, and so enhance the status of teaching and teaching development"
"This eLearning strategy is developed to guide the implementation of eLearning at Wits"
"The Postgraduate Diploma: Health Science Education (PG Dip: HSE) has been launched to improve the teaching practice of professionals in the faculty"
"GOAL 12: By 2012 All courses will have an appropriate blend of contact and electronic learning components that mutually support and enhance the learning experience"
"the Centre's main functions include the delivery of training and development interventions to all employees at the University"

Figure 4.3 *Visualisation of interview enablements with structure, culture and agency codes and networks*



Index:



Structure, Culture & Agency
Agency
Structure
Culture
Structure & Culture
Culture & Agency
Structure & Agency

As a *structural enablement*, the DHET Report of the Task Team on HE Teaching Development Grants (TDG) established support for teaching practice to improve learning while the interviews revealed that the TDG was viewed as a lever for improved teaching practice. In this period, the TDG formally served as a *structural enablement*, but little is known on how effectively the grant was implemented to improve learning and teaching practices at Wits.

To effectively utilise the TDG, the university had to have some strategy or framework that served as evidence of its intention to service the grant. The eLearning strategy and tactics framework was testament to effective use of

funding for teaching support. It recognised that Wits needed to bolster initiatives around the innovative use of edtech as, even though there was progress in some areas, the institution lagged behind the global higher education sector. Integrating edtech into learning and teaching practices was conceptualised as 'eLearning' and a review by the then Deputy Vice-Chancellor (DVC) found that "The eLearning drive at Wits is unlikely to be successful if left up to individual lecturers in schools and departments; it should be a coordinated and strategic effort, backed up by appropriate research and support" (Keats, 2009, p. 04). To create a coordinated and integrated approach, a Knowledge and Information Management (KIM) portfolio was established under the auspices of the DVC in January 2009 which enabled the Senior Executive Team (SET) to put forward and approve a formal structure called the eLearning Support and Innovation unit (eLSI) in March 2009. Concomitantly, through the eLSI, the idea of Technology-Innovation Pedagogy-Support (TIPS) was approved as a lever to build capacity by guiding and supporting academics in face-to-face teaching through the use of edtech.

Two interview participants concurred that the eLearning Strategy was an *enabler* and fostered support for digital transformation (DT) of teaching practices at Wits.

> Well [name] document was one of the first serious structures on paper and he presented this to the SET, if I am not mistaken, then… (Participant 4)

> Blackboard, Turnitin, SAS: very little existed around this time. Then Derek Keats came in with this idea and a document to back it up which created the thinking and team to drive eLearning at Wits. He had a strong combined background in teaching and technology… hm…this was Wits taking baby steps towards eLearning. (Participant 2)

According to Keats (2009, p. 10) the success of the framework was dependent on interaction with academic staff as it was evident that:

> Not all staff are able to use technology effectively in support of teaching-and-learning. Not all staff have attitudes conducive to their active participation in the use of technology in support of teaching-and-learning. Current promotion structures are not designed to reward excellence in the use of technology in teaching-and-learning, although they do not preclude doing so.

The strategic framework had a strong focus on student digital literacies, but not much emphasis was placed on academic digital fluency or how academic digital capabilities would affect CDP practices. The general consensus from the interviews revealed that the eLSI and the CLTD served as support structures for edtech integration into teaching at Wits, but it seemed that there was no integration during this period, as they functioned in silos.

> They were trying to introduce eLearning and there was some elementary training that eLSI provided. CLTD was not in training staff on digital stuff as they were more on the research side of staff development. (Participant 1)

While the eLSI supported eLearning by assisting academics to integrate edtech into their teaching practices, the CLTD was functioning as a two-pronged centre for support and academic development. This had consequences for the CLTD structure and mandate in terms of capacity. According to participant four, the School of Clinical Medicine (SoCM) served as a site for edtech integration.

> They decided on a big change for clinical medicine and moved info online from 3rd year by integrating the curriculum, as it was taught in silos. An assessment was done to benchmark with an Australian university. The decision was to develop our own platform. We bought some content from Sydney and replaced it within 5 years to add in our own. Wits also hired someone who was both a medic and an IT person, which was me. I meant that there was intention to use technology in teaching. (Participant 4)

In 2007/2008, the SoCM employed the use of a GEMP platform as their LMS that was established in alignment to the Australian university. On the GEMP platform, content could not be placed without stating what the objective was of the specific course. This requirement demonstrated that many academics in the SoCM had to possess pedagogic knowledge on how to design their courses for use on the GEMP platform so that intended learning outcomes were achieved. Participant four was of the view that even though the platform did not have a massive amount of interactivity, a large amount of content was placed on it. So, there was no eLearning even though some form of multimedia was used.

At the same time, in the Faculty of Health Sciences, due to the unification of the MB BCH programme, there were two staff members located in staffing and promotions (S&P) within the faculty. Participant one and participant four concurred that these two individuals were eventually absorbed into the Centre for Health Science Education (CHSE) – another *enabler* that would be broadly involved in facilitating the continuous professional learning (CPL) of academics. Concomitantly, the Vision 2022 strategic plan that was conceptualised in 2011 positioned Wits as an IT-savvy university which implied DT.

As a *structural and cultural enablement*, the Teaching and Learning Plan 2010-2014 outlined the interconnectedness of teaching, learning, research, and engagement activities. The plan defined the "WITS graduate" as one who was more "research-ready", more "workplace-ready" and are "positive contributors" within both the local and global contexts. Participant 2 expressed that this Plan was a formal guiding structure that supported the university's ambition of "being a leading, world class university through goal 12". The document study revealed that Goal 12 outlined the importance of an active eLearning presence which enhanced learning:

> GOAL 12: By 2012, Wits will require all students at second-year and higher levels of study to have access to their own mobile computer device. Wits will also provide one general access, networked computer seat for every 3 first year students registered, aimed primarily at first-year students who do not have their own computer facilities. All courses will have an active eLearning presence which contains at least the essential information for the course and a facility which will allow all course participants to communicate electronically. All courses will have an appropriate blend of contact and electronic learning components that mutually support and enhance the learning experience" (University of Witwatersrand, 2010).

Four participants in the interviews concurred that Goal 12 in this plan formalised the university's intention to explore learning and teaching practices that integrated the use of edtech, albeit in a small way. As a formal university structure that was put in place, this intention depended on the corrective implementation by academics.

The Triennial Review of the CLTD found that the centre was responsible for all staff training, curriculum design, quality assurance and talent management at Wits and was viewed as a crucial *structural enablement* to advance the culture of staff development at Wits. In 2011, the CLTD went through a review of its mandate and functions in terms of what it offered to support academics in improving the outcomes of L&T. According to the document study, the CLTD was engaging in multiple roles with different stakeholders and having to meet multiple demands.

By the end of the T1-T2 period (2012) there was a decision by the Senior Executive Team (SET) to merge the support service team and academic development team on the basis of the argument that there should be no division between the two units where training was concerned. This meant there was still a focus on training but not on CP practice. This stance signalled a unique way of providing staff development at the CLTD and when I interrogated the document deeply, I noticed that there was insufficient guidance from senior management on how the different teams would be working together as an integrated system for staff development. The role of the eLSI remained unclear.

Since there was a deficit in terms of how the CLTD functioned as a support structure for the university during this period, some schools started spearheading their own paths of training to support their academics. Most participants believed that being trained by an early adopter on integrating edtech in teaching, especially in the School of Therapeutic Sciences (SoTS*)*, activated *culture as an enabler* to CDP practice.

> Paula decided that it was important to train people how to put content on Moodle. The thrust of how to use technology came through SoTS because the medics were using the GEMP platform, and they had dedicated staff that would put the content online for them and that's why it was purely a repository. So, the medics and the oral health people merely sent content to a team who put it online for them. (Participant 4)

> Therapeutic Sciences did good work with their LMS [Moodle] as Paula was there and made sure that some sort of training was done with them [academics]. (Participant 2)

To integrate edtech into learning and teaching, one has to possess some knowledge and skills about how to do so successfully. Paula was an early adopter who also mentored many academics in the FHS to use technology in their practice. My view is that being an early adopter has meaning for using one's agency by being resourceful with enabling structures to attain a goal.

Prior to the M/M phases of this study, higher education institutions used a joint staff scheme as a *structural enabler* as their ongoing operating model. At the time of this study, this scheme existed as a standing agreement between the university and the Department of Health (DoH). The model operates in a way that allows all the professional staff members who are jointly appointed on academic conditions of service to be remunerated by the DoH which provides them with an allowance to work in their private practice apart from having their teaching duties at the university. Those professionals who prefer to go over to the payroll of the university are no longer classified as joint staff; their pay comes solely from the university. However, participant 1 stated that many joint staff preferred to remain on the payroll of the DoH because it was convenient for them. The university expected them to teach; the contract specified that the DoH would pay them for a certain number of hours of their day.

> Most were not interested because they were just not creative, and teaching was a burden instead of a vocation. They chose to get a job that turned out to be joint staff. The decision was that at S&P professional health medics appointed at Wits were encouraged to attend a course on how to teach. Most were basic short courses. This did not enable them to be professional teachers as they were forced into this. Their main aim was to be a medical specialist instead. (Participant 4)

At this time, the FHS was the only faculty at Wits that had developed the PG Dip in Health Science education to address the challenge of supporting professionals to augment their teaching practices. This particular approach,

of conceptualising a postgraduate qualification for those academics who had limited knowledge of learning and teaching practices in a higher education setting, served as a *structural enablement* that would also influence the culture of joint staff academics. However, no one was forced to enrol for the qualification, and so it was left to the agency of the academic. Participant 1 raised this in the interview. His view, informed by the feedback and reviews that his office received, was that many academics benefitted from the PG Dip because they had never engaged in teaching practices previously.

All participants concurred that another *cultural enabler* to edtech integration was a group of early adopters who doubled up as a task team to assist in the DT of the university. This meant that anybody who was interested in integrating edtech into their pedagogic practice had access to support.

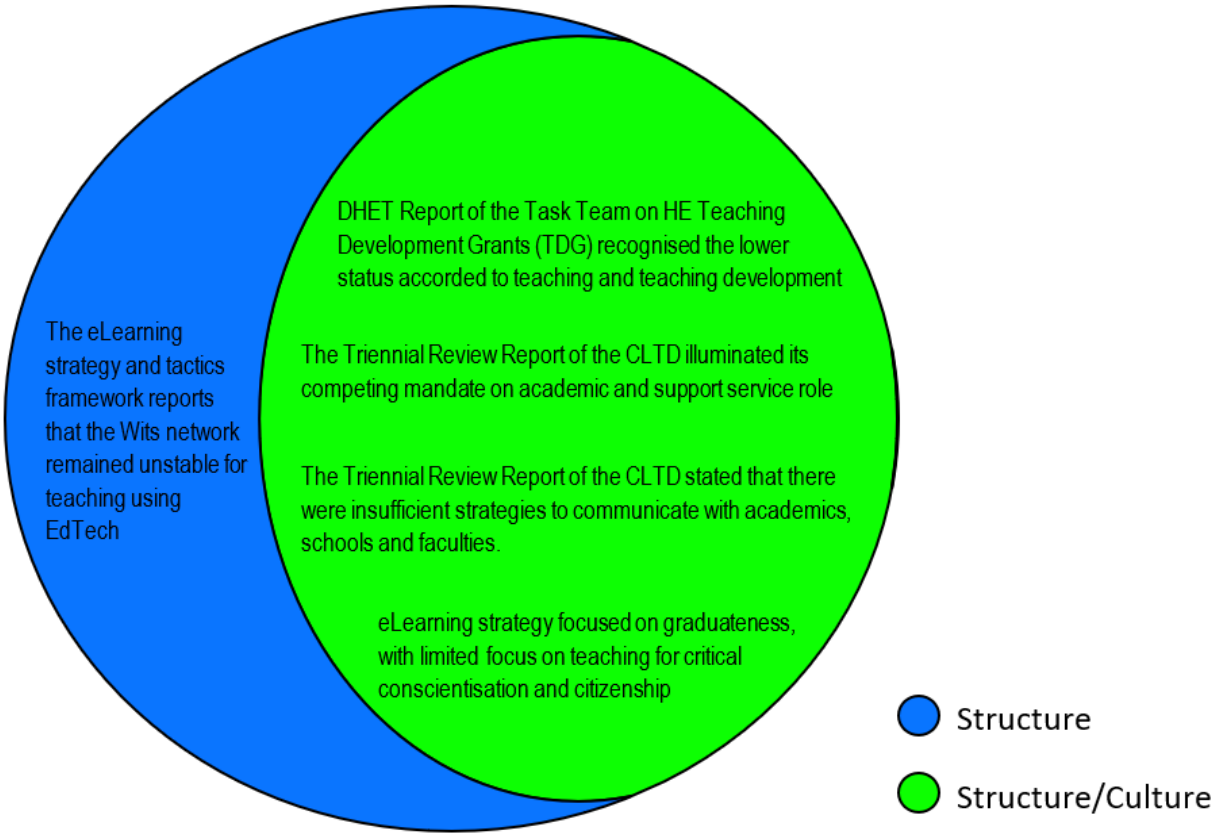
> There are academics who used the LMS and worked hard and these were the early adopters. (Participant 5)

> There were a few academics who experimented in this early phase who were not led; they came up with their own ideas and some of them animated cardiac procedures. Others had no, hmmm… you know …. oomph, or passion, for creativity with technology. Agh, they were just not interested. (Participant 4)

These comments demonstrated that even with basic policies in place, the early adopters did not have adequate access to resources and training to upskill themselves which was compounded by an institutional culture that was not focused on edtech integration.

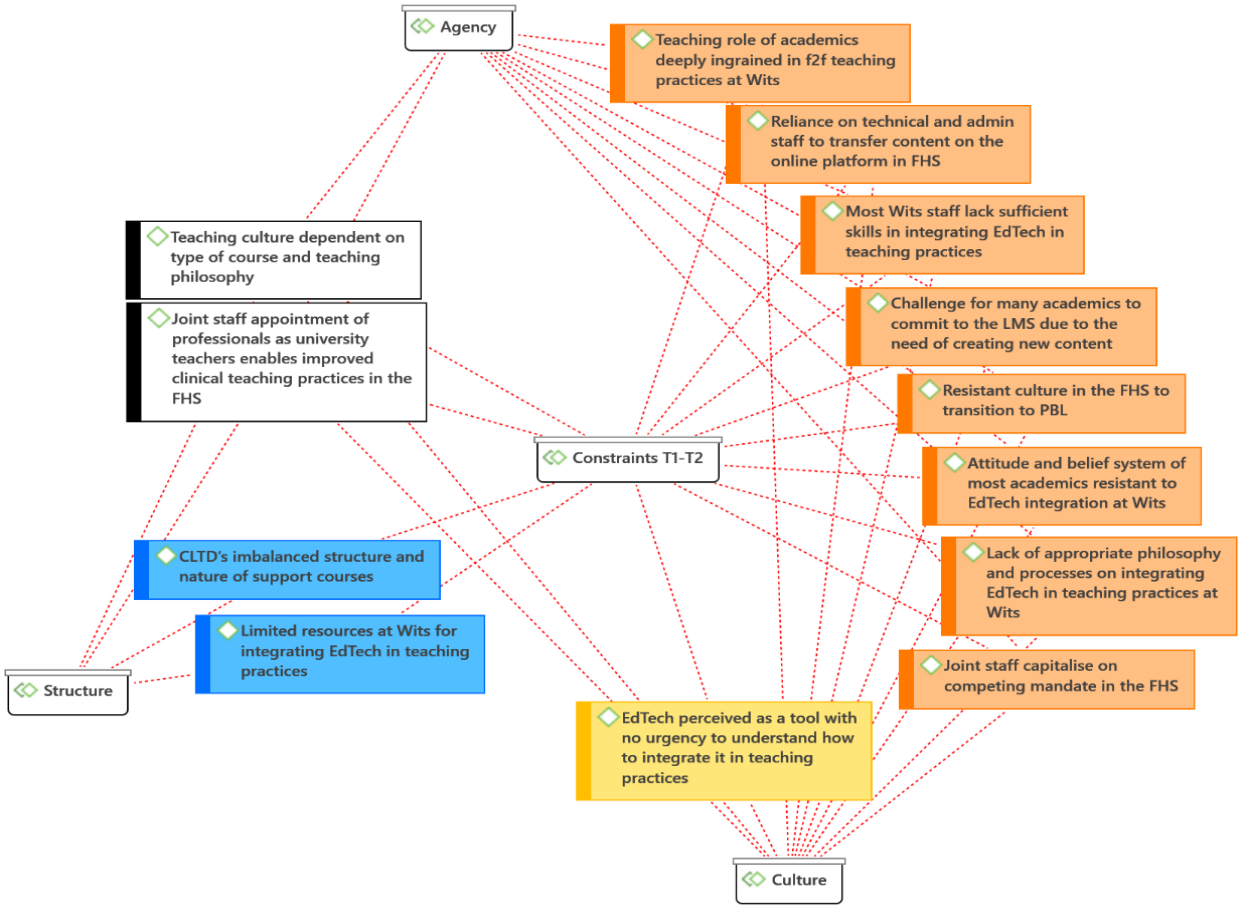
4.2.2 Constraints to CDP practices

Figure 4.4 *Visualisation of document study constraints and evidence from documents*



Evidence from documents
"The Wits network needs to be made stable both internally and externally, and more compatible with the academic demands of a world class university"
"The lower status accorded to teaching, and the recognition of teaching development as a legitimate academic activity and area of expertise and scholarship is also of concern"
"The Centre undertakes an impressive range of training in generic skills with less of a focus on the explicit teaching and learning development of academic staff than on other areas"
"The Quality Improvement Unit recommends that CLTD considers using innovative strategies to communicate its services to the University community, including strategies to enhance partnerships with schools and faculties"
"The Wits graduate should be prepared to be familiar with communication and information technologies that will enable participation in the world of work beyond the University"

Figure 4.5 *Constraints visualising structure, culture, agency codes and networks*



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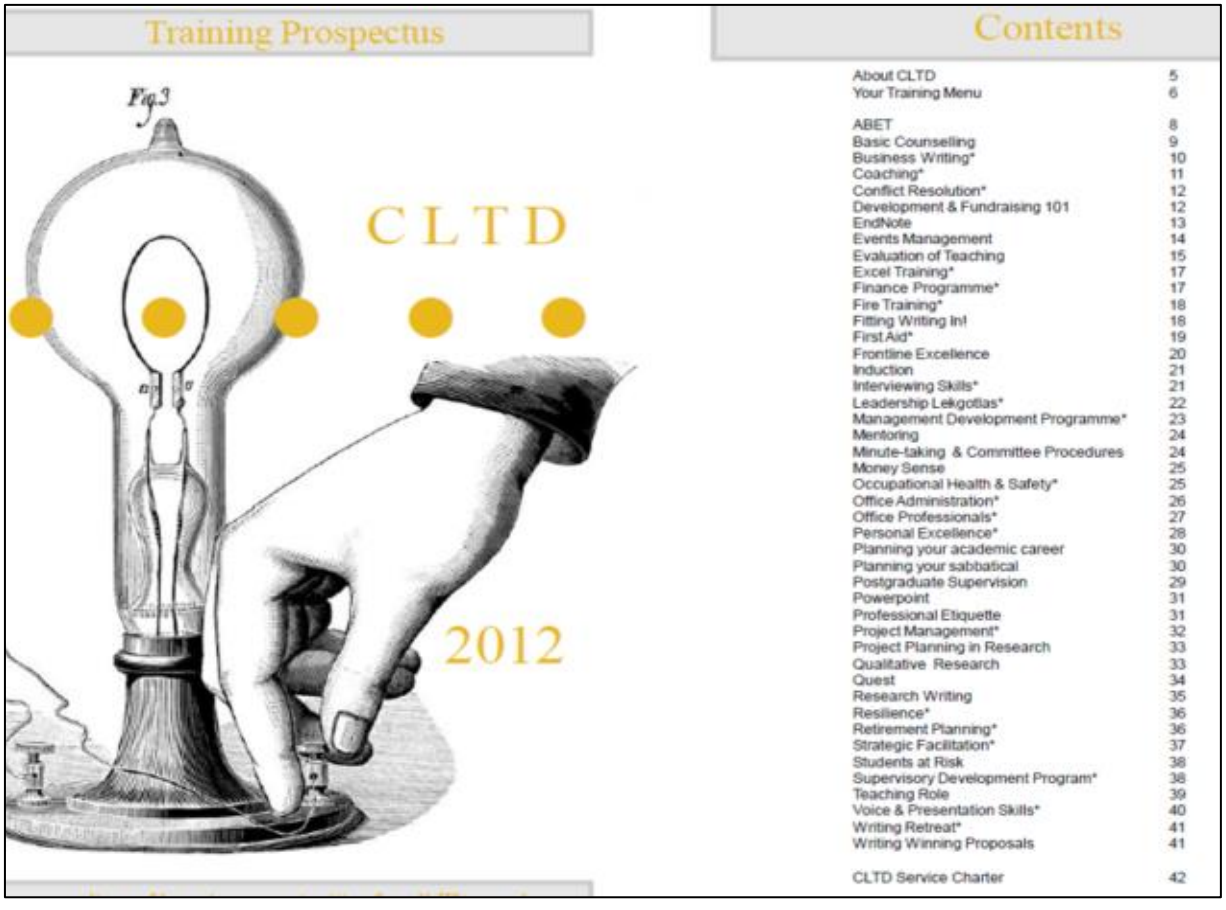
The eLearning strategy and tactics framework disclosed that the Wits network remained unstable. This resulted in a negative impact for those academics who may have attempted to use the LMS in an integrated way to teach since an unstable network would deter the use of edtech in learning and teaching. At the same time, the interviews revealed that few policies or strategies were developed to enhance DT which served as a *structural constraint*.

During this period, Wits had limited resources for DT. Participant 2 spoke to that:

> It was challenging as there was very limited resources and the KIM DVC used research money to fund projects around eLearning and even pay for staff. There were some technical people they hired for about a year under the research budget and not out of council budget. (Participant 2)

According to four participants, the CLTD's imbalanced structure and the nature of its support courses constituted another *structural constraint* on academics' ability to integrate edtech into their teaching practice. The CLTD's 2012 prospectus, shown in Figure 4.1, revealed that many of the courses focused on conflict resolution, counselling, first aid training, interviewing skills, teaching roles and so forth. These courses did not focus on integrating technology through the enactment of critical practice.

Figure 4.6 *A snapshot from the CLTD 2012 prospectus, showing the courses on offer*



The Triennial Review Report of the CLTD demonstrated that the CLTD neglected to develop pointers for strategic interventions with and for academics and focused more on support staff. This limitation may have been due to other constraints – for example, academics may have been busy due to their high teaching workloads or there may have been a limited understanding of what critical pedagogic practice actually meant for improved teaching

practice. At the same time, this could have been an opportunity for the CLTD to socialise Wits' academics through CPL on critical pedagogic practices.

A glance at Figure 4.6 reveals that most of the courses offered by the CLTD focused on generic training skills. At the time of the study, the CLTD did not yet provide CPL opportunities to staff on critical pedagogic practices or the use of open educational resources. The courses affected the way academics viewed CPL, let alone the edtech integration in their practice. It is these stances that shape the culture of teaching: while the CLTD exists for staff training and curriculum development, the view of the participants was the opposite due to the imbalanced nature and support of the courses that the centre implemented. In addition to this, the CLTD's review report demonstrated the need for the centre to be restructured and re-mandated if it was to continue to play an effective role in supporting learning and teaching at Wits.

According to Participant 2, from her perusal of LMS usage reports, a *cultural constraint* was that technology was perceived as a tool but there was no urgency on the part of academics to understand how to integrate it in teaching practices. Very few academics used the LMS (Sakai).

> It [the LMS] was seen as a tool but they had no understanding that it had such a big influence on pedagogy to ensure that the students were learning or using it as a gauging tool – almost like a fancy typewriter – and not how it could be applied at a deeper level to ensure successful teaching. (Participant 2)

The findings revealed a sub-optimal knowledge of the correct pedagogical skills and training to utilise the LMS effectively. This contributed to a negative attitude toward the adoption of edtech in the respective disciplines, even if specific pedagogies were at play. The institutional culture of most participants demonstrated a resistance to edtech integration as articulated by Participants 2 and 5:

> There were some people experimenting, and there were some tools, but most resisted because they just don't believe in machine use and there was no collective thinking. Again, there was limited guidance from minimal policies or strategies. (Participant 2)

> Majority of staff have never bought into using an LMS because they may be too lazy and resist change and are risk averse for making changes…. Everything depends on our nature, as medics, of why and how we do things. (Participant 5)

Insufficient policies created a negative culture and belief system that shaped pedagogical practices. This was viewed as a *cultural and agential constraint* because it did not allow for growth and furthering academics' knowledge of critical pedagogies. Conjointly, research participants were of the view that many academics displayed insufficient skills in integrating edtech in teaching practices even if they engaged in a specific pedagogy, the LMS could be used to collaborate in other ways.

> Well, you know, if I did not do it all the years, I will not do it. Why? Because I just don't know how to teach using technology. I witnessed it and I heard them vent their frustration, so I know that they need help with technology. (Participant 4)

As the culture and agency of staff were negative, there was much reliance on technical and administrative staff to transfer content onto the online platform in the FHS. Four participants reported this.

> Can you believe this: I know of a Head of School who basically told his staff to send their PDFs and PowerPoints to be uploaded on Sakai by his PA. (Participant 4)

> From an IT perspective, I am aware that many academics in some schools had to just send their content to other people for uploading…. Hmm. Well, you know, this was normal in this period. (Participant 2)

These comments reflected the prevailing culture that some schools persisted with where a dedicated team placed content on the LMS for academics. This clearly lacked sustainability and demonstrated a lack of the necessary philosophy and processes to integrate edtech in many schools.

> We have never really had enforced use of the LMS, even with Sakai. It was encouraged, but not forced. And then it was used as a repository for sharing documents with students as they were too comfortable with in-person classes. (Participant 2)

A common view held among participants with regard to *cultural and agential constraints* was that the teaching role of academics was deeply ingrained in face-to-face teaching practices as there this provided much qualitative interaction and human-to-human triggers and cues to guide them. Due to the reliance on face-to-face teaching practices, it was a challenge for many academics to commit to the LMS as it involved creating new content and developing patterns of understanding over time. This resistant culture was seen in the FHS when most of its schools transitioned to problem-based learning (PBL) and the curriculum was modified across various programmes. A long-standing member of the faculty, Participant 4, remembered this well.

> When they were requested to engage in PBL with students, they were not interested as they felt that they were forced to do so. A culture of resistance prevailed and needed a lot of work to be done. As the curriculum changed there was no culture change but rather forced by the powers that be. PBL was a different way of teaching to give agency to the students, but no real support was given to the academics by the faculty or the CLTD. Many were persuaded, as you need to be convinced that it is a good idea. Remember: many of them are joint staff, hey. (Participant 4)

Participant 4 also commented that due to the *constraining culture*, some joint staff members appeared to capitalise on the fact that the staffing model straddled the university and the DoH. Joint academics did not see the need to use the LMS in their pre-clinical teaching. Even though a few of them embraced it, many of them viewed it as a waste of time.

> I heard this often, “Well, Wits does not pay my salary. Sorry: I report to the Gauteng Health, and I still retain my position there. So, it doesn’t really matter. ” (Participant 4)

This statement highlights the culture and attitude of some joint staff members in the FHS. Other academics had a passion for teaching, however, engaging in practices that combined edtech seemed far-fetched in this period. The competing mandate as a *cultural and agential constraint* played a role in their L&T. It appeared some academics failed to find ways to respond to transitioning in relation to their contexts as differences should not necessarily deter nor demotivate them. The tone of this competing mandate had repercussions for the social justice agenda of the university because the assumption was that some joint academics might not be as committed to teaching, let alone be motivated to integrate edtech into their practices. However, they remained in these positions due to the primary conditions of the initial employer (DoH), irrespective of where they were assigned.

Concomitantly, the DHET Report of the Task Team on HE TDG observed that teaching and teacher development was accorded a lower status than the research agenda in higher education institutions. The institution prioritising research above teaching thus represented another *cultural constraint*. The common attitude that 'anyone can teach' created a perception of teaching as less technical than it is, while the status of research was elevated as it served as a key criterion for exhibiting the scholarly mightiness of a university in its crusade to brand and rank itself. The eLearning strategy, while an enabler, thus also acted as a *cultural constraint* since it focused on graduateness with insufficient focus on teaching for critical conscientisation and citizenship.

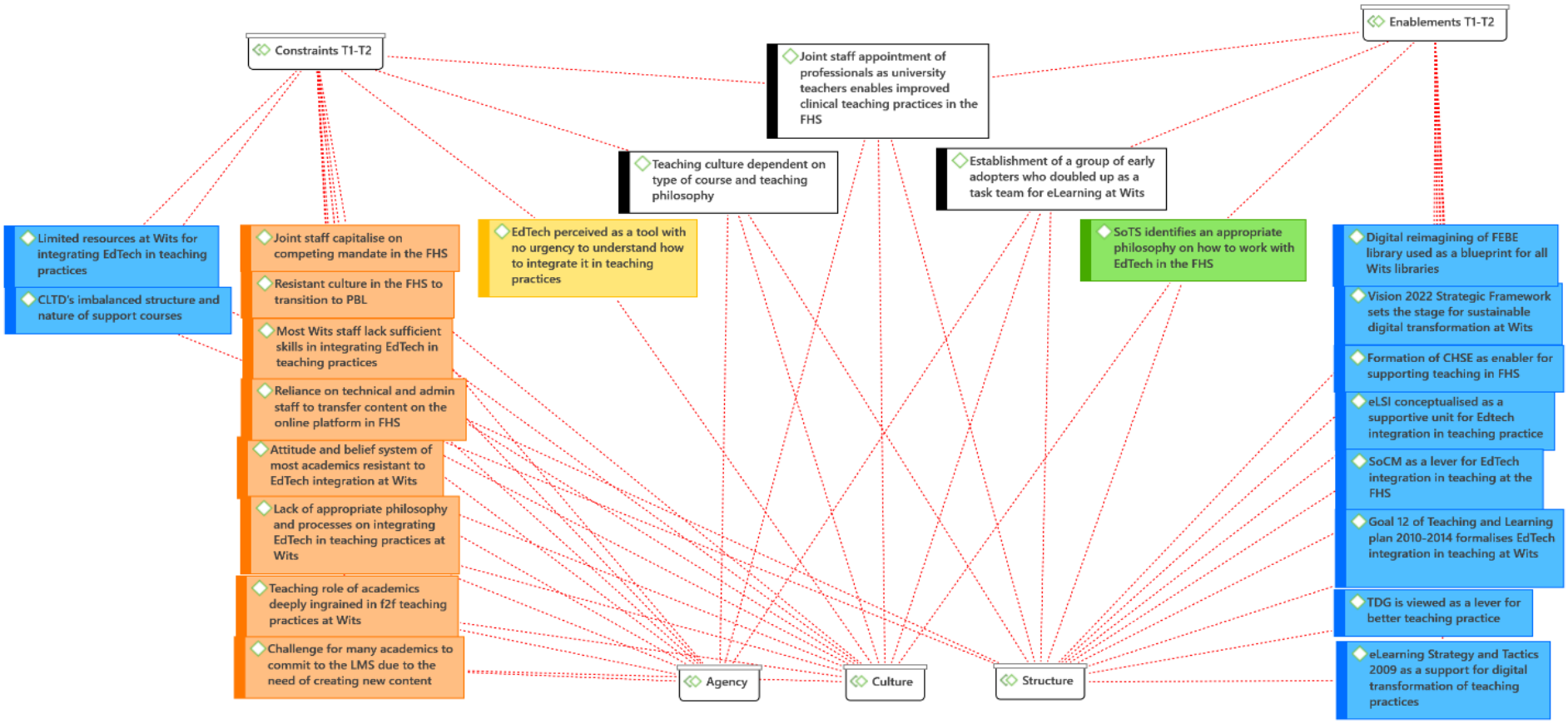
While the joint appointment of health professionals as university teachers facilitates clinical teaching practices, it also *structurally constrained* pre-clinical teaching practices. Two of the participants were of the view that, as professionals, joint staff were more experienced in clinical practice teaching (bedside teaching) at the hospitals and seemed to be adept at engaging in this context. Participant 4 visited the hospitals where staff engaged in clinical rotations. His view was that:

> The decision was that at S&P professional health medics appointed at Wits needed to at least engage in some form of development on how to teach. Most were basic short courses. This did not enable them to be professional teachers as they were forced into this because they wanted to be medical specialists working 100% in clinical practice. (Participant 4)

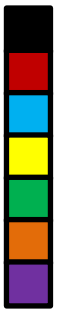
So, this notion of a particular type of teaching culture was dependent on the type of course (clinical or pre-clinical), the teaching philosophy of the academic, their prior knowledge and the adopted policies of the institution. Or alternatively, it could be that health science education was patient-centred and not student-centre

4.2.3 Co-occurrence and summation of enablements and constraints

Figure 4.7 *Co-occurrence between enablements and constraints*



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According to Figure 4.7. the only co-occurrence that manifested in this period was the perception of two interview participants around the joint staff aspect because it appeared as *both a constraint and an enablement.* It was an enablement because joint staff academics seem to be in consonance with clinical teaching practices in the hospital context, but it was a constraint on two accounts. First, there was a paucity in their pre-clinical pedagogical practices' (teaching focused on general science courses required in the field of medicine) because they were not adequately prepared or inducted to 'teach', as such, and remained limited in their ability to combine their facilitatory, social and cognitive presences within two different workload systems. Multiple roles had epistemological (beliefs that academics possess which allow them to know things) and ontological (academics' view of the nature of reality, experiences and internal reasonings) consequences, that will be discussed in Section 7.5. Second, in recognising the directive of teaching/training and service delivery, some joint staff members capitalised on this competing mandate and blurred reporting lines in terms of duty, which highlighted the tension and complexity of clinical teaching, training and service delivery.

4.3 T2-T3: 2012-2020 : "The varying fonts on the board": A story of structural and socio-cultural interaction

4.3.1 Findings from the survey

In early 2020, a self-reporting online survey for this study was administered to academic staff from the FHS to investigate their levels of digital competence. Section (A) generated data on each participant's academic background.

(a) FHS academics' background information

Various academics (n=38) chose to participate in the survey and completed it in an average time of 10.5 minutes. Appendix H displays the background data on the academics who participated in this survey. The academics all had master's or doctoral degrees. The data demonstrated that with an average of 12,88 years' experience in a higher learning institution, 42% of the academics had attended CPL programmes that explored the innovative use of edtech. Many academics at the FHS had long tenure tracks as either permanent or joint staff and had been engaged in blended learning for only a short period. One academic, who had been employed for thirty years as a permanent staff member, had three years of experience with blended learning, while another tenured for thirty-

five years as a joint staff member had no experience with blended learning practice (Appendix H). Perhaps their identities may be difficult to transition due to set ways of teaching, especially for those with long tenure tracks.

Figure 4.8 *Academics' years of experience in blended L&T in relationship with type of appointment*

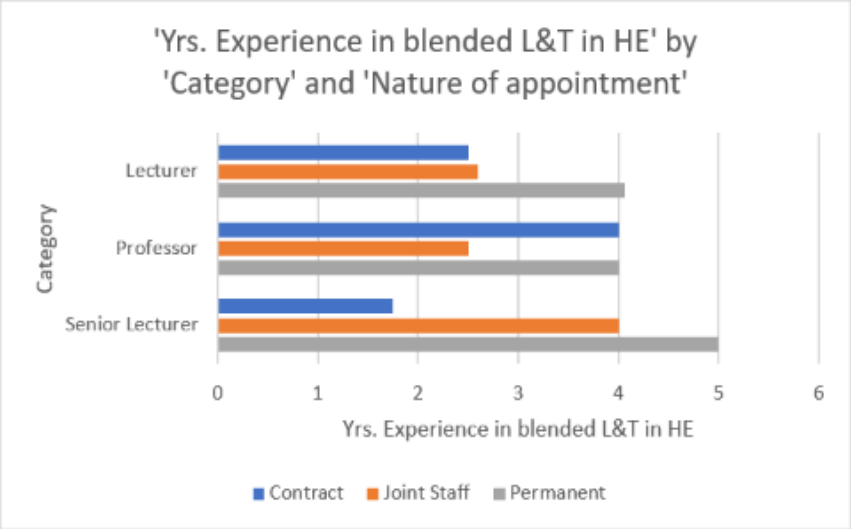


Figure 4.8 depicts the years of experience with blended learning of participants on the survey, in contrast to the category and nature of their appointments. It demonstrates a correlation between the nature of appointments and the academics' exposure to blended learning environments. The study found that permanent employees had the most exposure to blended environments, while contractual or joint staff had far less exposure/experience in blended learning and teaching.

Table 4.2 shows that 42% of academics attended CPL programmes at various times to augment their understanding and use of edtech in L&T practices. Most courses were attended between 2017 and 2020, the period when numerous institutional policies were developed and implemented while the CLTD revamped its suite of courses that included the use of edtech.

Table 4.2 *CPL information of academics at FHS*

Name of CPL courses attended	Year attended	Duration
42% of academics attended CPL programmes that explored the innovative use of edtech		
Facilitating online	August 2019	6 weeks
Blackboard	2001	2 days
Sakai Introduction	2012	1 day
Turnitin	14th April 2020	2 hours
Carnegie Workshop- online teaching	2016	2 days
educators' course for professionals	2018	3days
Facilitating online	2018	6 weeks
Sakai training	2019	1 day
Moodle lessons	Feb 2019	4 hrs
Introduction to BL	January 2019	3.5 hours
SAKAI	2014	1 day
Moodle Introduction	2013	1 day
Sakai Log On	January 2020	90 minutes
Wits-e Introduction	10 May 2016	½ day
Moodle – Introduction	November 2019	3 hours
Simulation Course	2018	2 days
Sakai	2016	2 days
MS teams/streams	February 2020	4hrs
Intermediate Moodle – Developing Online Interactive Lessons	January 2019	3.5 hours
Faculty Video Studio Workshop	April 2019	½ day
CL&T large groups online	2017	1 day
Assessment tools in Sakai	February 2020	2 hours
Wits-e Intermediate	7 July 2017	½ day
Moodle- Podcasting with PowerPoint	12/2019	3 hours
Flip grid	Feb 2018	1hr
Curriculum Development Suite – Open	August 2019	5 hours

Pedagogies		
Mentorship	March 2019	½ day
Moodle Refresher	2019	1 day
How to record a narrated presentation	February 2020	12:00 to 13:00 PM
Wits-e Project site	February 2020	2 hours
Wits-e Advanced	23 August 2017	½ day
Moodle- creating lessons	March 2020	3 hours
Online Assessment	March 2020	1.5hrs
Microsoft Teams Level 1	December 2019	3 hours
Microsoft Team intro	February 2020	1 day
Planning and designing your course and selecting the technologies for teaching	March 2020	12:00 to 13:00 PM
Moodle – Assessments and quizzes	February 2020	1 hour
Moodle Quiz	2016	1hr
Enabling BL workshop	March 2020	2 days
Sakai assessments	2015	1 day
Online teaching for low-Tech	March 2020	12:00 to 13:00 PM

Academics were also surveyed on the variety of software or technologies that they employed in their learning and teaching practices besides the LMS. A total of 22 different software applications were reported in the survey. These are listed in Table 4.3.

Table 4.3 Software/technologies used by academics in the FHS (in addition to the LMS)

No. of academics	**Technologies or software used**
20	MS Teams
8	Zoom
7	MS Stream
3	WhatsApp
3	Wake let
2	Skype

2	STATA
2	YouTube
1	Data analysis software
1	R Studio
1	BigBluebutton
1	EML Clinical Guide – App
1	Blackboard (at another university)
1	Flip Grid
1	SharePoint
1	Google Docs
1	MS PowerPoint
1	Flip gram
1	Redcap
1	PowToon's
1	Simulation Tech
1	Mentimetre

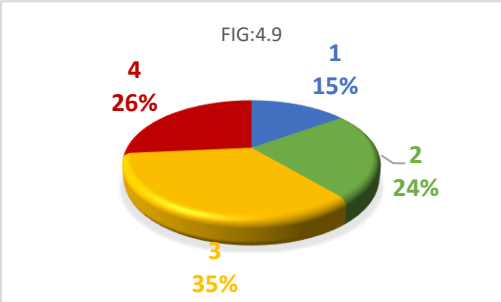
Table 4.3 demonstrates that; besides the LMS, 22 different applications were employed by participants; MS Teams was the application named by the most participants. Table 4.3 also indicates that academics were using minimally viable tools such as communication and conference tools (3) and social media tools (19) as the basic digital competence tools. This demonstrated that digital competence was minimal as these were the staple tools that academics had to use, and they were used to reproduce the face-to-face classroom online and not necessarily for collaborative and integrated learning and teaching practices. One participant reported using Flipgrid, Flipgram and Mentimetre together.

Section B of the survey comprised questions and categories related to technical, administrative, and pedagogical competencies. The data were grouped and presented according to the three categories. An overall average visualisation is first presented to attain a broad picture of the survey.

Overall average of academics digital competencies

Figure 4.9 *Data on average digital competencies of FHS academics*

KEY:
1= Advanced (Blue)
2= Intermediate (Green)
3= Basic (Yellow)
4= Unfamiliar (Red)

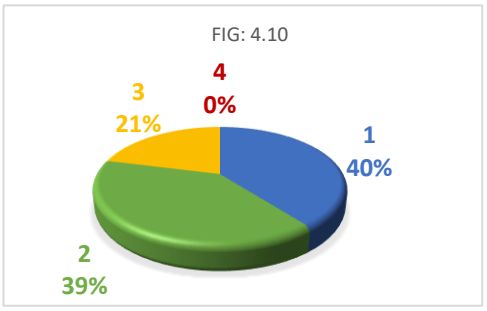


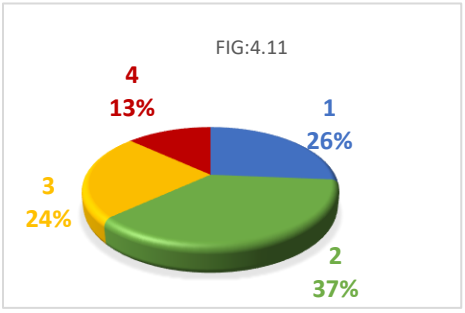
Thirty-eight participants completed the survey, with an average time of 10.5 minutes. Figure 4.9 indicates that 26% of the participants had an advanced digital competency[13] and 35% of the participants possessed an intermediate digital competency. Despite averaging over 12 years' experience at a higher learning institution, only 42% had attended any CPL programmes that explored the innovative use of edtech. Academics were exposed to it at eFundanathi in this period, but they did not really seize the opportunity for training. The CLTD has provided basic training that could not incite further interest as it had adopted exploring innovative use of edtech in L&T in the last five years, according to the university mandate.

(b) Technical use of edtech

Figures 4.10 and 4.11 provide data on academics' technical competencies. 38% of participants were operating at an intermediate technical level of competency. This could be attributed to them possessing a basic technical knowledge and skill to perform as academics at the university when engaging in L&T alongside their students.

Figure 4.10 and Figure 4.11 *Data on technical competencies of FHS academics*



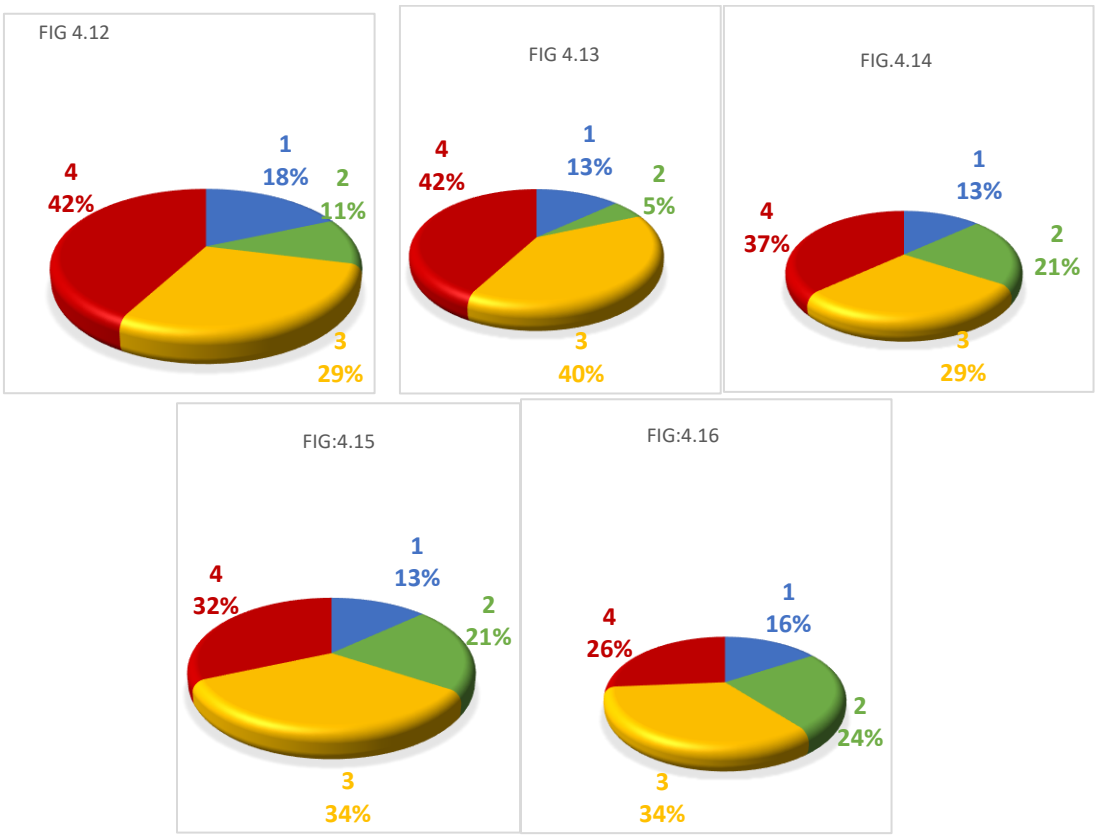


[13] Levels of digital competencies can be viewed as a continuum whereby digital literacy (Basic) refers to an understanding of how to use edtech tools; digital fluency (Intermediate) goes a step further where the ability is to create new content with these tools. Digital mastery (Advanced) is the ability to create new learning and teaching interactions, which reflects the interconnectedness of content areas, and makes use of a variety of strategies and assessment tools to design and develop learning experiences to reach all students. The mastery level is experienced as 'second nature' by the individual.

KEY:
1= Advanced (Blue)
2= Intermediate (Green)
3= Basic (Yellow)
4= Unfamiliar (Red)

(c) Administrative use of edtech

Figure 4.12, Figure 4.13, Figure 4.14, Figure 4.15 and Figure 4.16 *Data on administrative competencies of FHS academics*



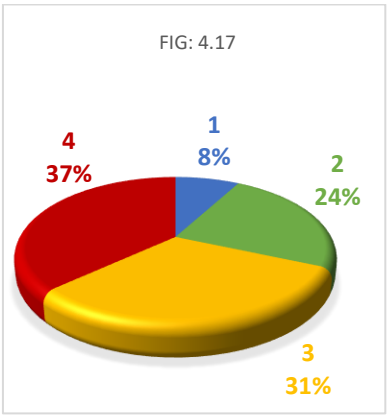
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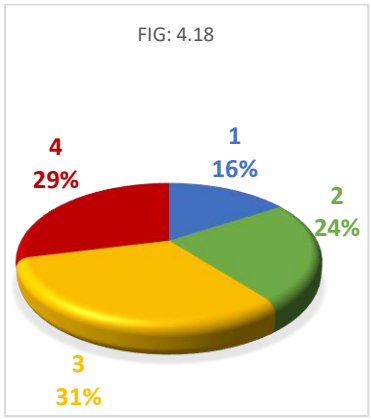
42% of the participants indicated they were operating at an advanced level of administrative competency, as shown in Figures 4.12, 4.13, 4.14, 4.15 and 4.16. Throughout all the administrative competency questions, 35 % majority of participants remain unfamiliar while 33 % are operating at a basic level of understanding. These findings are aligned to what participants stated in the interviews about the use of the LMS.

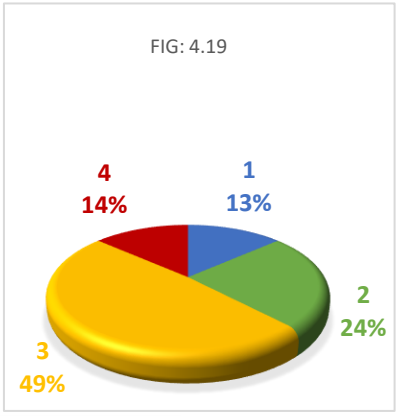
(d) CDP practices of FHS academics

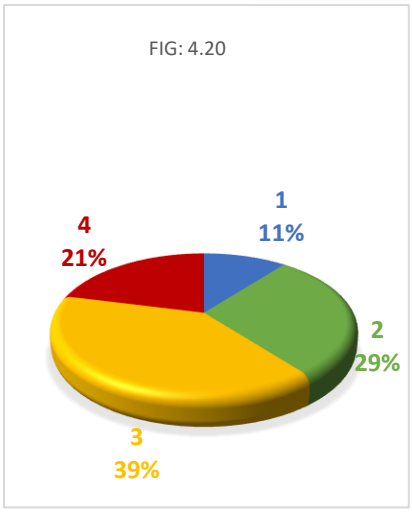
I grouped the data in this category in batches because they were many and it was easier to present them in smaller batches.

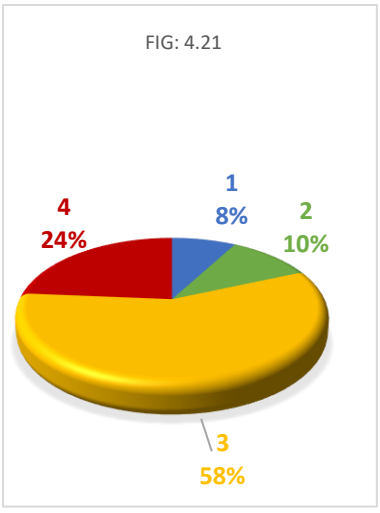
Figure 4.17, Figure 4.18, Figure 4.19, Figure 4.20 and Figure 4.21 *Data on CDP competencies of FHS academics*









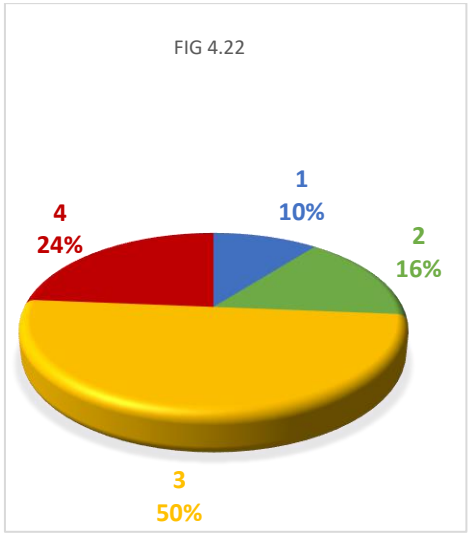


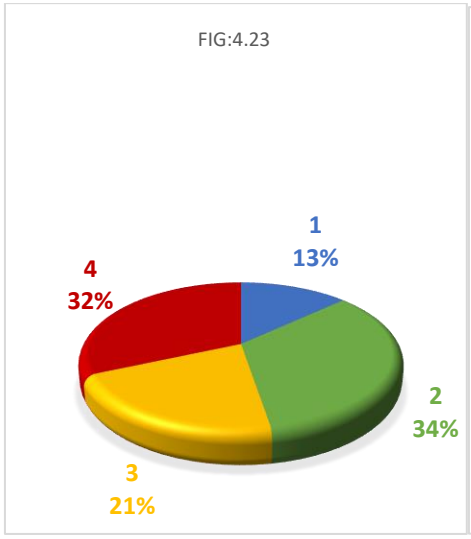
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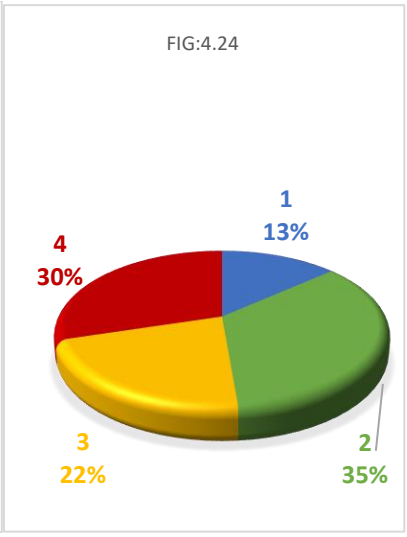
Figure 4.17 indicates that 37% of academics use edtech to make new innovative resources and to express and develop new approaches to interpreting ideas, while 29% provided constructive feedback to students in the online space, on assessments, through facilitation, guidance and directed learning (Figure 4.18). The survey found that 14% understood the nature of online identity, privacy, and safety (Figure 4.19); 39% were at the intermediate level when attending to the diverse and inclusive challenges of students in the online space (Figure 4.20) and 24% understood how to support engaged collaborative learning (Figure 4.21). Together, these findings indicate that in

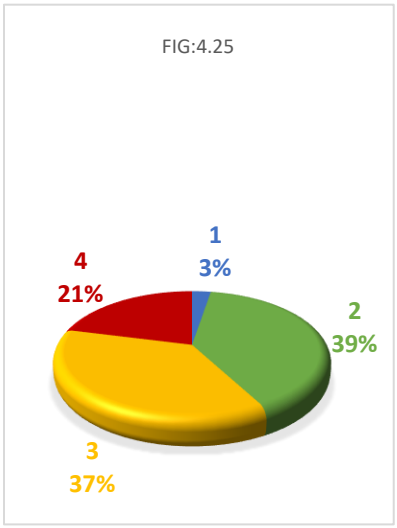
this period, academics had insufficient knowledge on what it meant for the 'self' and emerging identities when facilitating in the online modality while 39% had some idea of diversity in the online space.

Figure 4.22, Figure 4.23, Figure 4.24, and Figure 4.25 *Data on CDP competencies of FHS academics*







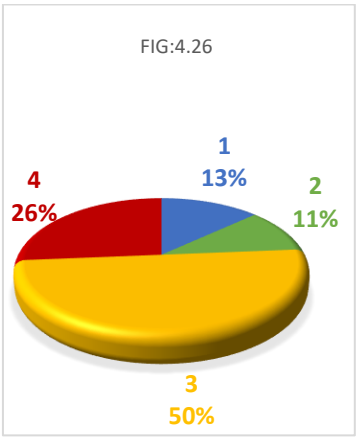


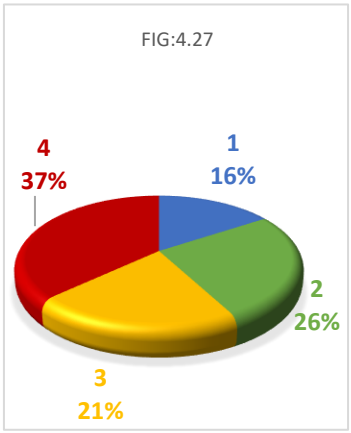
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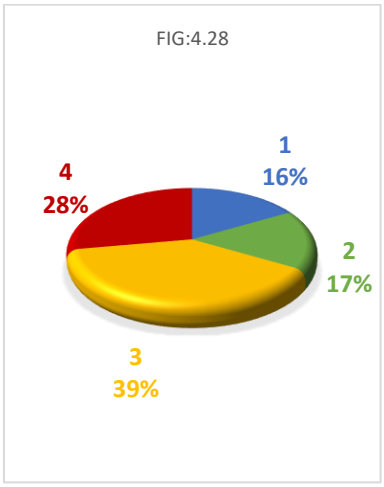
Figure 4.22 indicates that 24% of academics possessed knowledge of the technical and practical aspects of edtech used to support teaching, learning, and research. 32% stated that even though they design (mapping and scaffolding) their course materials in collaboration with team members, they develop (build) them on their own, within the structure and organisation of the LMS without constantly worrying about what needs to be done next

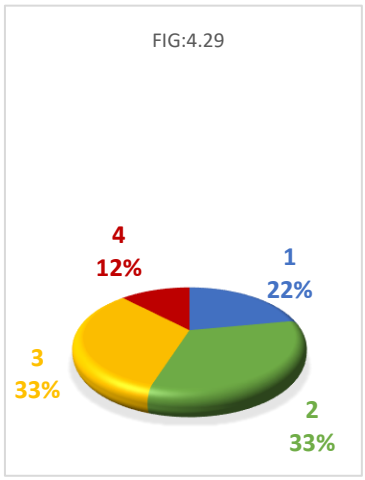
(Figure 4.23). The survey found that 30% of academics knew how to revise their course content and learning and teaching materials on the LMS based on student feedback (Figure 4.24); and 21% indicated they took student differences in background, ability, and individual experiences into account and explicitly worked to provide opportunities for success that were not impacted by these differences in their course designs (Figure 4.25). This demonstrates that the majority of the participants did not take the lived experiences of their students into account when they designed, developed and facilitated courses.

Figure 4.26, Figure 4.27, Figure 4.28, and Figure 4.29 *Data on CDP competencies of FHS academics*







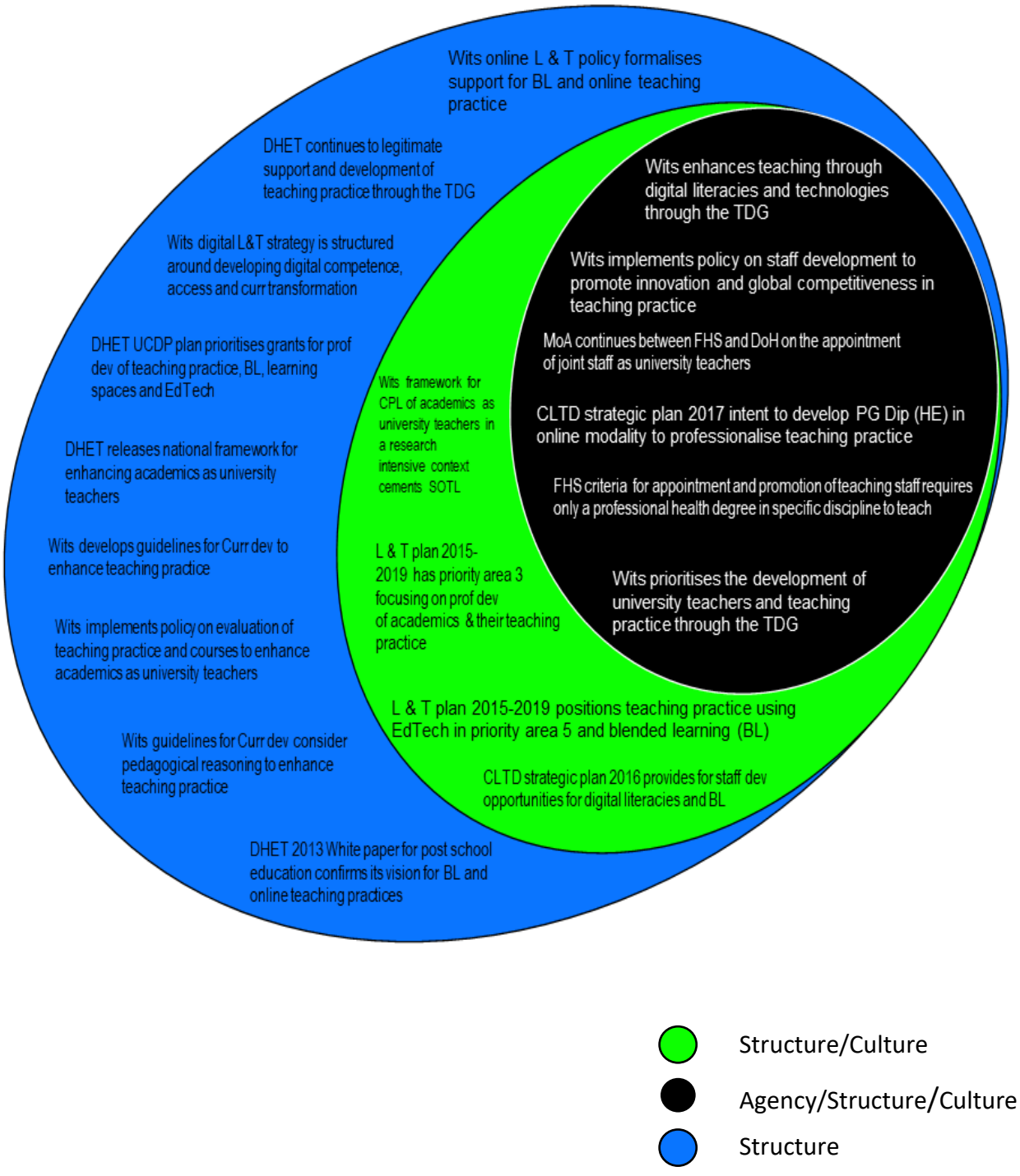


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3= Basic (Yellow)
4= Unfamiliar (Red)

Figure 4.26 depicts that 26% of participants indicated their focus was on facilitation and on their students' preparedness for learning and readiness for online learning when they design and facilitate their online courses. Thirty-seven percent indicated that they encourage their students to question and challenge inconsistencies that exist in families, schools, and societies (Figure 4.27); 28% encourage students to think about the way they are being taught and how they, as students, fit into the broader social and cultural context (Figure 4.28); and 12% stated that when they encounter views that are contrary to the main narrative in the online lesson, they present these views to the class alongside the traditional ones and ensure that students discuss them by encouraging them to draw their own conclusions (Figure 4.29). From this, it appears that most participants were using teacher-centred approaches as opposed to being student-centred in their teaching practices. It could also be that they did not possess the requisite knowledge of collaborative CDP practices but could be implicitly enacting such practices at certain times.

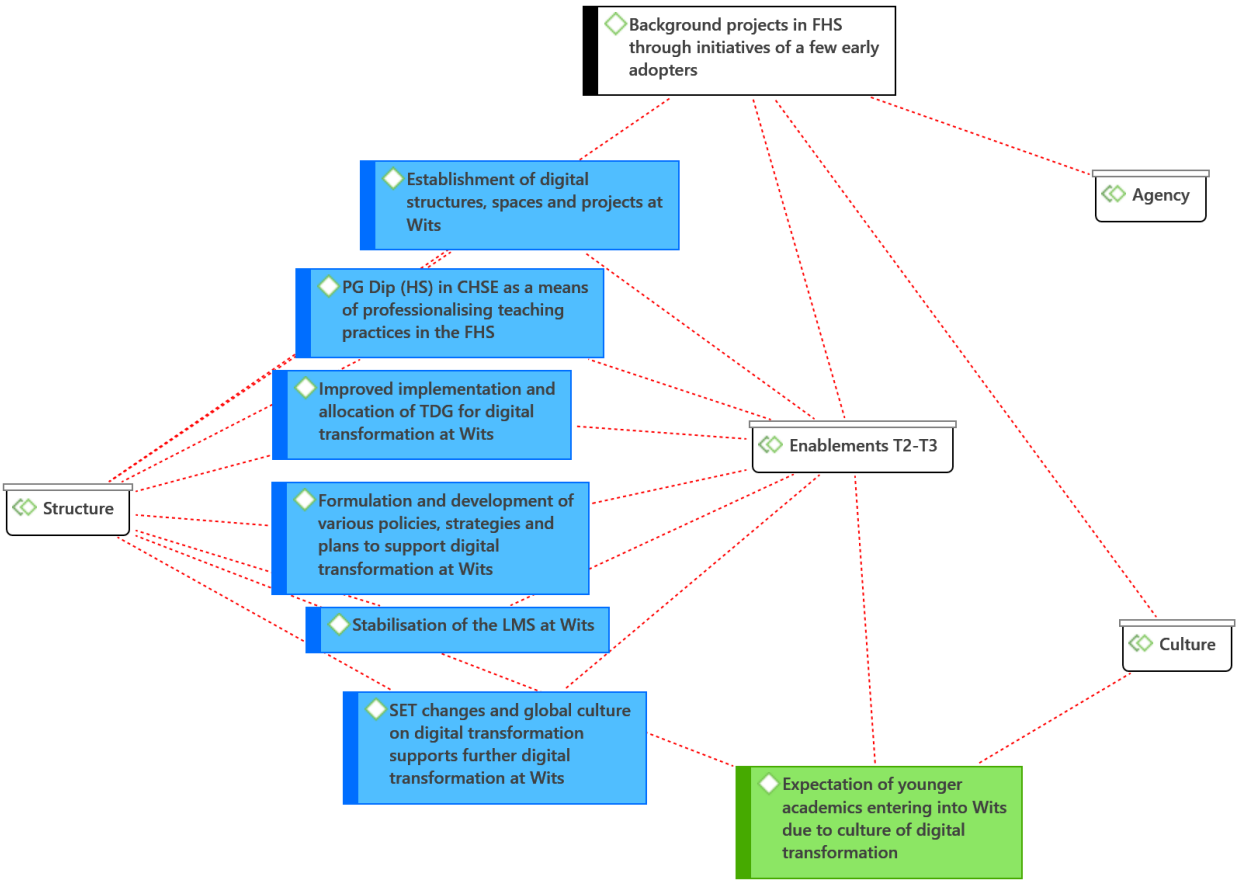
4.3.2 Enablements to CDP practices

Figure 4.30 *Visualisation of document study enablements and evidence from documents*



Evidence from documents
"Wits will position itself as an IT-savvy university that uses technology to enhance all the core processes, including providing new and innovative ways of engaging students and staff in academic activities."
"The TDG should be utilised to support teaching and develop this understanding and approach, and so enhance the status of teaching and teaching development"
"Strategic priority 4: Prepare and deliver a transformative and digitally enriched curriculum by supporting Academics and students in a digital T&L environment"
"The UCDP will be used to facilitate curriculum renewal and to support alternative pedagogies in line with the Wits 2022 Vision to prioritised academic excellence and the Wits experience, innovation and social leadership and to become an IT-savvy university"
"the National Framework for Enhancing Academics as University Teachers has been developed in the context of the University Capacity Development Programme (UCDP) and is intended to strengthen the development of university teachers within the staff development component of the programme"
"this manual, **Guidelines for Curriculum Development at the University of the Witwatersrand**, has been compiled to support academic staff with their attempts to develop curriculum and support teaching practice"
"this policy provides principles and a structure that should guide teaching and practice on evaluations in line with good practice in the field"
"Designing and aligning curriculum concepts includes pedagogic reasoning that critically questions the thinking around curriculum development, agency, voice, power and authority"
"The White Paper will ensure continuing professional development for full-time staff in the post-school sector, as the numbers of distance education enrolments grows. In addition, it is essential to expand equitable access to ICT resources"
"Engaging in SOTL at Wits encompasses a wide range of activities, from taking a scholarly approach to teaching that draws on relevant research and is enhanced through reflective practice to conducting research on teaching and student learning"
"Wits needs to provide for the professional development of academics, focusing on teaching and the development of a culture of scholarship and research in teaching"
"Wits is firmly committed to becoming an 'IT savvy' University and in order to do so needs actively to promote eLearning to support 21st-century learning and teaching environments"
"Provide flexible professional development opportunities to promote BL and work towards embedding digital literacies so that Wits graduates may be tech savvy and be equipped with relevant digital competencies"
"The Staff Development Policy is a significant driver of the Wits 2022 Strategy which seeks to position the University as one of the world's leading research-intensive universities"
"The employment contracts of joint staff members will state that their job requires them to take responsibility for academic and clinical activities agreed by both parties"
"Wit's renewed commitment to teaching and learning has enabled initiatives such as staff development in online practices, lecturer development through a Postgraduate Diploma in the field of Higher Education. These will develop university teachers and improve teaching"
"The criteria for appointment for teaching staff in a Health professional degree in relevant discipline or Masters degree completed or near completion in relevant discipline (as determined by the School)"

Figure 4.31 *Enablements visualising structure, culture and agency*



Figures 4.30 and 4.31 indicate that, at the beginning of the T2-T3 period, changes to the Senior Executive Team (SET) ushered in further *structural enablements* and changes to the DT project when the university appointed a new Vice Chancellor and Deputy Vice-Chancellor (DVC): Academic, who brought with them a fresh vision and a vision for digital transformation:

> From around 2013, there was more conditions and then academics started mediating the space. I feel that the shift at the executive level enhanced the BL project – well, that's what they call eLearning now. And,

> also, there was a cultural thing happening globally and technology was becoming more and more acceptable, and it was expected that we use technology to expand on what we do. (Participant 2)

In a similar vein, Participant 1 stated that his office strengthened the introduction of technology in teaching as a strategic shift for the institution in 2013, emphasising its global and local relevance due to the decolonising and social justice aims of the university. To do so, many programmes and course reviews were augmented for relevance to transformation with reference to the local and broader African contents through the LMS and were presented to the academic and programme development committee (APDC).

> There were virtually hundreds of courses that were transformed. The whole issue of decolonisation is viewed as curriculum review and programme development. At the same time, we also had to look at how courses could be built in the LMS, and this meant getting the academics to use digital technology. (Participant 1)

Participant 1 indicated that his office was responsive to the global cultural movement on DT and that Wits supported stronger DT to keep up with global trends. This created a tension, as the global trends were typically driven by Western notions of transformation, while Wits was also committed to the decolonisation agenda, which has consequences for how HE operates in South Africa and elsewhere.

The previous cycle of the Teaching Development Grant (TDG) ended and the DHET discontinued the TDG, replacing it with the university capacity development grant (UCDG). The UCDG represented a *structural enablement* as it channelled funds into the university to align the activities of the academics and the CLTD with the Teaching and Learning Plan (2015-2019). Wits motivated to use the grant for student success and engagement, enhancing staff development and post-graduate research supervision, innovation in curriculum development and costs associated with the administration of the grant.

On unpacking the UCDG grant section on student success and engagement, it speaks to the establishment of 'at-risk' students and faculty centres, student digital literacies, support for the LMS, and the incorporation of online tools into courses. The second part focuses on enhancing staff development, and the funding of posts for educational developers, instructional designers and student success co-ordinators. These staff members would play a crucial role in supporting academic and support staff. However, Participant 1 described the problem that arose:

> There was an internal fractionalisation as the HRDU wanted to run their own courses for support and admin staff even though CLTD was tasked to use the UCDP grants to support all staff. (Participant 1)

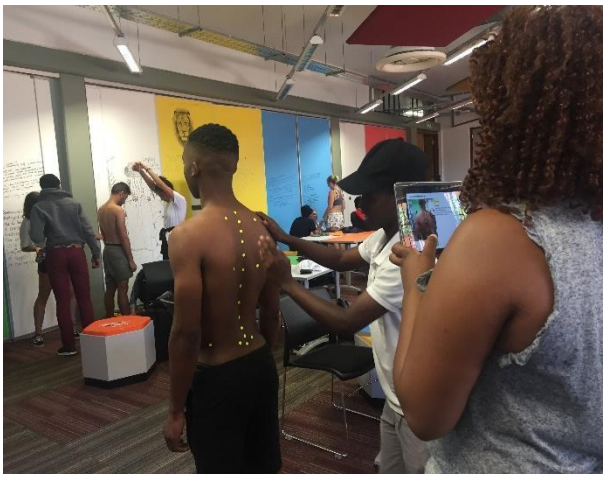
Once more, the challenge of CLTD's dual mandate emerged and this influenced its operating model. All interview participants concurred that the establishment of digital structures, spaces and projects were *structural enablements* that were intended to facilitate DT at Wits even though there was never a massive early buy-in from academic staff. There were a few early adopters who were tech-savvy and saw the potential of DT. In the FHS, one staff member conceptualised a strategy to develop an innovative space for teaching: the 'eZone'. Planning started in 2014 and the eZone was launched in 2016 with a proposal from this staff member who was pursuing her PhD study in the FHS to restructure and repurpose a space within the WSoE space that was used for domestic science. The senior executive team (SET) made funds available from the faculty clinical training grant for this repurposing to establish an eZone. Hence, the eZone (also known as eFundanathi) became a key structure that helped to

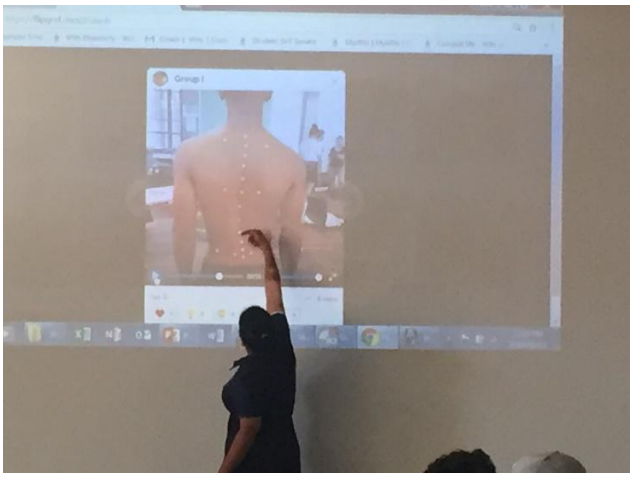
introduce the use of edtech to augment teaching and learning, in alignment with the university's Teaching and Learning Plan (2015-2019), by providing flexible and well-equipped physical and virtual spaces for academics and students, as shown in Figure 4.32.

Figure 4.32 *Pictures of the eZone with BL lessons (images provided by the eZone)*









Around the same time in 2016, the Centre for Health Sciences Education (CHSE) in the FHS launched a simulation laboratory that allowed students to practice in medical techniques using a high-fidelity simulator called the SimMan3G. During this period, the university went through the #FeesMustfall student protests, and the trending conversation was that it was crucial for the BL strategy to be driven. Also at this time, the CLTD went through a review, and emerged with a plan for restructuring. The old eLearning unit (eLSI) was collapsed into the CLTD which according to Participants 1 and 3 worked in isolation and forced the CLTD to think of edtech as a tool to enable teaching at Wits.

Figure 4.33 *A snapshot of the courses offered by CLTD in 2020*



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- Booking 3
- Venues 4
- Website 4

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- Students at emotional risk 5
- Basic Supporter Skills training 5

Core Learning and Teaching workshops & courses 6
- Emerging and Early-Career Academics (ECA) 6
- Mid-Career Academics (MCA) 7
- Senior-Career Academics (SCA) 7
- Early Career Academic Development (ECAD) Programme 7
- Academic Role 8
- Assessment in Higher Education: Strategies for the digital age 9
- Curriculum Development Suite (Short Course) 10
  - CD 0: Learning and Teaching Philosophy 11
  - CD 1: Curriculum Orientation and Contexts 11
  - CD 2: Open pedagogies 12
  - CD 3: Assessment for learning in higher education 12
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- Using Gradescope in *ulwazi* 22
- Using Turnitin in *ulwazi* 23
- Digital Literacy Skills for Students 24

From 2016, the CLTD collaborated with faculties to support academic staff to integrate technology. They worked together on serving the university through its approved plan. Accordingly, courses were designed to meet the CPL needs of academics and develop capacity and collaboration between CLTD and faculties. A snapshot of the current face of the CLTD and the courses that were offered is provided in Figure 4.33, which demonstrates that the CLTD had a plan around what it offered by way of supporting academics. However, it cannot be assumed that

because academics were the beneficiaries of this support, that teaching, and programme implementation would be strengthened to enhance student learning since much still depended on the intention and action of the academic. Also in 2016, after the #FeesMustFall protests, the Council for Higher Education (CHE) introduced a new provision allowing traditional contact universities to provide a percentage of their courses in blended learning mode.

Another structural enablement in this period occurred when Wits signed up with Edx to create massive open online courses (MOOCs). A MOOCs team was appointed to experiment with and develop MOOCs. Results-based management and evaluations (RBME) was one of the first and most successful MOOCs developed in early 2016 (Figure 4.34). A link is provided for access to this MOOC in Figure 4.34.

Figure 4.34 *Link to the RBME MOOC that was developed in 2016*



https://www.edx.org/course/results-based-project-management-monitoring-and-ev?index=product&queryID=9d164ad1cfc16fea6a2e792f2d1e2123&position=1

Participant 1 explained the purpose of the MOOCs team:

> The intention of floating a MOOCs team was due to two reasons: first, to get the Wits name in the global space; and second – and very importantly – it was to inspire the academics to look at new ways of teaching with technology. (Participant 1)

Even though the university was progressing in its vision of integrating edtech with learning and teaching, it needed to be wary of creating structures that favoured those who were advantaged and thus deepened existing inequities while as a university Wits was promoting accessibility and equity. As innovative as it was in widening access to a global audience, the MOOCs project can be viewed as an elitist project because it was promoted through a means that remained inequitable for many South Africans, which has consequences for social justice and subsequently impacts CDP practices. Nevertheless, all of the participants were of the view that, apart from the early adopters and the relatively small number of academics who had begun to take an interest in teaching with technology, most academics were still not really interested in developing their teaching practices to include CDP practices.

> I think they were too busy with hectic workloads and didn't see the need at this time. And besides, you can dismiss the idea of getting them to engage in CDP practices as they are struggling to use the LMS. So how can they get to that level? (Participant 4)
>
> When we switched servers in early 2020, it meant that anyone who had not changed their password in 5 years could not log in. There were more than 500 academics who had not changed password in five years. So, it was a struggle for them, but we had to help them. (Participant 2)
>
> They enlist the help of some of the younger tutors to help them on the technology front because they just resist using technology in their teaching. (Participant 5)

Even if we assume that CDP practices can be developed and are not purely innate, the question still arises as to why some academics try to transition their pedagogies while others do not and why some are so much more motivated to enhance their pedagogical practices than others. These questions provoke reflection on the role that the self, and individual agency, along with specific features of context, play in alignment to structure. Structures can be provided to support a specific enabling culture, but the outcome still depended on the interest and intention of the academic.

Funding allocated from the 2015 – 2017 Teaching Development Grant (TDG) acted as a *structural enabler* to stabilise the university's Sakai-based LMS (called 'Wits-e'). Prior to this stabilisation, the LMS was unreliable. According to Participant 3, stabilising the LMS was a crucial pre-condition to getting buy-in for blended learning from academics. During this period (T2-T3), many policies, strategies and plans that served as *structural enablers* were developed to support DT as indicated in Table 4.4. All of the participants indicated that they were aware of these documents due to the positions that they occupied on various committees at which these documents had been discussed.

Table 4.4 List of documents studied progressively in the T2-T3 period

University of the Witwatersrand: Policy on Staff Development
University of the Witwatersrand: Teaching and Learning Plan 2015 – 2019.
University of the Witwatersrand: Guidelines for Curriculum Development
University of the Witwatersrand: Policy on the Evaluation of Teaching and Courses
University of the Witwatersrand: Digital Learning and Teaching Strategy
University of the Witwatersrand: Online Learning and Teaching Policy
University of the Witwatersrand: Amendment to the Teaching and Learning Plan 2015 – 2019.
University of the Witwatersrand: Framework for CPL of Academics as University Teachers
University of the Witwatersrand: Academic Workload Policy
University of the Witwatersrand: LMS evaluation report

As was found in the T1-T2 period, the development of policies does not always guarantee their adoption, as much depends on the institutional culture and the agency of individual academics. In 2018, Wits developed guidelines for curriculum development to encourage new ways of thinking about curriculum to equip academics to respond to the demands of teaching and teaching with technology. To further bolster teaching practices that integrated edtech, the Learning and Teaching Plan (2015-2019) positioned teaching practice using edtech and blended

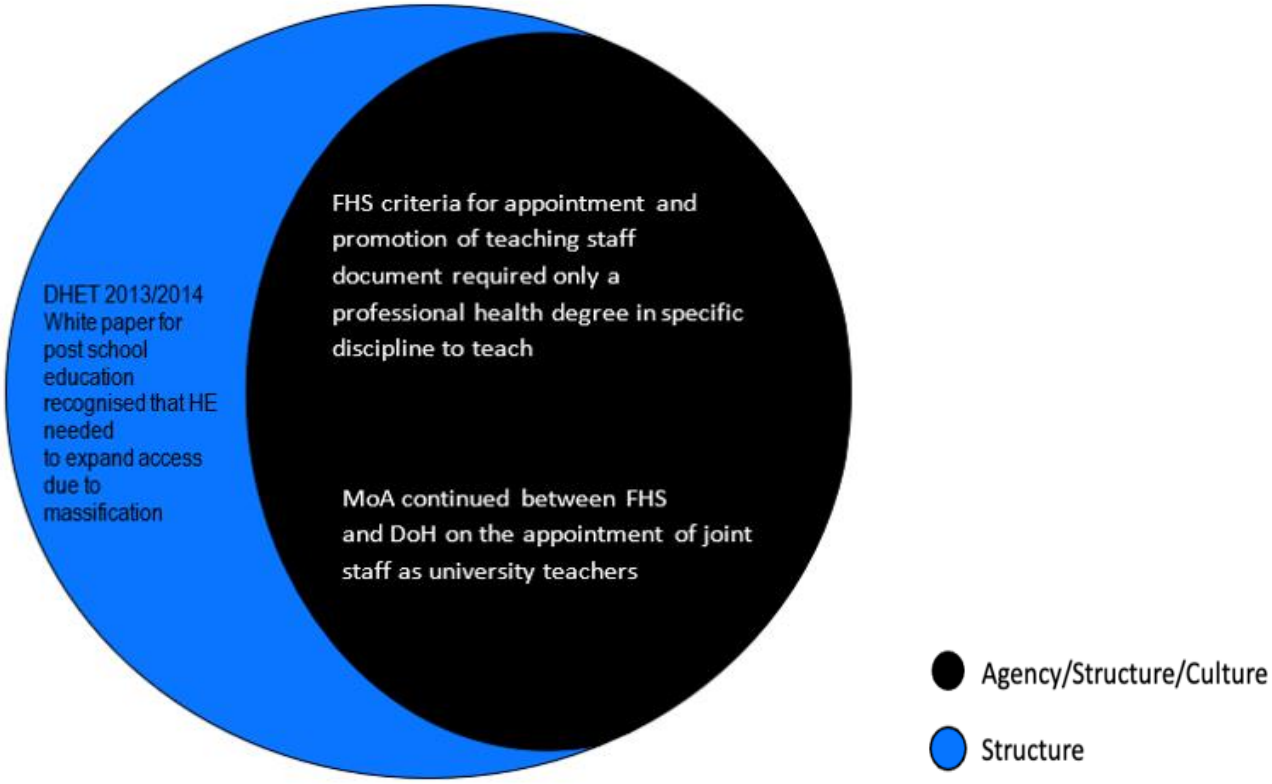
learning in Priority Area 5. It also included Priority Area 3, which focuses on the professional development of academics and their teaching practice. Concomitantly, the CLTD's strategic plan for 2016 provided for staff development opportunities for digital literacies and blended learning. Participant 2 revealed in the interviews that there was an expectation on the part of younger academics entering Wits that they would employ technology in teaching practice due to their previous socialisation which implied a prior *cultural enablement* of DT. Participant 2 explained that on various occasions younger academics who had not been at the university for long vented their frustration when requesting new software and applications to be used in their teaching practice. It appeared that they had had the impression from the university's advertising that it was more digitally transformed than it was.

In 2013, the application document for the Teaching Development Grant (TDG) indicated that Wits had enhanced its teaching practices to include digital literacies and technologies and was committed to enabling initiatives to promote the development of academics' teaching practice. As a *structural enabler* in practice, it was evident since many conditions provided thus far demonstrate so. However, these structures were still dependent on the actions and intentions of the academics and how they navigated and made sense of all these enabling conditions. In alignment to these enablements, there was action through a few background projects in the FHS because of the initiative of a few early adopters.

> We had a few background projects in the faculty happening, like audio recording at the medical school for about 7 years. Interested people, like you know, the early adopters, got into broadcasting lectures from the hospitals and the labs expanded into all academic hospitals though the use of technology for exams was fostered slowly into other parts of FHS. (Participant 4)

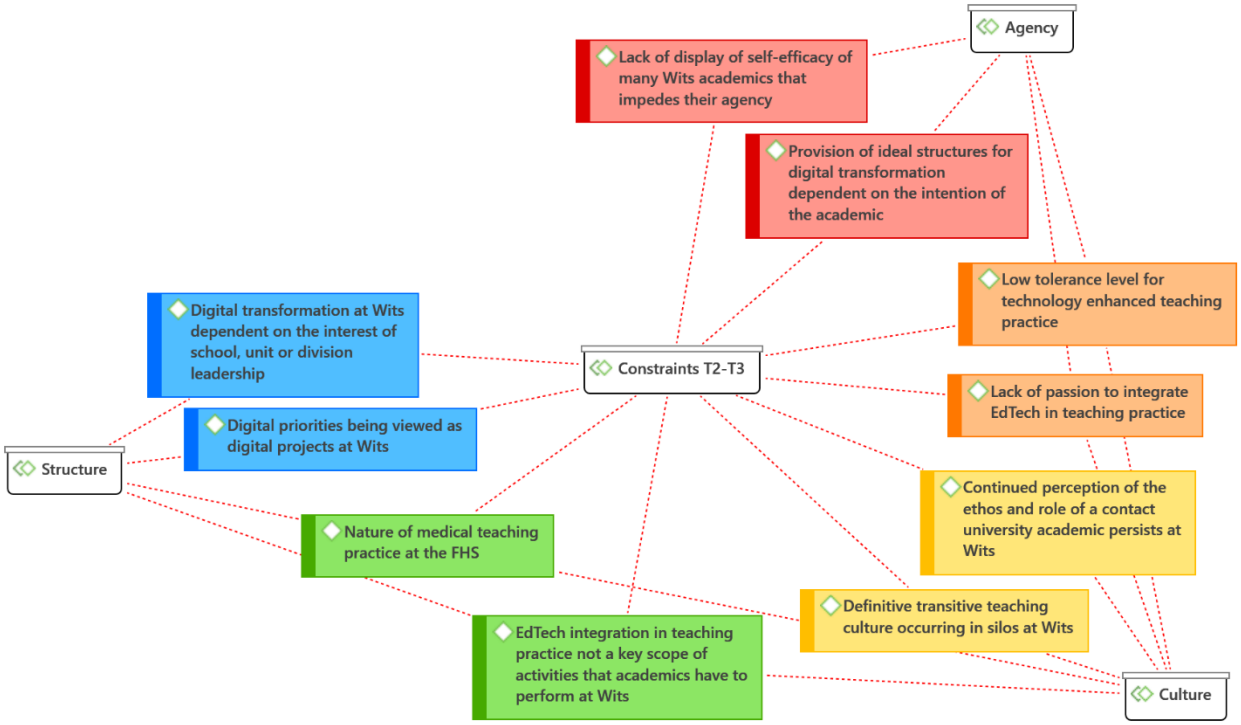
4.3.3 Constraints to CDP practices

Figure 4.35 *Visualisation of document study constraints and evidence from documents*

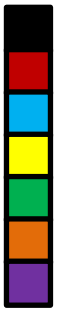


Evidence from documents
"Participation rates in universities will increase from just over 937 000 students in 2011 to about 1.6 million in 2030"
"The criteria for appointment for teaching staff in a Health professional degree in relevant discipline or Masters degree completed or near completion in relevant discipline (as determined by the School)"
"The employment contracts of joint staff members will state that their job requires them to take responsibility for academic and clinical activities agreed by both parties"

Figure 4.36 *Constraints visualising structure, culture and agency codes and networks*



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Structure & Agency

As shown in Figure 4.35, the DHET (2013) White Paper for Post-School Education recognised that higher education needed to expand access due to massification, which was unaffordable. This statement by the DHET demonstrated the historical conditions in South Africa that have led to massification, hence bringing *constraints* to bear on the quality of education. The assumption was that the use of technology in teaching would widen access prior to their pedagogical value being established. According to Figure 4.36 another *structural constraint* was that many digital priorities were viewed as digital projects at Wits. The comment about the stabilisation project in 4.3.2 is descriptive because it gave rise to an enablement that reminded Participant 3 of the associated constraints:

> For a long time, 'BL' was handled as a project, rather than as an institutional priority. The stabilisation of the LMS was still done from project funding, but since mid-2017 there was a discernible shift, with the DVC doing roadshows to socialise the notion of BL as a strategic priority, and funding being given to CLTD to lead the institutional shift to BL. (Participant 3)

Without a stable LMS, this would not have been possible; it seems that the stabilisation of the LMS was seen as a key moment for blended learning during this period. However, the stabilisation of the LMS still related only to the technological level: its integration into learning and teaching depended on the action and intention of the academics and whether they felt equipped to integrate technology into their teaching.

A view expressed by both Participant 2 and Participant 4 was that DT at Wits was highly dependent on the leadership of the school, unit or division. Leadership can also act as a *constraint* as academics are only enabled if their managers are interested in, and supportive of, creative digital learning and teaching practices.

> The constraints were really the Head of School, units, and divisions. Leadership has very strong-willed people. When I did the PG Dip, a number of people used their vacation and their own money to do the PG Dip, as management has told a few staff members 'this is not your core function, and this is not why we hired you'. This did not stop some staff in the faculty from being lifelong learners, though. (Participant 4)

> In some schools, when academics request certain digital apps for teaching, we have to get the requisition from the head. And immediately you will notice the hesitancy from them, yet they should acknowledge that the staff member is trying to do things differently for the students. (Participant 2)

Participant 1 and Participant 2 expressed the view that a definite transformation of teaching culture was occurring at Wits with regard to the integration of technology, but that it was happening in silos. This suggests that there was actually no standardised institutional culture for teaching. This could be due to there not being any requirements for the professionalisation of teaching or it could indicate a particular mind-set where some staff members were not willing to share what they knew or did with their colleagues. Silos within institutions can operate with a great degree of autonomy and may not collaborate with one another yet may collaborate with their students to achieve outcomes. This *cultural constraint* deserves attention since it links to mental models within the culture of learning and teaching at Wits. According to critical realist theory, the silo mentality also signifies that primary agents are moving to being corporate agents in smaller groups.

Participant 3 believed that the persistent perception on the part of academics of the ethos and role of the 'contact university academic' acted as a *constraint*, because prior to the integration of edtech at Wits many academics had understood the role of a contact university academic to be classroom-based teaching largely through a face-to-face medium. The tendency to add prefixes to 'learning' such as *e*-learning, *mobile* learning or *blended* learning set these approaches to learning apart in the minds of many academics as 'optional extras' that were not integral to the core purpose of learning itself. Participant 3 described how the CLTD responded to this:

> From mid-2017, CLTD started leaving the prefixes away, placing the focus on learning, with the role of technology being in support of learning, not as an optional add-on. (Participant 3)

In the 21st century, technology pervades the workplace, and it is almost inconceivable that technology would not find some application in the practice of learning and teaching in higher education, as well as in the formal curricula of the 'career-focused' university qualifications that ought to conscientise students to be critically-minded citizens first.

Participant 5 felt very strongly that many Wits academics possessed limited self-efficacy which *constrained their agency*, while Participants 1 and 4 believed that the provision of ideal structures for DT was dependent on the intention of the academic and how they wished to enhance their pedagogical practices.

> I have a pet hate of people coming to you to teach them, as they must also take initiative. We had to adapt the environment and excite them by getting it wired…Hmm – you know what I mean? We had to ensure that there was Wi-Fi in every building – under all trees. We had to ensure that we created environments that was friendly to them and their students' ways of learning. (Participant 5)

> I think as a resource agent, I can say that Wits is now a resource-rich environment made available to all academics. There was lots of enablements, and it depended on the individual whether they took it up or not. (Participant 1)

In both of these views, the common denominator that is evident is the self-assurance of the academic that has resulted because of the recognition of their abilities and achievements by their peers. However, what is interesting is these participants, who are both at the executive management level, seem to expect that if technological infrastructure required for online learning was in place, then there was no other barrier than the academics' agency and self-efficacy. These sound like technical, not academic, achievements. A huge issue is that previously ICT and academics never had to work together and there is now a big gap. ICT focuses on connecting technology, but not the challenges of the elusive subtleties of pedagogy.

All the participants concurred that the digital conditions at the university enabled some academics while constraining others. It enabled the early adopters because they had concerns that led to projects (Archer, 2000), but constrained others who resisted it. There was focus by leadership on technical infrastructure, but less emphasis placed on pedagogic practice. This could have been due to a lack of passion by academics for edtech integration, the need for a specific pedagogy or not having the requisite skill set to blend edtech into their teaching. Participant 2 summed this up by stating:

> They were not passionate about technology as it was a chore: like when you make children do work, there was no excitement. It was not all of the academics, though! (Participant 2)

> I think most academics viewed Wits as an 'edtech free' institution, with data-projectors and laptops being as much technology as could be tolerated. There were a few academics venturing into online content and lecture capturing, though. (Participant 3)

These comments demonstrate a low tolerance level for technology-enhanced teaching practice in many cases. However, could it be that certain *constraints* depended on the academic discipline to which the academic was affiliated, as edtech was employed to a wider or smaller extent in the various disciplines? It was clear that while limited attention might have been given to critical pedagogic practice, there may have been personal, contextual, institutional and professional barriers that impeded academics in their adoption of technology.

Four participants noted that medical teaching practice in the FHS is, by nature, a *structural and cultural constraint* to implementing CDP practices, because clinical practices cannot be massified to a large number of students, as the core purpose in medicine is driven by the patient and not the student.

> Does taking the lived experiences of students into account mean anything to medicine? No, no, no... academics are way too focused on teaching how to heal or save lives. (Participant 4)

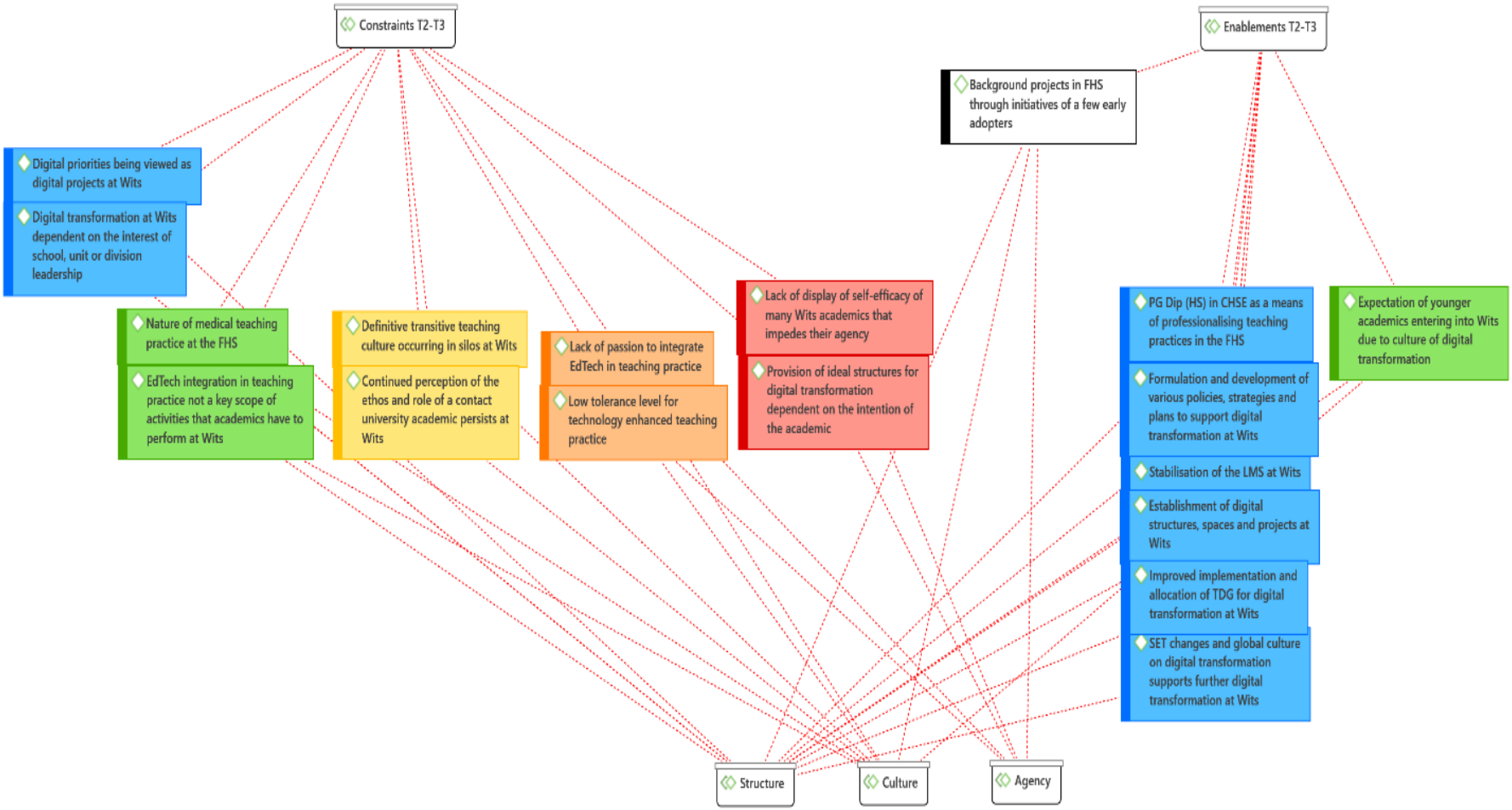
This view has much bearing on the CDP practices of academics in the FHS because, according to Participant 4, pedagogical practices may not first take the lived experiences of students into account due to teaching in a patient-centred manner. Academics in HS education focused on training students to arrive at the most accurate diagnosis irrespective of the community that students came from. Perhaps a signature pedagogy (Shulman, 2005) was at play that was focused on teaching for competency? Whatever the reason, the integration of edtech into teaching practice was not a key scope activity that academics were required to perform at Wits, according to Participant 5:

> It was not in their KPAs of staff performance and hmm…. unless you forced this and allowed them to demonstrate with evidence that they are using it, they won't do it. (Participant 5)

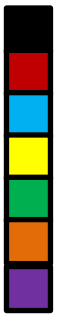
This comment suggests that if academic jobs were 'measured' according to specific outcomes involving the integration of edtech, they would be forced to adopt technology in their pedagogical practices. The appointment and promotion of teaching staff in the FHS required them to have a professional health degree or a master's degree in a relevant discipline. This serves as a *structural, cultural and agential constraint* because joint staff members who were only professionally qualified did not always possess the necessary pedagogical skills, values and attitudes to function as teachers in a higher education setting, even though they may have possessed the requisite skills for clinical training. Consequently, this condition manifested in the culture that was built over time which represented the world along the lines of social practices, relations, attitudes and beliefs. When unified it gives rise to the dominant cultural system discourses in the FHS and affects academic agency.

4.3.4 Co- occurrences and summation of enablements and constraints

Figure 4.37 *Co-occurrence between enablements and constraints*



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As depicted in Figure 4.37, no co-occurrences appeared between constraints and enablements in this period. This could be attributed to the in-depth research and development of policy that took place between 2012 and 2020.

4.4 T3-T4: 2020-2022: "Death of the chalkboard and the demise of the sage on the stage"[14]: Structural and Cultural Reproduction or Elaboration

At the end of March 2020, the global Covid-19 pandemic forced South Africa, like many countries, to go on lockdown. The government restricted the presence of staff and students at institutions of learning, including Wits. As a macro-level change agent, Covid-19 impacted the migration from contact lessons to online learning and teaching practices as the university took a decision to offer the existing contact programmes via Emergency Remote Teaching (ERT). All academics in the FHS were given two weeks to transition their courses for ERT.

4.4.1 Operational change

On 20 April 2020, ERT was implemented according to international practices and the CHE's decision to allow existing contact mode programmes to be offered via online and blended modes. While the move to ERT allowed the university to continue offering existing programmes through online and blended learning approaches during the period of the lockdown, the university had already planned to introduce several full online and distance programmes as aligned with its Learning and Teaching plan 2020-2024. In the FHS, the online Bachelor's Degree in Health Science in Nursing Systems Science was one of the online programmes that received a programme and qualification (PQM) mix. The university implemented a site that was created on the university's Learning Management System (LMS) for every course. Academic staff were now obliged to populate their online sites with learning resources and assessment tasks and use the sites as a mechanism for interacting with students via synchronous online sessions and discussion forums.

[14] This title has been taken from an article featured in the Wits Curiosity magazine, September 2017. https://www.wits.ac.za/news/sources/giving-news/2017/death-of-the-chalkboard-and-the-demise-of-the-sage-on-the-stage.html

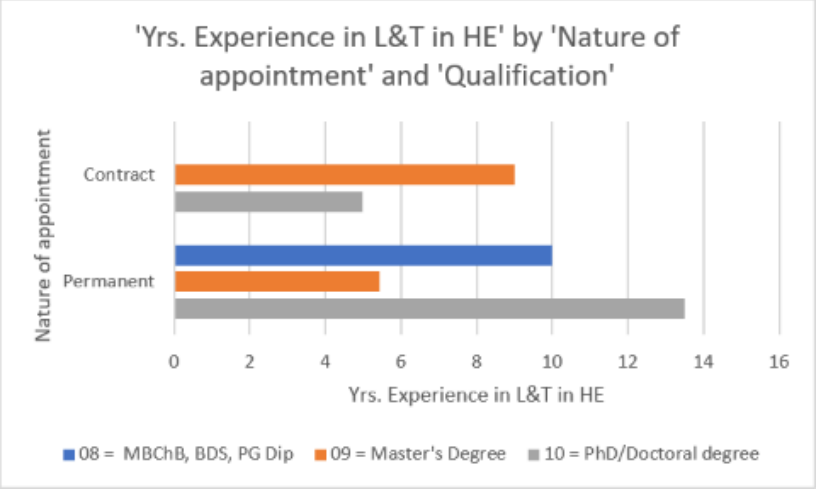
4.4.2 Findings from the survey

A little more than a year later, in June 2021, the self-reporting online survey created for this study was administered again to all academic staff from the FHS to determine if there was structural reproduction (morphostasis) or elaboration (morphogenesis) in their digital competence. As in the first phase, questions were divided into two sections: A (background data) and B (technical questions, administrative questions and pedagogical questions).

(a) FHS academics background information

As shown in Appendix J, the second time the self-reporting survey was administered, forty-four academics (n=44) participated in the survey; they completed it in an average time of 9.25 minutes. Participants had an average of 9.71 years' experience with learning and teaching and 3.15 years of experienced with blended learning and teaching. This suggested that the blended learning environment was not a familiar environment for most academics in the FHS. A nuanced discussion is needed on the role that edtech can play in how professionally qualified staff learn to teach and facilitate. Figure 4.37 displays additional background information for the participants.

Figure 4.38 *Academics' years of experience in L&T in higher education versus the nature of appointment and qualification*



The data in Figure 4.38 demonstrates that permanent employees who held a PhD had attained the most exposure to learning and teaching environments, while staff who were either contractual or held joint staff positions had vastly less experience with learning and teaching. Table 4.5 provides data on participants' CPL trajectory while in the FHS. Overall, 63% of participants had attended CPL programmes at various times to augment their knowledge and skills for using edtech in their learning and teaching practices. This represented a 21% increase from the percentage indicated in the survey that was administered in the T2-T3 period.

Table 4.5 *CPL information of academics at FHS*

Name of CPL courses attended	**Yr.**	**Time**	**Name of CPL courses attended**	**Yr.**	**Time**
63.6% of academics attended CPL programmes that explored the innovative use of edtech					
Introduction to BL	2020	4 hours	Developing Online Interactive Lessons	2019	3.5 hours
Teaching Role (BL)	2020	4 weeks	Faculty Video Studio Workshop	2019	½ day
ECAD	2020	1 year	Wits Introduction to Redcap training	2019	1 day
Facilitating online	2021	8 weeks	Developing Online Interactive Lessons	2020	2 hours
Introduction to BL	2019	4 hours	Developing an online course – Magna Pub	2017	½ day
Facilitating online	2020	6 weeks	CD 3 Online course design	2021	3 days
Facilitating online	2021	8 weeks	Flip grid	2018	1hr
T4T Webinar Series	2020	4 days	Open Pedagogies on BL	2019	5 hours
CAIERO	2020	4 days	Introduction to Canvas (Ulwazi)	2021	½ day
Facilitating online	2021	8 weeks	CD 3 Online course design	2021	3 days
Blackboard learning	2001	2 days	Introduction to Canvas (Ulwazi)	2021	½ day
Facilitating online	2020	6 weeks	CAIERO	2020	2 hours
Turnitin	2020	2 hours	LOOOP	2019	½ day
Facilitating online	2019	6 weeks	Open Pedagogies on blended	2020	

			teaching		5 hours
T4T Webinar Series	2020	4 days	Online Assessment	2020	½ day
Facilitating online	2020	6 weeks	21st century learning design	2021	3 hours
Moodle Workshops through eFundanathi	2020	3 days	CAIERO	2021	1 day
Facilitating online	2019	6 weeks	Facilitating online	2020	6 weeks
Introduction to BL	2019	½ day	Faculty Video Studio Workshop	2020	1 hour
21st century learning design	2014	1 day	Facilitating online	2021	8 weeks
Facilitating online	2021	8 weeks	Enabling BL workshop	2020	2 days
WAMS	2021	1 day	Facilitating online	2020	6 weeks
Facilitating online	2020	6 weeks	Online teaching for low-Tech	2020	1 hour
Developing an online course – Magna Pub	2020	3 hours	Pear Deck training	2021	3 hours
FHS simulation Course	2019	2 days	Introduction to Canvas (Ulwazi)	2021	½ day
Series of CLTD online teaching webinars	2021	2 days	Gilly Salmon Curriculum Workshop	2020	½ day
MS teams/streams	2020	4hrs	HSS online Curriculum Development	2019	2 days

Table 4.6 indicates the range of software and technologies that participants employed in their learning and teaching practice in addition to the LMS. A total of 51 applications/technologies were self-reported in the survey. This demonstrates an increase in the number and types of technological tools employed by academics in the FHS.

Table 4.6 Software/technologies besides the LMS that academics at FHS employ

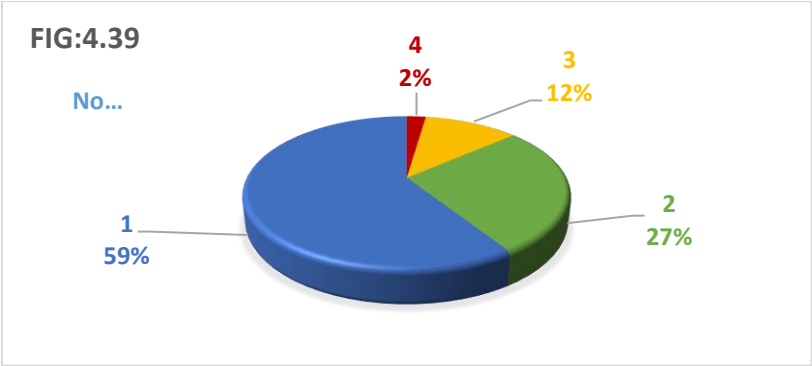
No. of academics	Technologies or software used	No. of academics	Technologies or software used
1	iSpring	1	Miro
3	Zoom	1	Hot Potato
1	Online resources for images	2	Minecraft education
12	MS Teams	1	QR codes
8	MS Stream	1	Statistica SPSS PAST bit of R
1	Mentimetre	3	Wakelet
2	Skype	4	LOOOP
5	Pear Deck	3	PollEverywhere
1	whiteboard	1	Camtasia Studio
8	WhatsApp	1	Screenflow
6	YouTube	1	Simulation cases
1	BigBluebutton	1	OneNote
1	Microsoft forms	1	MyDispense
1	Medactive	1	FACS Diva
6	Flip Grid	1	Cellprofiler
4	Google drive	3	Google sites
5	Google doc	1	Wix
9	MS PowerPoint	1	Riddle
1	Conceptboard	2	AMS
3	Redcap	1	Elsevier Clinical Skills
1	Adobe captivate	1	SCORM
1	Adobe software	1	Office 365

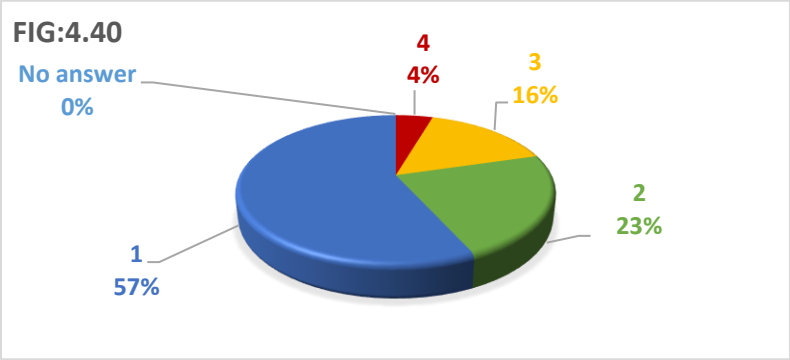
2	Kahoot	1	SurveyMonkey
1	Padlet	1	eVolve
1	Powtoon	1	Animaker
1	Thing-link		

Section B of the survey comprised groups of questions relating to the technical, administrative and pedagogical competencies of academics. The data is grouped and presented according to these three categories for ease of understanding. Additionally, the data narrative that aligns to each visualisation presents the advanced percentage (blue) which means that this is the highest-level academics self-reported according to their competencies.

(b) Technical use of edtech

Figure 4.39 and Figure 4.40 *Data on technical competencies of FHS academics*





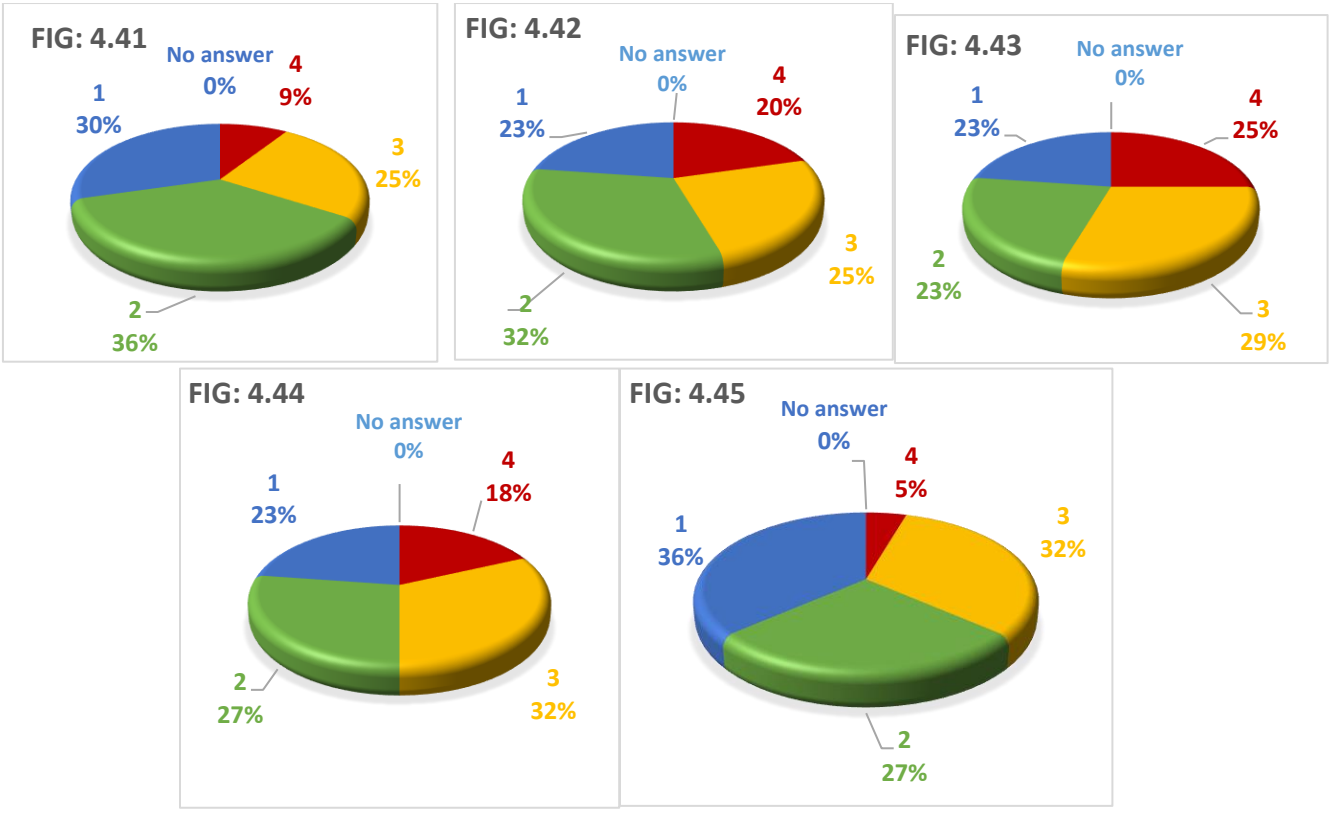
KEY:
1= Advanced (Blue)
2= Intermediate (Green)
3= Basic (Yellow)

4= Unfamiliar (Red)

Figures 4.39 and 4.40 provides data on participants' self-reported technical competencies in terms of creating and managing documents, files and multiple windows required to find, evaluate, manage and manipulate relevant information and data, for effective L&T, research, and professional purposes. This also included them logging into the LMS and/or other software to access, navigate, locate and make changes to critical elements (curriculum, lessons, gradebook, and chat rooms) in the class sites. On average, 58% of participants were operating at an advanced technical level of competency.

(c) Administrative use of edtech

Figure 4.41, Figure 4.42, Figure 4.43, Figure 4.44, and Figure 4.45 *Data on administrative competencies of FHS academics*



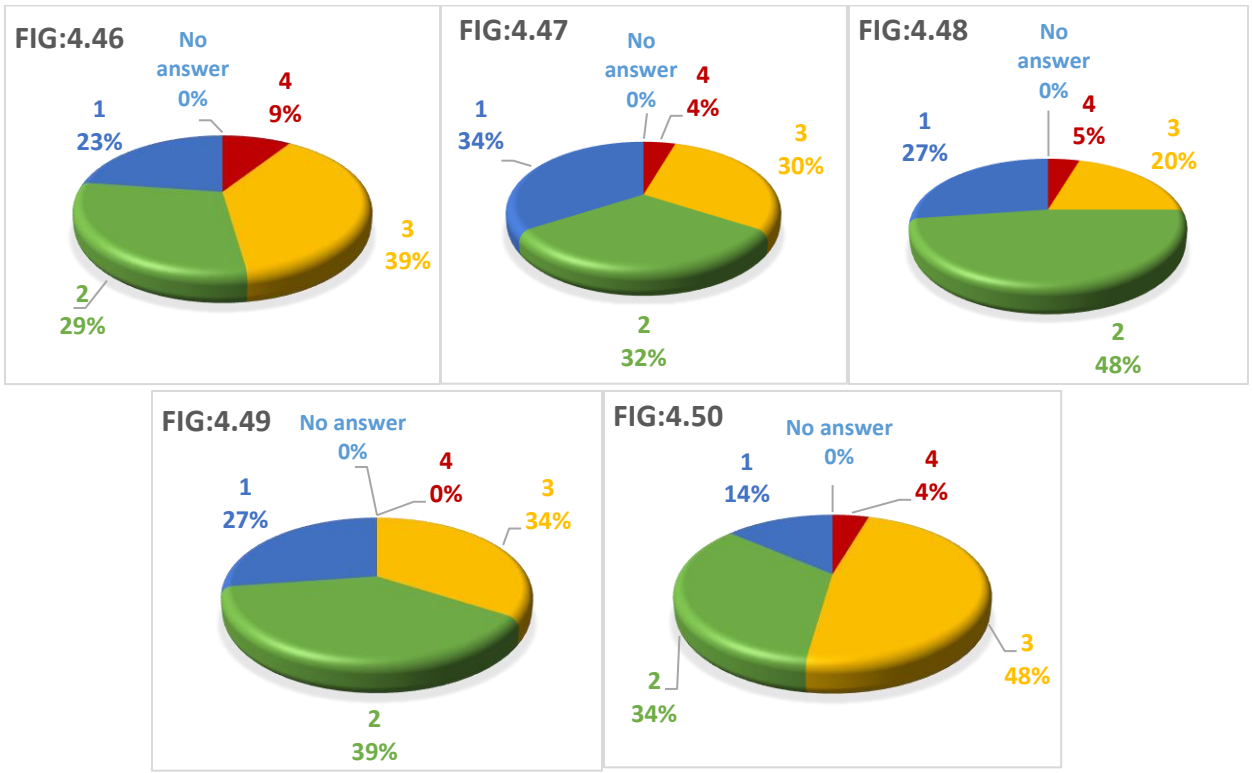
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1= Advanced (Blue)
2= Intermediate (Green)
3= Basic (Yellow)
4= Unfamiliar (Red)

As shown in Figure 4.41, 30% of the participants knew how to manage the course roster to set up and manage teams/groups, and add facilitators, assistants, and outside guests with appropriate passwords and rights, while 23% knew how to set up the class grade book and manage students' grades, using features such as setting a grading scale, using points/percentages, and submitting final grades (Figure 4.42). As shown in Figure 4.43, 23%

knew how to monitor and manage student progress using course statistics. 23% knew how to communicate course expectations, assignments, notifications and feedback to students at least every 4th day, utilising a variety of communication tools (Figure 4.44), while 36% actively and collaboratively participated in the course using announcements, wiki's, discussion forums and chat rooms to respond to student queries within 12-24 hours (Figure 4.45). All of the participants indicated they were familiar with administrative processes on the LMS.

(d) CDP practices of FHS academics

Figure 4.46, Figure 4.47, Figure 4.48, Figure 4.49, and Figure 4.50 *Data on CDP competencies of FHS academics*

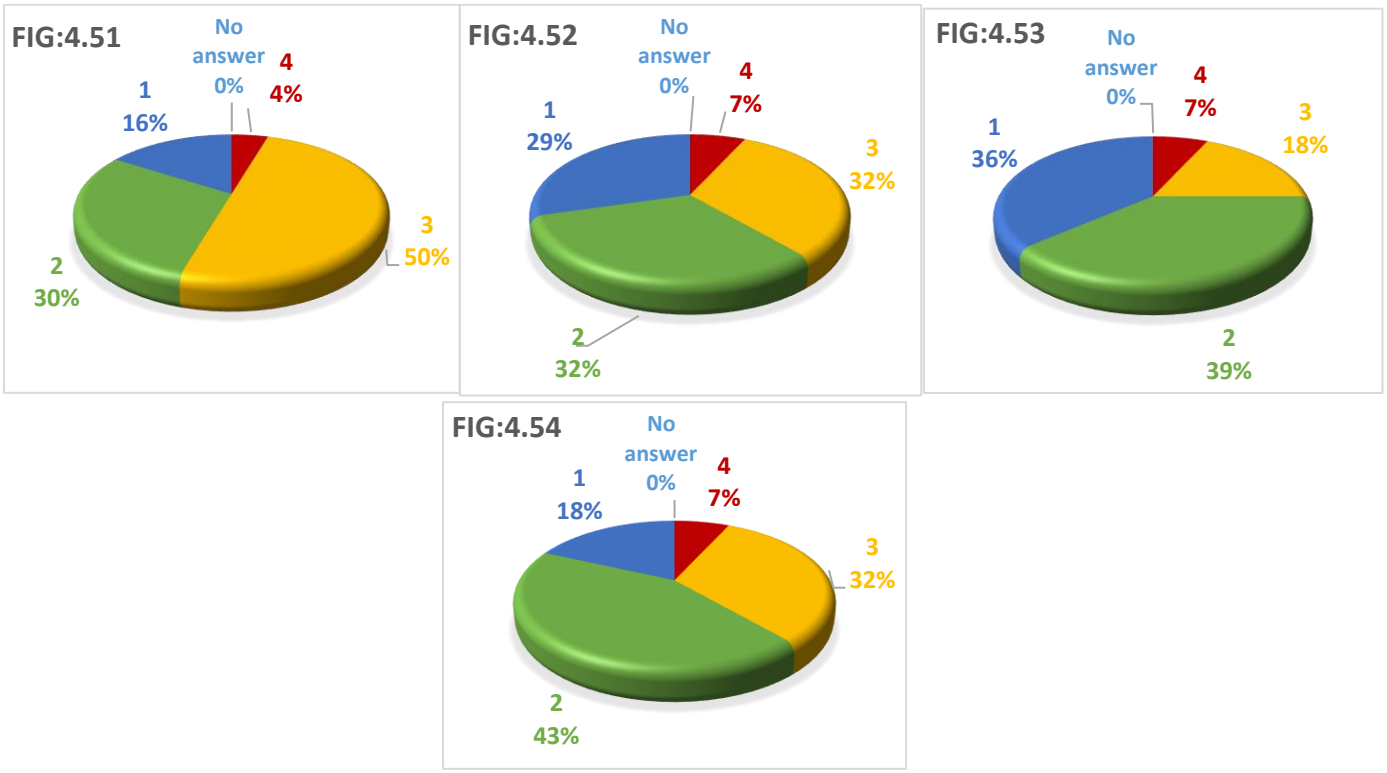


KEY:
1= Advanced (Blue)
2= Intermediate (Green)
3= Basic (Yellow)
4= Unfamiliar (Red)

Figure 4.46 shows that 23% of participants indicated they used edtech to make new innovative resources and to express and develop new approaches to interpreting ideas, while 34% provided constructive feedback to students in the online space, on assessments, through facilitation, guidance and directed learning (Figure 4.47). Twenty-seven percent indicated they understood the nature of online identity, privacy, and safety (Figure 4.48), while 39% were at the intermediate level when attending to the diversity and inclusivity challenges of students in the online space (Figure 4.49) and only 14% understood how to get the most out of edtech and digital resources to support engaged collaborative learning (Figure 4.50). Overall, the CDP lens of the survey demonstrated that

academics struggle to align to CDP practices in the online modality. Perhaps this reflects that the design of the platform is an area for further enquiry.

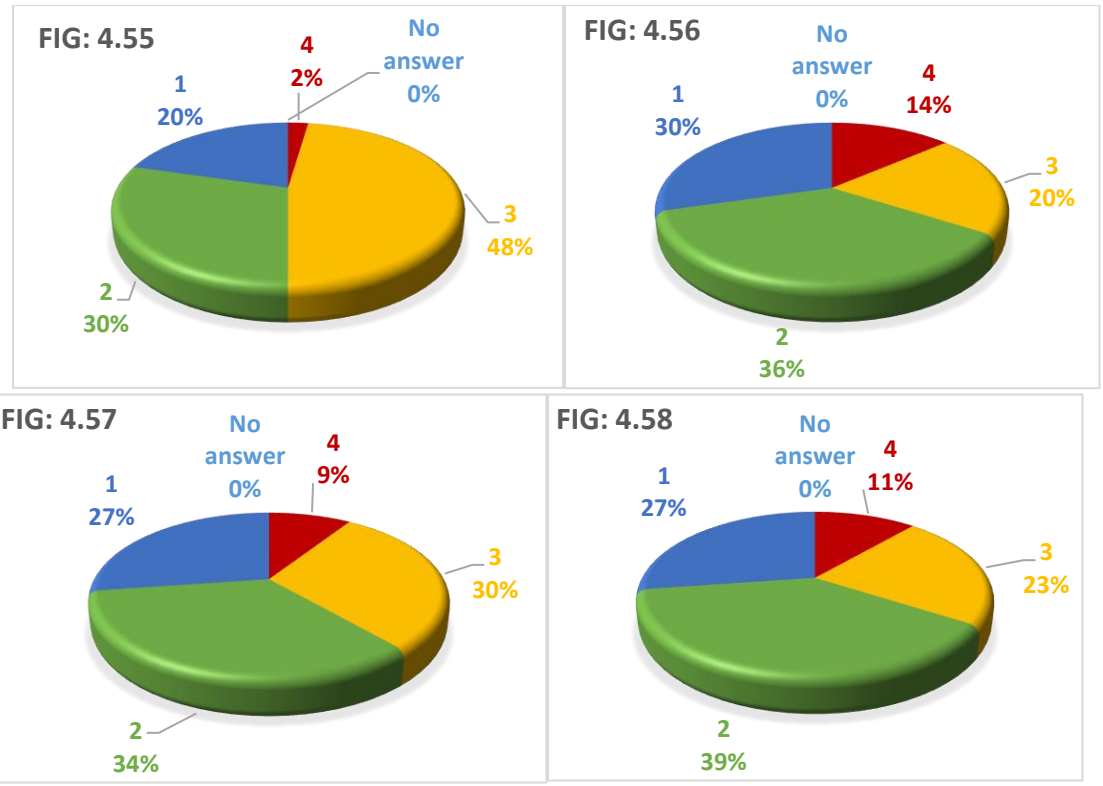
Figure 4.51, Figure 4.52, Figure 4.53, and Figure 4.54 *Data on CDP competencies of FHS academics*



KEY:
1= Advanced (Blue)
2= Intermediate (Green)
3= Basic (Yellow)
4= Unfamiliar (Red)

Figure 4.51 demonstrates that 16% of participants indicated that they possessed knowledge of the technical and practical aspects of edtech used to support teaching, learning, and research. Twenty-nine percent of participants aligned to designing (mapping and scaffolding) their course materials in collaboration with team members but developing (build) these courses on their own, within the structure and organisation of the LMS without constantly worrying about what needed to be done next (Figure 4.52). Thirty-six percent of academics indicated they are able to revise course content and learning and teaching materials on the LMS based on student feedback (Figure 4.53) while 18% indicated they students' differences in background, ability, and individual experiences into account and worked consciously to provide opportunities for success that were not impacted by these differences in their course design approach (Figure 4.54). The data demonstrates that academics were still operating at low levels in alignment to CDP practices, as 82% of participants indicated they did not consider the lived experiences of their students in their pedagogical practices.

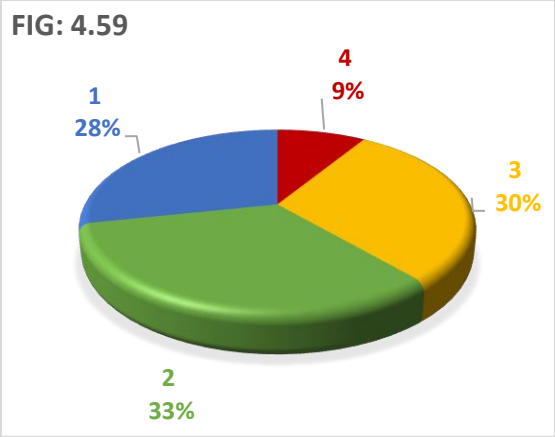
Figure 4.55, Figure 4.56, Figure 4.57, and Figure 4.58 *Data on CDP competencies of FHS academics*



KEY:
1= Advanced (Blue)
2= Intermediate (Green)
3= Basic (Yellow)
4= Unfamiliar (Red)

Figure 4.55 shows that 20% of participants indicated that they focus on facilitation and on their students' preparedness for learning and readiness for online learning when they design and facilitate their online courses. Thirty percent said they encourage their students to question and challenge inconsistencies that exist in families, schools, and societies (Figure 4.56), while 27% said they encourage students to think about the way they are being taught and how they, as students, fit into the broader social and cultural context (Figure 4.57). Twenty-seven percent of the participants stated that when they encounter views that are contrary to the dominant narrative in the online space, they present these views to the class alongside the traditional ones and ensure that students discuss them by encouraging them to draw their own conclusions (Figure 4.58).

Figure 4.59 *Data on average competencies of FHS academics*

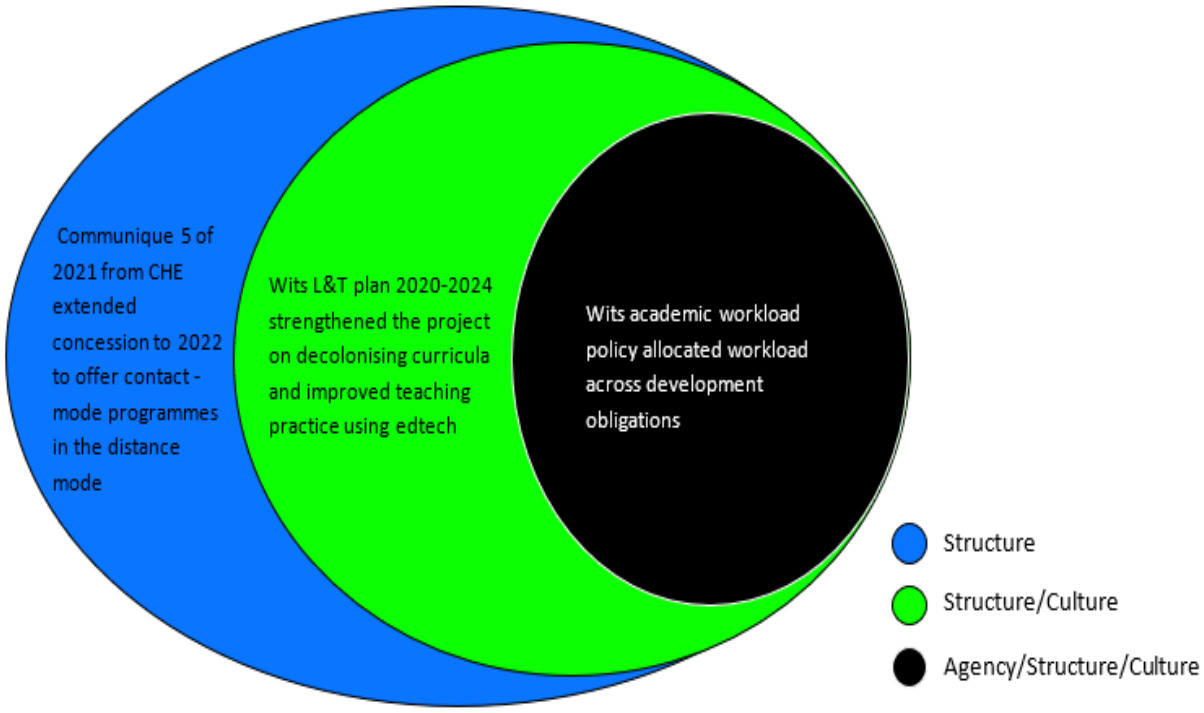


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1= Advanced (Blue)
2= Intermediate (Green)
3= Basic (Yellow)
4= Unfamiliar (Red)

Figure 4.59 shows that 28% of the participants were found to have advanced digital competency, while 33% functioned at an intermediate level of digital competency.

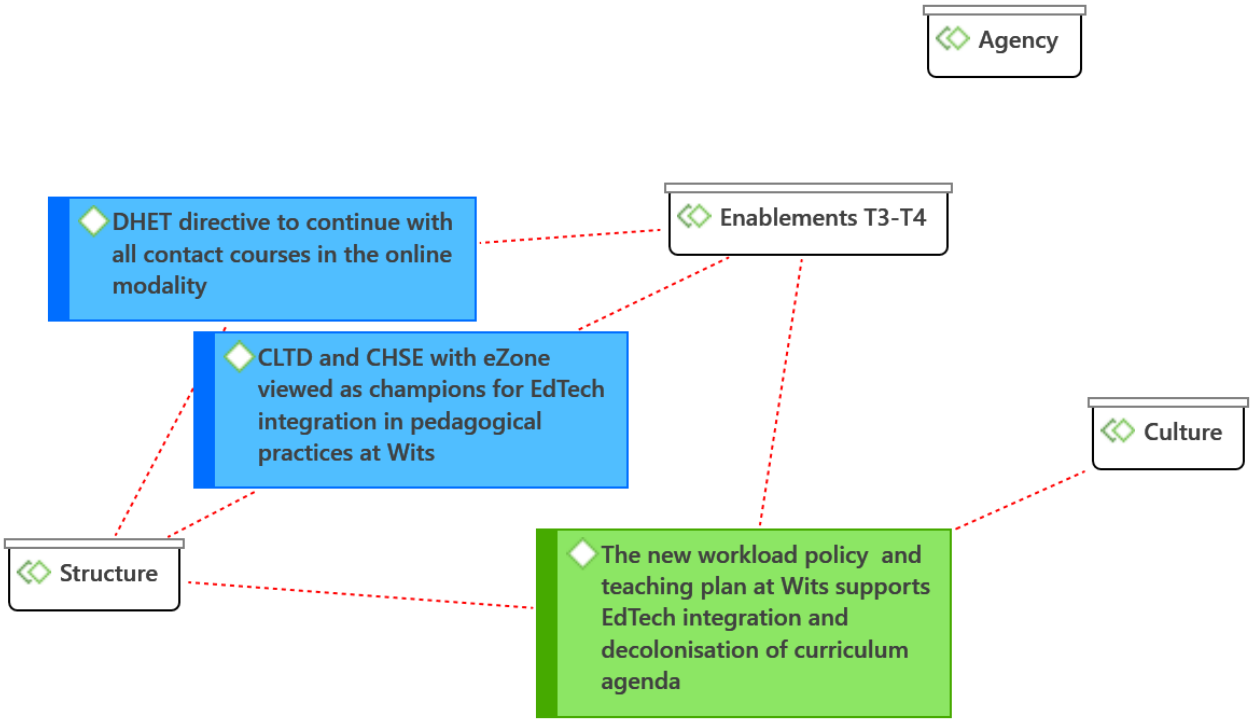
4.4.3 Enablements to CDP practices

Figure 4.60 *Visualisation of document study enablements and evidence from documents*

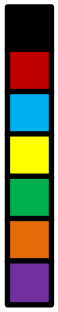


Evidence from documents
"In the absence of any certainty about whether and when institutions will be able to resume uninterrupted contact learning and teaching, the Higher Education Quality Committee (HEQC) has decided to extend the concession to institutions to continue offering programmes accredited for the contact mode to be offered in the distance mode for the 2022 academic year"
"Participation in professional learning related to university teaching will be supported and encouraged while placing emphasis on a decolonised curricula"
"university teaching will be supported through workload policies that explicitly provide time for this"

Figure 4.61 *Enablements visualising structure, culture and agency codes and networks*



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According to Figure 4.60, a Council on Higher Education (CHE) Communique' in 2020 (extended to 2021) mandated that all universities continue teaching traditional contact courses using the online modality to comply with the Covid-19 lockdown restrictions. Along with the Universities of South Africa (USAF), the CHE requested universities to prepare themselves to make higher education more accessible through the online paradigm. At Wits, academics were asked to begin emergency remote teaching (ERT). Participant 1 expressed the view that although the university's involvement in online learning and teaching until that point had been limited, it did

have the necessary structures in place for academics to be able to transition to a fully online way of teaching. The CHE communique thus acted as an *enablement* because it required academics to integrate edtech into their pedagogical practices, thus forcing academics to gain experience and develop greater skill with teaching with technology. In Figure 4.61, the interviews revealed that participants viewed the requirement to continue all courses in the online modality as a lever that increased the digital experience of academics at the institution.

> My sense is that the skills learned by academics will stand them in good stead for them to progress their online teaching practices. (Participant 5)

This is a false perception of a structural enablement as it insinuated that because the academic is trained in pedagogic practices, this should aid them in the effective integration of technology in their L&T. The lever is the online skills acquired by academics that will aid them in their future academic practices, like blended learning practices.

All the participants viewed the CLTD, CHSE and the eZone as champions for the integration of edtech into pedagogical practices at Wits due to their increased efforts to help academics augment their pedagogical practices for the online modality during ERT. This view of the participants exemplifies the social nature of learning and teaching and how collaborative approaches required people to work together and ensured that learning and teaching continued even through a crisis.

One of the essential intentions of the Wits Learning and Teaching Plan (2020-2024) was to structurally strengthen the university's efforts to decolonise the curricula and improve digital teaching practices. All the interview participants accepted blended and fully online learning as an underlying assumption underpinning all formal and short learning programme offerings. It served as a *structural and cultural enablement* because of its focus on improving and supporting all aspects relating to the use of edtech by academics to achieve the intended outcomes. Concomitantly, participants acknowledged that the new workload policy at Wits supported edtech integration by formally allotting time for research and for academic staff members to participate in CPL programmes.

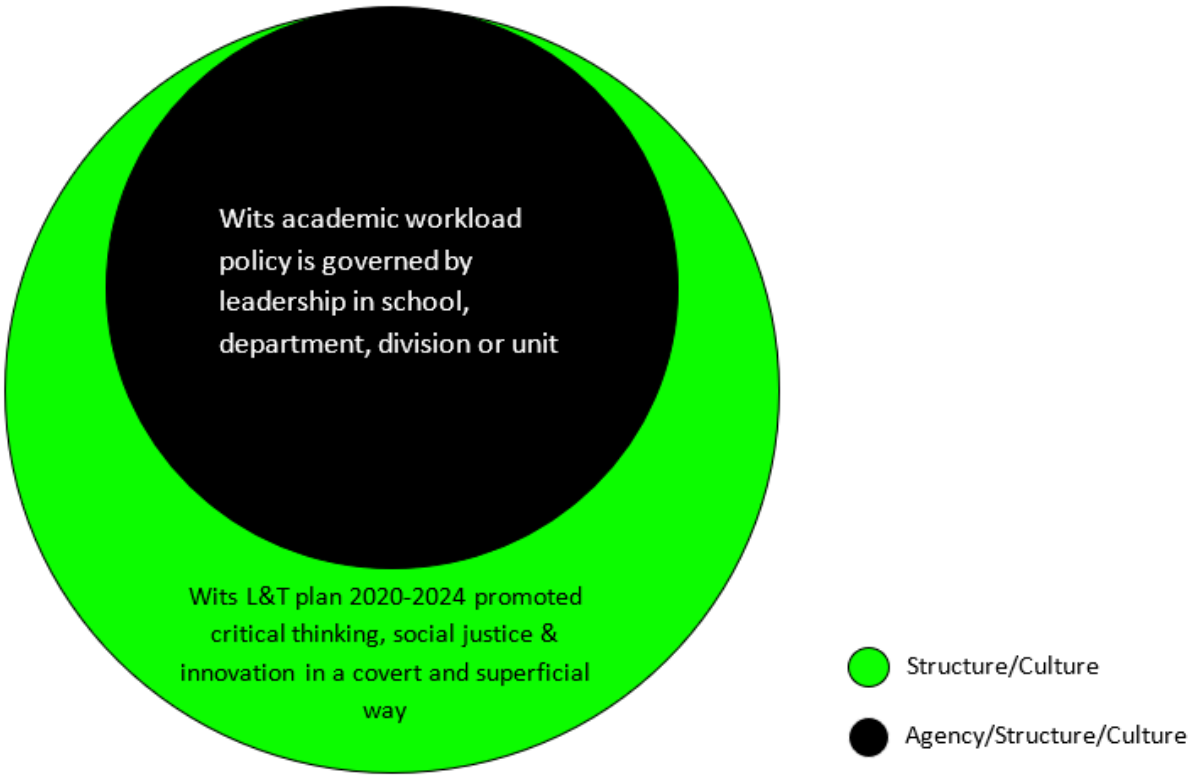
> The policies we put together thus far would enable academics, because we had to create the environment so that they did not have to worry about the tangibles. If we told them to use the LMS at its full capacity, then we have to make provision for the layers below to be in place so that when they are asked to use it, it works without frustrating them. The policies enforce why we have to engage in practices using edtech and the policies are the foundations for making sure that academics do the right thing in their teaching practices. (Participant 5)

Presumably, even though the policies and plans are essential roadmaps, they were viewed by leadership in light of ensuring a culture of compliance. However, the compliance aspect would not serve the university if staff refused to comply with them because they were unwilling to engage in practices they were not familiar with due to their levels of agency and autonomy. The Wits academic workload policy allocated workload across development obligations thereby formalising time allotment for the attendance of CPL programmes that enhanced teaching practices. The impact of the workload policy as a structural and cultural enablement was raised in the interviews. The policy acted as an *agential enablement* in that it allowed the academic to decide if, when and how they would use the allocated time to augment their teaching practices through research and attendance of CPL

programmes. The policies are structures that are aimed to produce specific behaviours, and compliance was one of them.

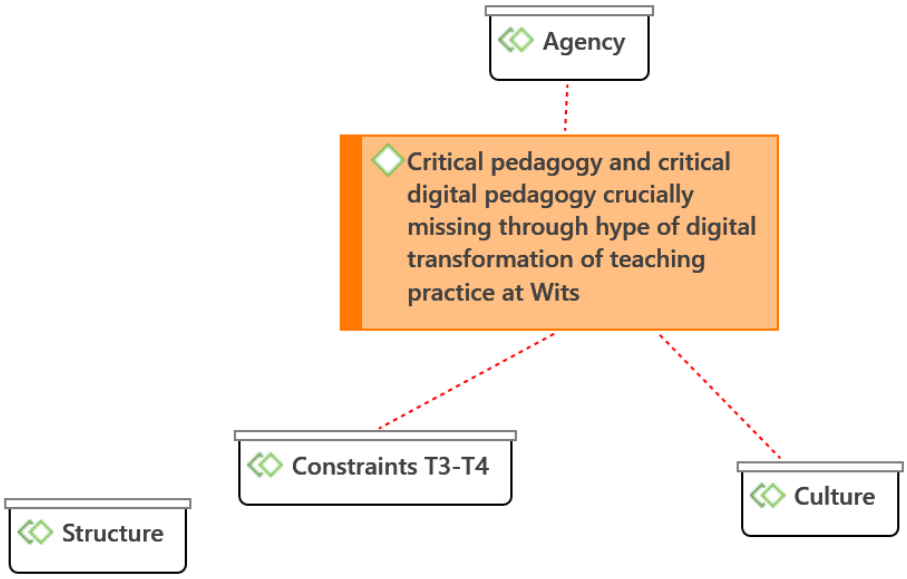
4.4.4 Constraints to CDP practices

Figure 4.62 *Visualisation of document study constraints and evidence from documents*

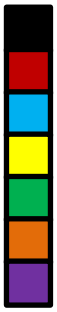


Evidence from documents
"This policy requires Heads of School to allocate academic staff workloads transparently and through consultation, balancing these loads against staff career development obligations with a balance of academic activities by agreement between an academic staff member and his/her Head of School"
This is my observation and view, and it is not specifically stated in the L&T Plan.

Figure 4.63 *Constraints visualising structure, culture and agency codes and networks*



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While the Learning and Teaching Plan 2020-2024 in Figure 4.62 served as an enabler (as discussed in Section 4.4.3), it also acted as a *constraint* to the enactment of CDP practices because it promoted critical thinking and social justice in a covert and superficial way with no mention of critical pedagogic practice. It addressed seven focus areas, as shown in Figure 4.64 with a central theme of DT and with the aim of making Wits a world-class, flexible and innovative institution:

> The new Learning and Teaching Plan has seven focus areas, which have been chosen in order to promote Wits' alignment with current global trends in higher education while responding proactively to the imperatives of the South African higher education context. (Wits Learning and Teaching Plan, 2020-2024, p. 5)

Figure 4.64 *Snapshot of the Wits Learning and Teaching Plan 2020-2024*



Consequently, this document served as a *structural and cultural constraint* because of its limited attention to the values and applicability of social justice pedagogical practices, hence critical pedagogic practice. As a cultural constraint, due to its covert canvas, the Learning and Teaching Plan normalised the notion that academics are not the creators of value in determining the meaning and purpose of technology in their pedagogical practice because these values normally influenced online learning. The plan does not speak to the critical pedagogic practice of a South African university and, instead, focuses on generalised global ideologies.

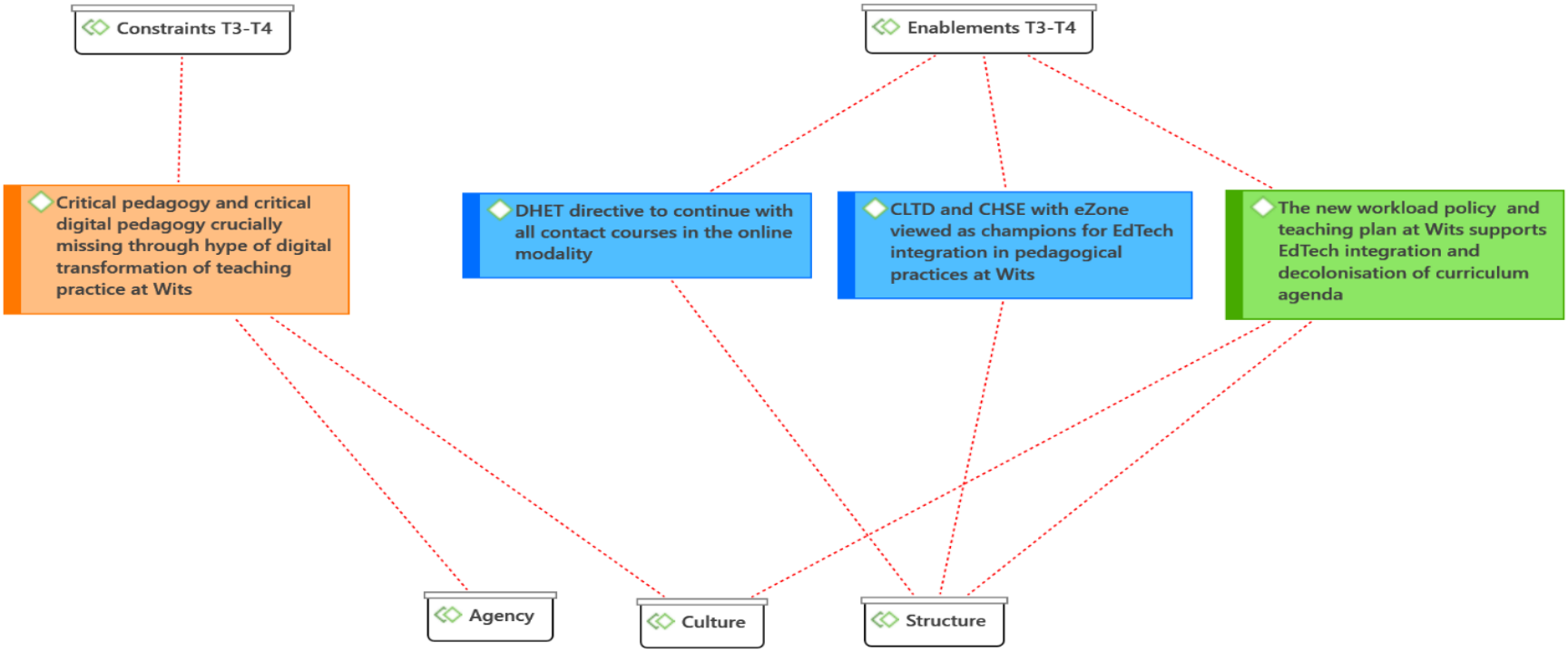
Through the interviews, it was found that critical pedagogic practice and critical digital pedagogic practices were crucially missing from the plan because there was more focus on the urgent DT of teaching practice at Wits to save the academic year.

> I do not think that academics had time to focus on a CP practice because most of them were more worried about getting their courses online urgently…hmm… so there was an urgency that took their focus away. (Participant 4)

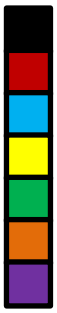
Academics focused on the technical aspects of online L&T practices during this period given that they had they had to move to ERT rapidly. Technical practices could be attributed to practices that were not firmly in place prior to ERT.

4.4.5 Co- occurrences and summation of enablements and constraints

Figure 4.65 *Co-occurrence between enablements and constraints*



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Figure 4.65 shows that no co-occurrences appeared in the T3-T4 period because this was a short period in the morphogenetic/morphostatic (M/M) cycle when most policies were implemented as structures. Only critical transitioning occurred due to the arrival of the Covid-19 pandemic as a macro-level change agent which transitioned the university culture to a certain degree but not in a highly negative manner. There were more enabling structures, like the eZone, CLTD, CHSE and the implementation of the workload policy. However, cultural and agential constraints did exist in terms of academics having limited time to focus on their CDP practices as they were engrossed in transitioning their courses to ERT in 2020 and to online learning and teaching in 2021. In the context of the Faculty of Health Sciences and other faculties that employ joint staff who have a professional role outside of the academic institution, this highlights a new way of viewing the structure and professional culture of specialists, the regulations imposed on them through rapid change agents and their self-efficacy. Collectively, these changes manifest in the transformation of the teaching practice, culture and agency of the specialist. A distinctive role in this tripartite pattern coheres to higher education institutions.

4.5 Summation of chapter

This chapter presented data on research Sub-question 1 that focused on the FHS as a case study. I investigated the contextual conditions of the past that impacted current interactions around the CDP practice and digital competence of academics in the FHS. The most notable aspect that emerged was leadership's view that providing the infrastructure for online learning implied an enabling culture with limited impediments and complexity. Such views gave rise to concerns about how HE manages digital transition and its location in the knowledge economy because HE is faced with quandaries not only in relation to the uptake of edtech in L&T but also for its integration in transitioning existing processes, systems, and channels.

The findings derived from the survey demonstrated that the T1-T2 period triggered the process of thinking about DT and implementation but an effective timeline, sufficient budget, or framework for implementation were not put in place. There was also no evidence of a policy framework to guide joint-staff academics in achieving the goals of preparing future medical practitioners around what they could engage in to achieve the joint vision of the university and the DoH. All that was found was an MoA (Memorandum of Agreement) between the two structures in the environment.

The T2-T3 period reflected the context of traditional contact universities. The university's charter, enacted in law, stated that, with the exception of the University of South Africa (Unisa)[15], all South African universities were deemed contact institutions. However, the Council for Higher Education (CHE) granted a provision to engage in blended learning to all contact universities in 2016 after the #FeesMustFall protest. Participants in this case study expressed their views about the whole institution and highlighted that most academics at Wits were not willing to engage in blended learning during T2-T3 unless there were incentives. As it was not mandatory to engage in blended learning, there was thus little uptake. This was evident in the survey findings as academics mostly employed communication and conference tools as the basic digital competence tool.

The findings from the T2-T3 period also exhibited that full-time academic staff at Wits gained the most exposure to blended learning environments, while contractual or joint staff had significantly less experience with blended learning. Concomitantly, the FHS, through the university leadership (SET), provided partial structures with the challenge that these structures only provided possibilities to transition and if academics did not believe or align to the vision then they did not integrate edtech into their L&T. There was a choice, and making this choice depended on academic agency; if there was limited agency, academics would not align. The policies were an encouragement in T2-T3 but was not enforced enough due to academic choice.

The T3-T4 period foregrounded the pandemic, which forced the transition to the use of edtech in learning and teaching. While Wits had already begun to put the structures in place to support this, if a transition had already happened during the T2-T3 period, the forced transition in the T3-T4 period would have been less fraught with difficulties for lecturers and students. During this period, the CDP lens of the survey demonstrated that academics struggled to enact critical practices in the online modality. The following chapter presents data relating to the same periods (T1-T4), but from a different case study within the FHS.

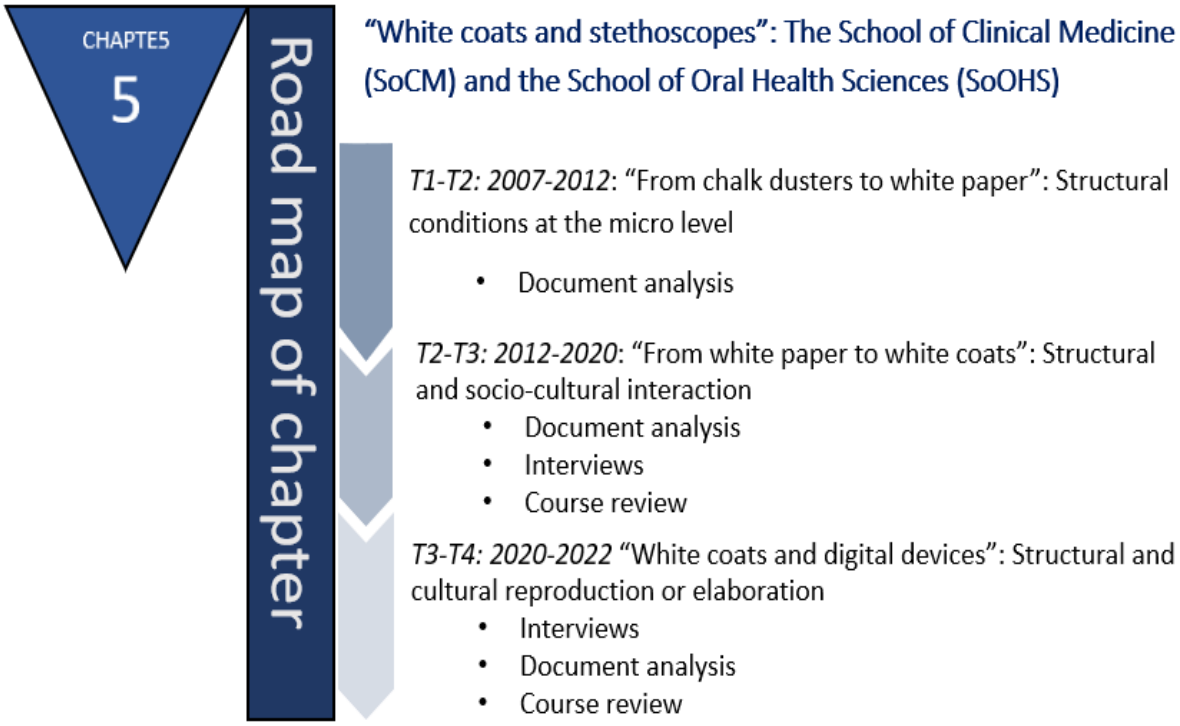
[15] According to https://www.unisa.ac.za/sites/corporate/default Unisa is the largest and longest-standing open distance learning institution in Africa and the world

Chapter 5 "White coats and stethoscopes": The School of Clinical Medicine (SoCM) and the School of Oral Health Sciences (SoOHS)

5.1 Introduction

In Chapter Four, I presented data on the structural and cultural conditions from the T1-T2 (2007-2012) period, T2-T3 (2012-2020) period and T3-T4 (2020-2022) period at the micro level that shaped the conditions that influenced the digital competence and pedagogical practice of academic staff in the FHS. This chapter presents data from the same periods within the context of the Schools of Clinical Medicine (SoCM) and Oral Health Sciences (SoOHS)[16], where the study participants were doctors and dentists. Data was gathered from eight participants using in-depth interviews, document study and a course review as depicted in Figure 5.1. A vignette, in narrative form, was employed to demonstrate sequencing in the periods. Concomitantly, visualisations were painstakingly designed to represent specification of data.

Figure 5.1 *Road map of chapter*



[16] refer to chapter three for my reasons on combining clinical medicine and dentistry.

Most participants possessed an academic qualification, which boosted their pedagogical expertise. Five participants were joint academics appointed by the Department of Health (DoH), the other three were appointed by Wits as full-time academic staff. As all of the participants had been appointed during the T2-T3 period, they could not provide data on the T1-T2 period. As a result, data for the T1-T2 period was obtained from the document study only. However, the structural, cultural and socio-cultural conditions of the T1-T2 period that were discussed in Chapter 4 are relevant to this case study as well because the schools in this study fall within the Faculty of Health Sciences (FHS) at Wits. Certain enablements stemming from the university and faculty presented in Chapter Four are recurring; the use of the word *'similarity'* signals the reader to refer to the relevant section in Chapter 4. Where an aspect of the similarity is specific to this case, it is presented within the context of this case study. For ease of reference, Table 5.1 was inserted as a list of acronyms commonly employed in this chapter.

Table 5.1 *List of acronyms employed in Chapter 5*

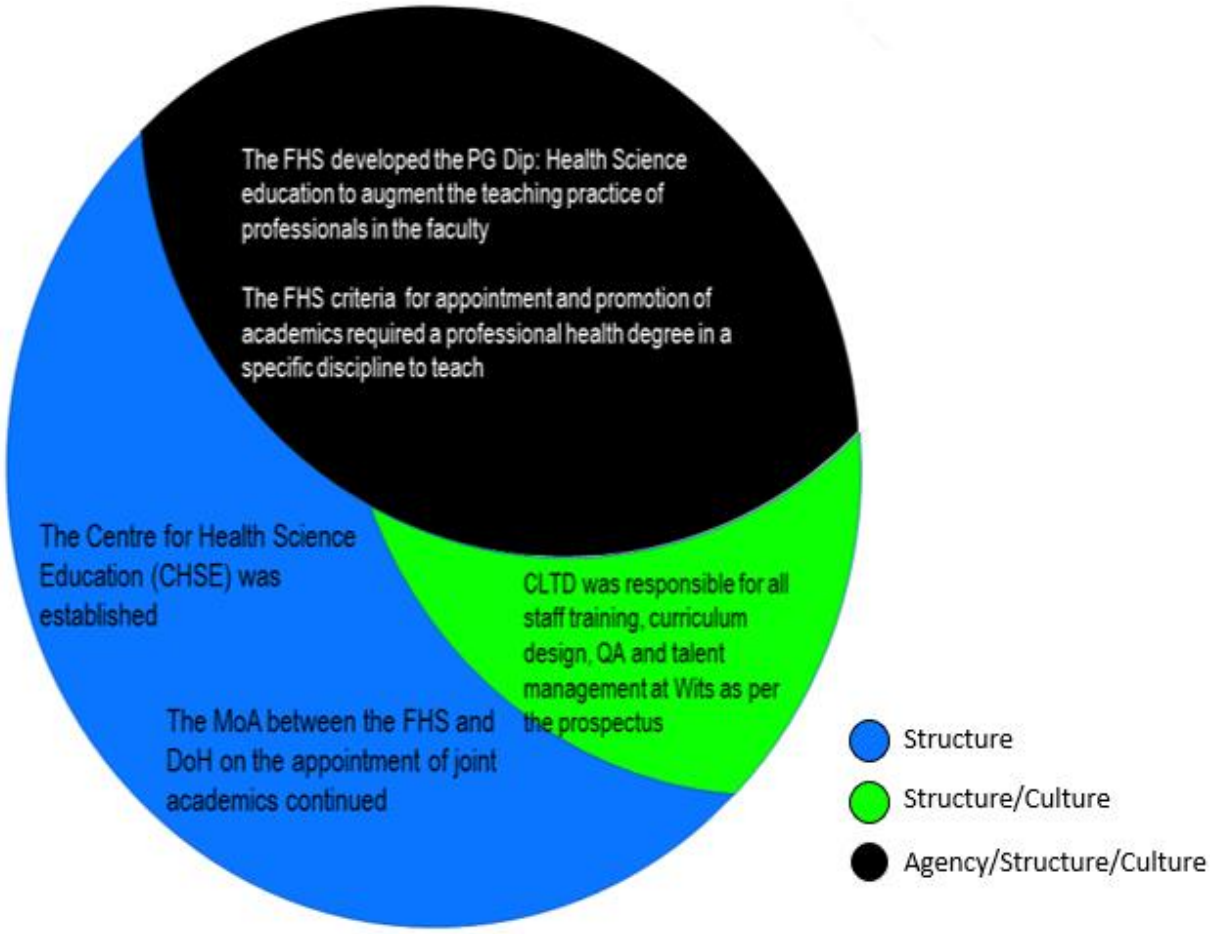
CDP	Critical digital pedagogy	DT	Digital transformation	LMS	Learner management system
CHSE	Centre for health science education	ERT	Emergency remote teaching	M/M	Morphogenesis/Morphostasis
CLTD	Centre for learning teaching and development	FHS	Faculty of health science	SoCM	School of Clinical Medicine
CPL	Continuous professional learning	HE	Higher education	SoHS	School of Oral Health Sciences
CR	Critical realism	HS	Health science	SoTS	School of Therapeutic Sciences
DHET	Department of higher education and training	L&T	Learning and teaching	SR	Social realism/realist

5.2 T1-T2: 2007-2012: "From chalk dusters to white paper": Structural conditions at the micro level

To keep the presentation of data succinct, I began with a study of the documents employing Archer's (1995) analytical dualism tool because, as a social structure, the documents remained detached from the participants in this study. Each of the visualisations uses a legend with a designated set of colours, as explained in Chapter Three.

5.2.1 Enablements to CDP practices

Figure 5.2 *Visualisation of document study enablements and evidence from documents*



Evidence from documents
Establishment of the CHSE
"The employment contracts of joint staff members will state that their job requires them to take responsibility for academic and clinical activities agreed by both parties"
"the Centre's main functions include the delivery of training and development interventions to all employees at the University"
"The Postgraduate Diploma: Health Science Education (PG Dip: HSE) has been launched to improve the teaching practice of professionals in the faculty"
"The criteria for appointment for teaching staff in a Health professional degree in relevant discipline or Masters degree completed or near completion in relevant discipline (as determined by the School)"

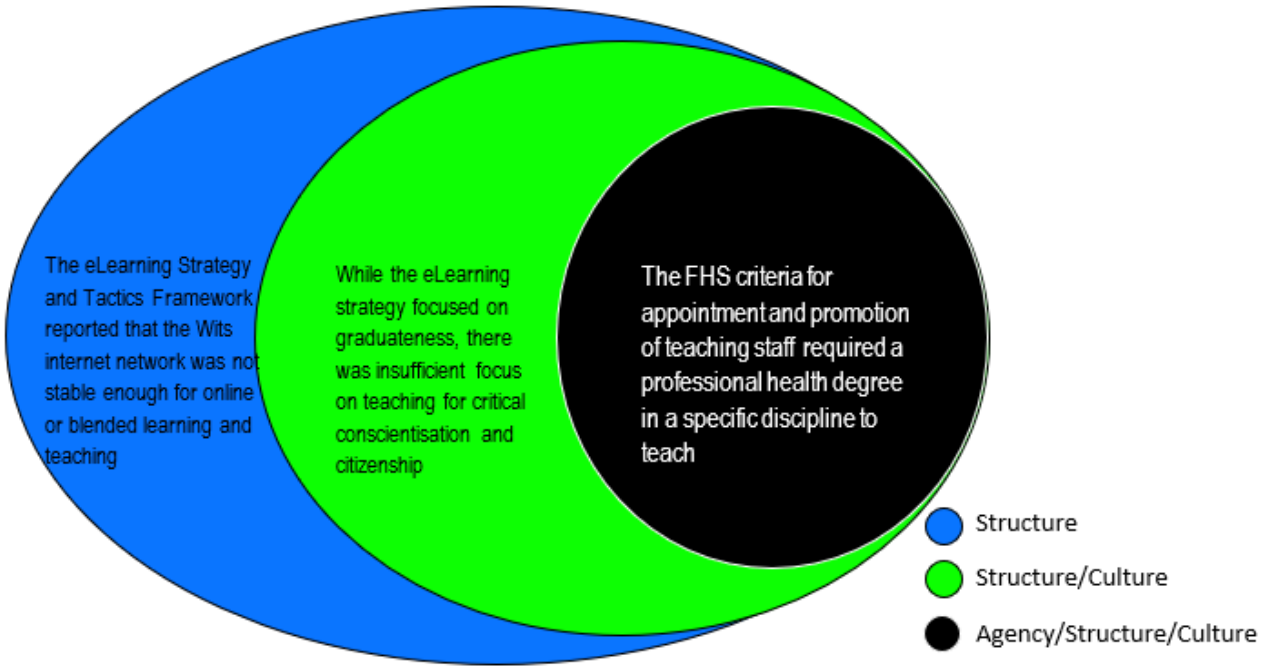
According to Figure 5.2, the Centre for Health Science Education (CHSE) was established in early 2007 and served as a *structural enabler* for CPL courses because it was an initiative that promoted and augmented the pedagogic expertise of lecturers in the schools within the Faculty of Health Sciences. The open-ended Memorandum of Agreement (MoA) between the FHS and the DoH regarding the appointment of joint staff as university teachers acted as a *structural enablemen*t because it enabled L&T practices that constituted clinician-educators who were employed as joint academics. These were public sector doctors who contributed to medical teaching practice at Wits. Joint academics had a heavy workload, being obliged to meet the triple demands of teaching, research, and clinical service, while also contributing to the work of the school by participating in a variety of committees and projects. During this period, the CLTD, through its mandate to provide support to all faculties, engaged in training on generic skills with a limited focus on the learning and teaching practices of academic staff (refer to Section 4.2.1 for similarity and Section 4.2.2 for a snapshot of the courses and a deep presentation).

The criteria of the Faculty of Health Sciences for the appointment and promotion of teaching staff included a degree in a specific professional health discipline; this strengthened the clinical training structurally. This served as an *enablement,* because there were competent clinicians who possessed medical knowledge with an understanding of promotive, preventative, and curative methods to treat patients, since their clinical training prepared them as clinicians. If joint academics made a continuous effort to improve their pedagogical practices, then their pre-clinical teaching practices would serve as an enablement. Much depended on the culture and agency of the joint academics, in terms of how they viewed their jobs and how committed they were to using critical pedagogic practice to ensure the quality of learning and teaching.

The Centre for Health Science Education (CHSE) developed the Postgraduate Diploma in Health Science Education (PG Dip: HSE) as a *structural enabler* (refer to Section 4.2.1. for a similar deep presentation). Academics were encouraged, but not required, to enrol for the PG; it thus depended on the individual academic whether they took advantage of this or not.

5.2.2 Constraints to CDP practices

Figure 5.3 *Constraining factors identified in the document analysis and evidence from documents*



Evidence from documents
"The Wits network needs to be made stable both internally and externally, and more compatible with the academic demands of a world class university"
"The Wits graduate should be prepared to be familiar with communication and information technologies that will enable participation in the world of work beyond the University"
"The criteria for appointment for teaching staff in a Health professional degree in relevant discipline or Masters degree completed or near completion in relevant discipline (as determined by the School)"

The unstable internet network and the focus on graduateness within the eLearning Strategy and Tactics Framework (Keats, 2009) was presented as a *constraint* in the previous case study (Section 4.2.2); these factors had a similar impact on L&T in this case study. Even though no other participants in this study were at Wits during this period, Participant 13 had recently joined the university and remembered that the CLTD was not focused on CDP practices in this period due to internal challenges. I argue that the limited extent to which the CLTD focussed on conscientised L&T during this time could be linked to the challenges it faced in its role to support academics in the development of their CP practices.

> The CLTD was not a part of my radar as they needed to get their act correct. I recall from what I heard when I started at Wits in early 2013, there was too much of in-fighting at the CLTD. So how were they going to focus on us, when they had so much happening? (Participant 13)

The findings in Chapter 4 also revealed that the CLTD was undergoing a tumultuous phase during this period, as mentioned by Participant 13, as the review report mentioned various challenges facing the CLTD. Hence, the

CLTD served as a *structural and cultural constraint* in this case study during the T1-T2 period because its institutional culture deterred academics from developing their critical pedagogic practice and engaging in CPL initiatives.

The issue around the joint staff arrangement (discussed in Section 5.2.1) bears relevance as joint appointees entered learning and teaching environments with an abundance of clinical knowledge but with limited, or no, pedagogical knowledge and skills. As the majority of teaching staff in the case study held joint appointments, it translated to them being remunerated by the DoH, and their role was structured under the conditions of employment of the DoH. Hence there was enforcement of the 40-hour working week. Privileges were available, such as commuted overtime and Remunerated Work outside the Public Service (RWOPS). When a joint academic received permission to participate in these opportunities the prime requirement was that the 40-hour core week had to be delivered. These options, together with accompanying stipulations, *constrained the culture* (which negatively affected their roles as teachers) by placing their workload under considerable strain.

Concomitantly, the curriculation of health programmes demanded a variety of pedagogical practices such as classroom lectures, seminars, tutorials, project-based learning sessions, laboratory simulations and clinical bedside training. Consequently, joint academics needed to recontextualise their practical knowledge while pedagogising theoretical knowledge due to their dual mandate. The joint appointment met that their workload was split, with 70% of their time allocated to professional service and 30% to academic teaching, although this was applied differently across staff levels depending on the operational needs of the schools and hospital, and the academics' commitment to faculty and community. Whilst this allocation appeared not to have the authority of administrative application, it did reflect a culture in which joint academics carried a significant clinical responsibility.

5.3 T2-T3: 2012-2020: "From white paper to white coats": Structural and socio-cultural interaction

During this period, the academics used Sakai as the official LMS at Wits. Various codes emerged when I employed the use of Atlas.ti. At the same time Atlas.ti provided a word cloud using different font sizes, with larger sizes denoting words that were mentioned often and deemed to be of greater importance, as shown in Figure 5.4

Figure 5.4 *Word cloud representing the relative importance and frequency of phrases occurring during interviews*

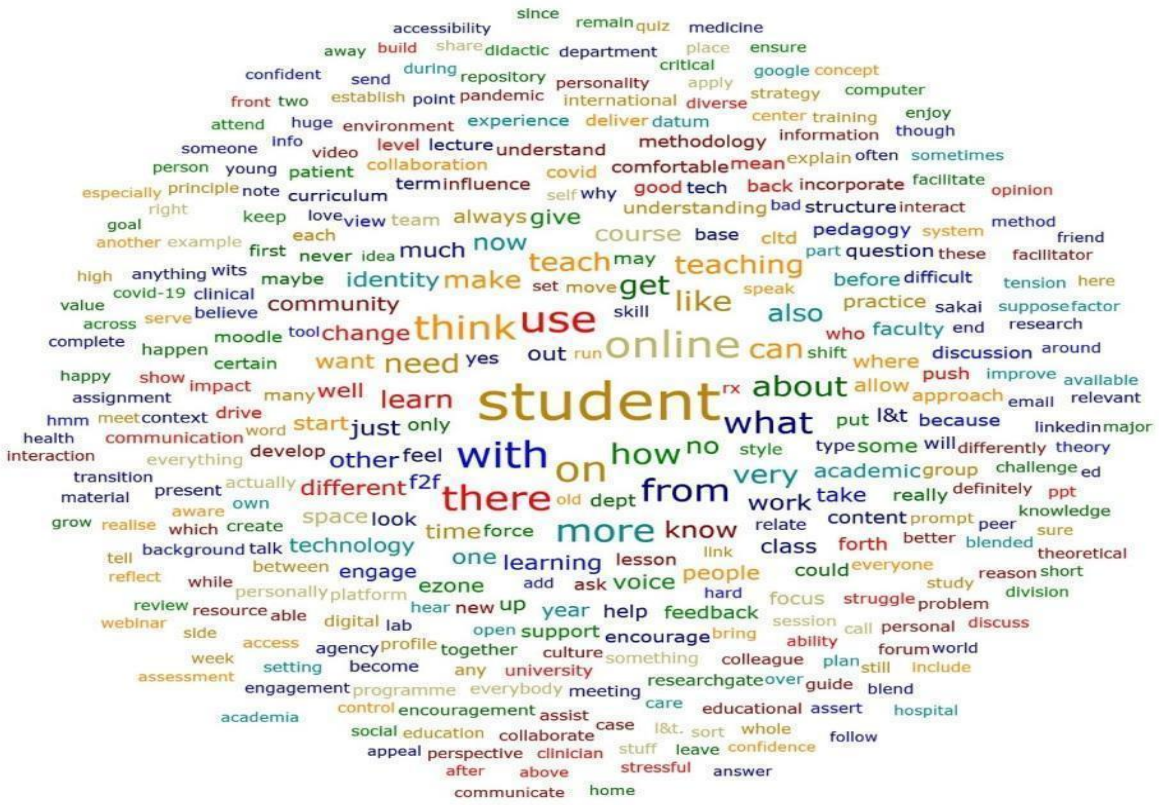


Figure 5.4 shows that the words ‘student’, ‘online’, and ‘teaching’ were perceived to be important and are foregrounded while ‘community’, ‘change’, ‘pedagogy’ and ‘content’ appear smaller and of less importance to the sample. In terms of data from the interviews and document study, I visualised the codes according to the content and ‘what’ and ‘how’ agents presented which eventually took the form of enablements and constraints. In what follows, I present the results of the interview, document study and course reviews, according to the logic of the codes that emanated from the data.

Data also emerged from the review of courses (refer to Appendix H) that constituted enabling and constraining factors around the pedagogical knowledge and reasoning that participants embodied in their pedagogical practices. These have been woven into the interview and document study (as snapshots of the courses that were enabling or constraining to digital competence and CDP practice) in Sections 5.3.1, 5.3.2, 5.4.1 and 5.4.2 respectively. However, a cumulative view of the results of the review is presented in Table 5.2

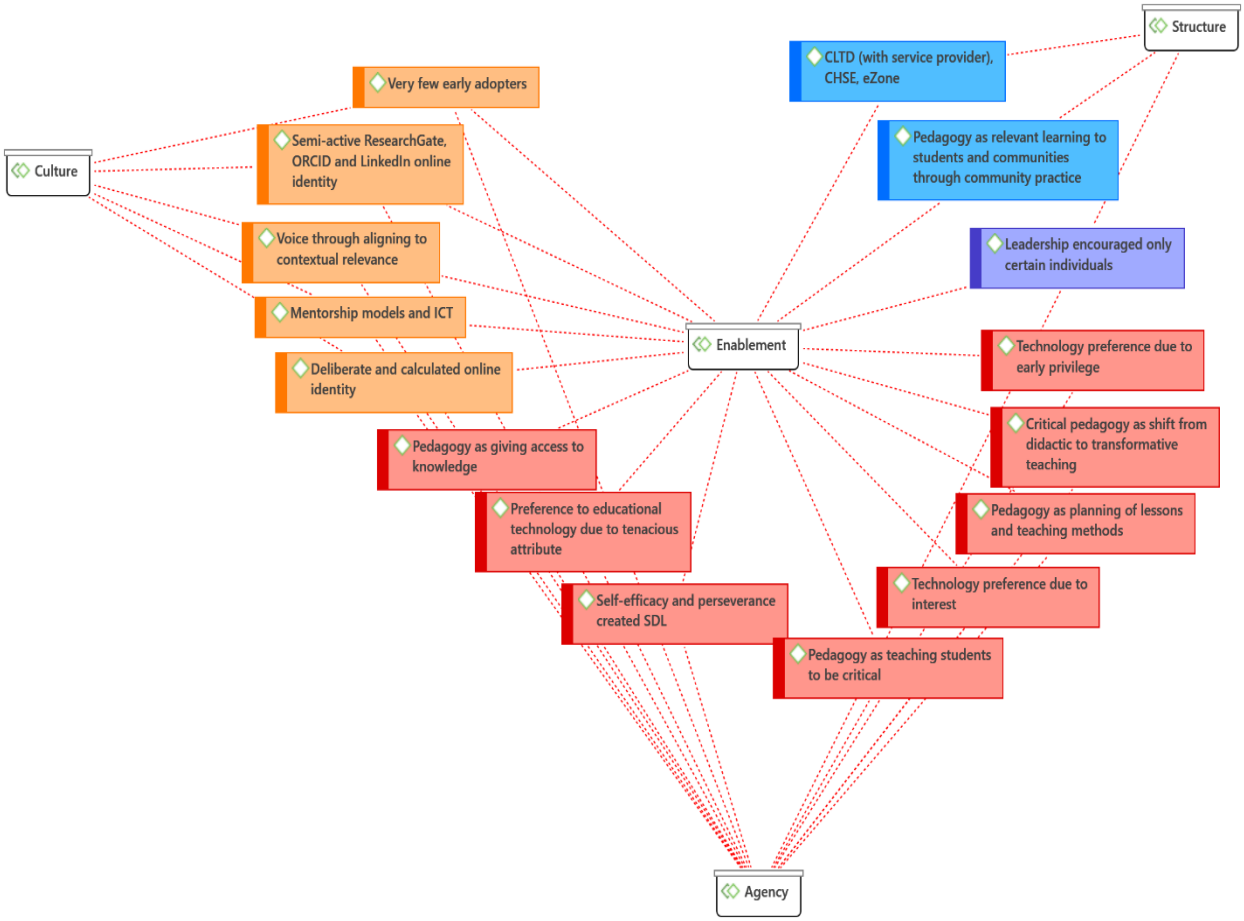
Table 5.2 *Course review data*

	Pedagogic Reasoning		
Rx Participants	*Not Evident	*Evident But Not Fully Developed	*Fully Evident
Participant 6	6%	4%	90%
Participant 7	22%	34%	44%
Participant 8	31%	53%	16%
Participant 9	34%	41%	25%
Participant 10	19%	40%	41%
Participant 11	28%	58%	13%
Participant 12	50%	50%	0%
Participant 13	97%	3%	0%
Case study average	36%	35%	29%

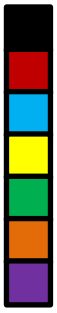
Table 5.2 shows that, on average, 36 % of the material in a course demonstrated no evidence of pedagogical reasoning. Participant 13, who facilitated to final year dental students engaged primarily in clinical chair-side training in the clinics and whose course scored 97%, contributed to the high average because the course was published with no evidence of lesson planning, teaching, adapting, and facilitating except for a few resources that served as content for the students. Perhaps there was more clinical teaching than pre-clinical teaching. Regardless of that, if a course was posted on the LMS, sound pedagogic practice required that it be designed and developed effectively. On average, 35% of the course material showed a limited understanding of a knowledge base for teaching and pedagogical reasoning, while 29% of the course material demonstrated a significant amount of pedagogical content knowledge and pedagogical reasoning. For the course designed by Participant 6, 90% of the course material demonstrated a significant amount of pedagogical content knowledge and pedagogical reasoning, which contributed significantly to the average across participants. (This course had been designed and developed in collaboration with the CLTD in 2019, which contributed to it being firmly grounded in CDP practices). The courses of Participants 7 and 10 also showed significant pedagogical content knowledge and reasoning, which spoke to the strong exercise of agency of these participants when developing their courses for blending learning practices that was found during the interviews with the participants (discussed in Section 5.3.1.)

5.3.1 Enablements to CDP practices

Figure 5.5 *Enablements visualising structure, culture and agency*

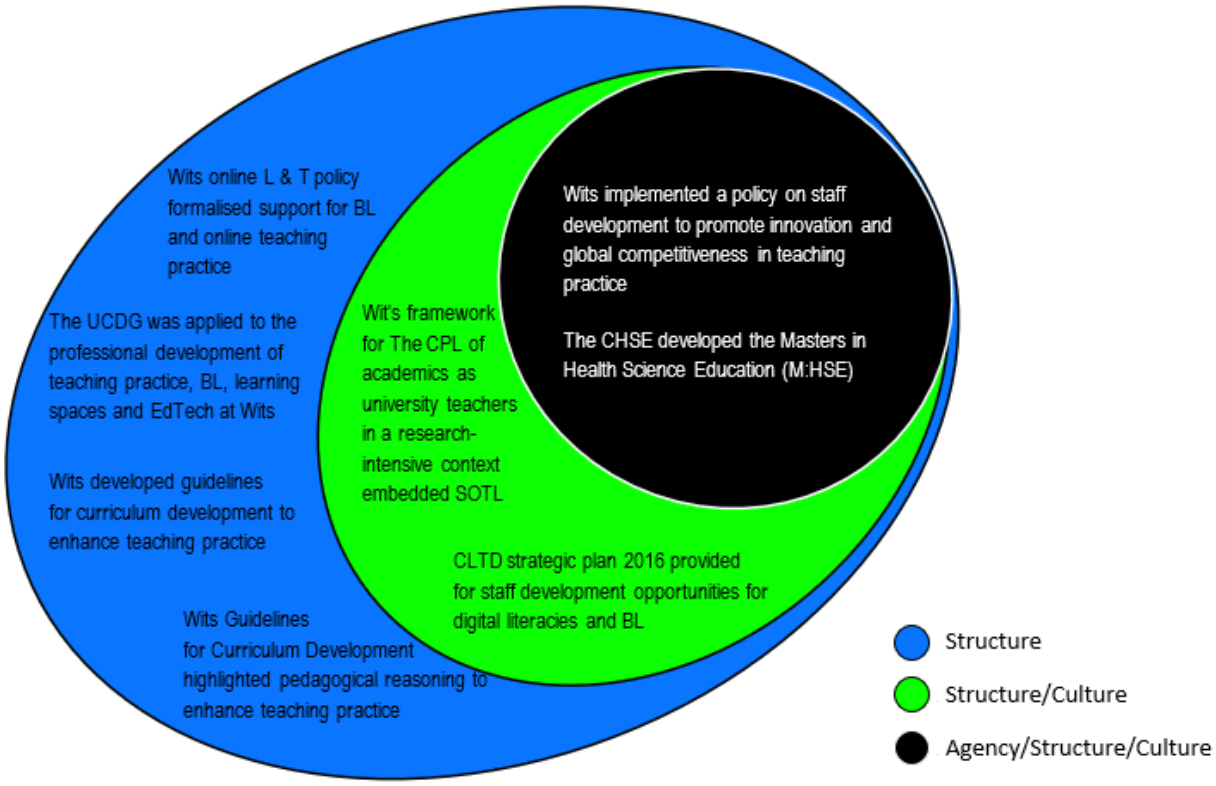


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Figure 5.6 *Enablements identified in document review and evidence from documents*



Evidence from documents
"Wits will position itself as an IT-savvy university that uses technology to enhance all the core processes, including providing new and innovative ways of engaging students and staff in academic activities."
"The financial management of the UCDG will be centralised to support the efficient financial implementation of the various university plans like blended learning. Innovative spaces and digital technology at Wits"
"this manual, **Guidelines for Curriculum Development at the University of the Witwatersrand**, has been compiled to support academic staff with their attempts to develop curriculum and support teaching practice"
"Designing and aligning curriculum concepts includes pedagogic reasoning that critically questions the thinking around curriculum development, agency, voice, power and authority"
"Engaging in SOTL at Wits encompasses a wide range of activities, from taking a scholarly approach to teaching that draws on relevant research and is enhanced through reflective practice to conducting research on teaching and student learning"
"Develop Wits staff capacity to implement BL To direct support to faculties to enhance"
"The Staff Development Policy is a significant driver of the Wits 2022 Strategy which seeks to position the University as one of the world's leading research-intensive universities"
"Masters in Health Science Education: This is a course work Masters and will be offered from the beginning of 2017"

The Wits Online Learning and Teaching Policy in Figure 5.6 formalised support for blended learning and online teaching practice while the Wits Digital Learning and Teaching Policy was structured around developing digital

competence, access and curriculum transformation. While the intention of the Senior Executive Team (SET) was for these documents to serve as *structural enablements*, they prompted some academics in the case study to transition their pedagogies due to widening access that led to massification at Wits.

> Class numbers prompted me to rethink my pedagogical stance as over the past few years the university accepted more students than what the classes could accommodate. (Participant 12)

The teaching role of academic staff was under pressure due to the various demands of massification. Given the unique circumstances under which dentistry and clinical medicine was taught, service delivery and the facilitation of teaching could be effectively combined because the teacher could play a role in demonstrating on patients or might teach whilst supervising the clinical work of a student.

The University Capacity Development Grant (UCDG), as an *enablement,* was applied to the professional development of teaching practice, blended learning, learning spaces and edtech at Wits. At the same time, the university developed various policies, strategies and guidelines in alignment to the blended learning environment. (Refer to Section 4.3.2 in Chapter Four for a similar deep discussion). In terms of the pedagogy in Figure 5.4, it was viewed as a *structural enabler* to learning and teaching by a significant number of participants as relevant learning for students and communities through community practice.

> For me, it speaks to health care as the foundation of our programme. Pedagogy is developing our practice so that students understand their place in saving communities. (Participant 8)

> I think, for me, it's that when you teach them to take it back to the community and assisting lives in the community through what they have been taught. (Participant 11)

> Especially in medicine, the pedagogy is focused on community and social and medical needs of the community. (Participant 9)

The function and role of pedagogy across the spectrum of clinical courses were complex since pedagogies differed across the clinical areas with the unwritten rule that patient-centred pedagogies were valued. The commonality across all areas was the aspect of L&T practices that prepared students for community practice and also highlighted the social nature of 'teaching to heal and save a life'. If pedagogy was foregrounded as an act of preparing students for community practice in medical and dental courses, then critical pedagogic practices were in the background. This was because L&T practices focused on developing competent dentists and doctors rather than on practices that took the lived experiences of medical and dental students into account. Perhaps the ethic of care toward students would be an enactment of critical pedagogic practice and a specific type of pedagogy was at play in the FHS.

The CLTD, CHSE, and eZone were viewed as *structural enablers* because they served as invaluable tangible and intangible resources to the advancement and innovation of learning and teaching practices.

> I have the privilege to work with a big team, service provider and the CLTD and Google. (Participant 6)

> As joint staff, I engaged in-person pedagogies initially and then started going to workshops at the CLTD. This pushed me to start thinking about technology and I started to dabble in the different tech and tried to figure what worked best for my students and for me. (Participant 12)

> There was a call for an online [FO] course at the CLTD, and we expressed interest, and enjoyed learning how to teach in BL. (Participant 8)

The feedback from participants demonstrated that these structures were *enabling structures* for the shaping of participants' knowledge of learning and teaching practices using edtech. Some participants conceptualised the enactment of pedagogy as the planning of lessons and teaching methods or as teaching students to be critical or as a method of providing access to knowledge.

> My basic understanding is the way we teach and the practices and methods we use to teach. I used to be didactic, but I have since moved to student-centred approaches. (Participant 8)

> [Pedagogy] is a broad term that encompasses everything about T&L, theories, and methodologies (Participant 9)

> For me, pedagogy is how we choose to teach and how we choose for our students to gain their knowledge. (Participant 12)

Participant 8's notion of critical pedagogic practice as a shift from didactic to student-centred teaching demonstrated her understanding of change from a traditional pedagogy. Critical pedagogic practice differed from traditional pedagogy through the need to include students while encouraging them to contribute to the development knowledge and make decisions that were relevant to their lived experiences. The integration of edtech due to interest was an *agential enablement* because academics were encouraged to employ edtech in their practice which provided a springboard for 'already interested' academics to enhance and incorporate edtech into their learning practices. However, whether they were critical pedagogues or not depended on their intention and action.

> So, for me I think it's more an interest and background of using technology. (Participant 12)

> It comes back to privilege as I was brought up in a home that always had a computer and we picked up using it a lot more from the time I was a child. It's just an affordance for me. (Participant 6)

These comments aligned to prior learning which classified academics as early adopters. Collectively, this implied that due to early exposure and interest, the making of early adopters was a process that had been underway for a long time. Adding to an interest in technology was an enthusiasm to master it due to personal tenacity:

> I am very stubborn, so if somebody says that it's very hard to do it, I will do it, as I see it as a challenge to improve myself and show that I can do it. (Participant 9)

This was an *agential enablement* to pedagogical practices because it was an internal marker that demonstrated knowledge of self and a community marker that showed how one fitted into a community around them. Proving to one's self first, related to reflexivity and belief in one's ability. In a similar vein, Participant 11 stated:

> I am a go-getter and I tend to self-learn and constantly strive (Participant 11).

This self-efficacy and perseverance created self-directed learning (SDL) practices that emerged as an *agential enablement* for some academics, which demonstrated that they were lifelong learners by choice and wanted to continually improve their teaching practices. The literature aligned similarly since self-efficacy contributed to cognitive development and functioning as there are levels at which it can contribute to academic development (Bandura, 1971)

Leadership provided more support to academics with fulltime appointments from Wits, which acted as an *enablement* to pedagogical practices because it helped create academic champions who would transfer the skills they learnt by influencing other academics to augment their learning and teaching practices – as evidenced in the statement by Participant 6 that follows. However, if leadership provided more support to academics who were appointed by the university, that implied an outcome of lack and support for joint academics and this would engender distrust toward the leadership.

> Our department head saw the value of this for [name of course] and latched me on to it quickly. (Participant 6)

Mentorship models as an *enablement* manifested due to some academics who were classified as champions because they attended CPL courses at the CHSE or CLTD. The culture was such that if an academic attended CPL courses, they were expected to disseminate the knowledge and skills learnt, especially that relevant to learning and teaching, to their colleagues. Another form of mentorship existed in the informal collaboration between *early adopters* and their peers, where the early adopter assisted peers in developing their learning and teaching practices.

> We were constantly chatting, venting and working together for support as we relied on each other. (Participant 8)

> It's really about having the humility to understand that you can learn from others. (Participant 9)

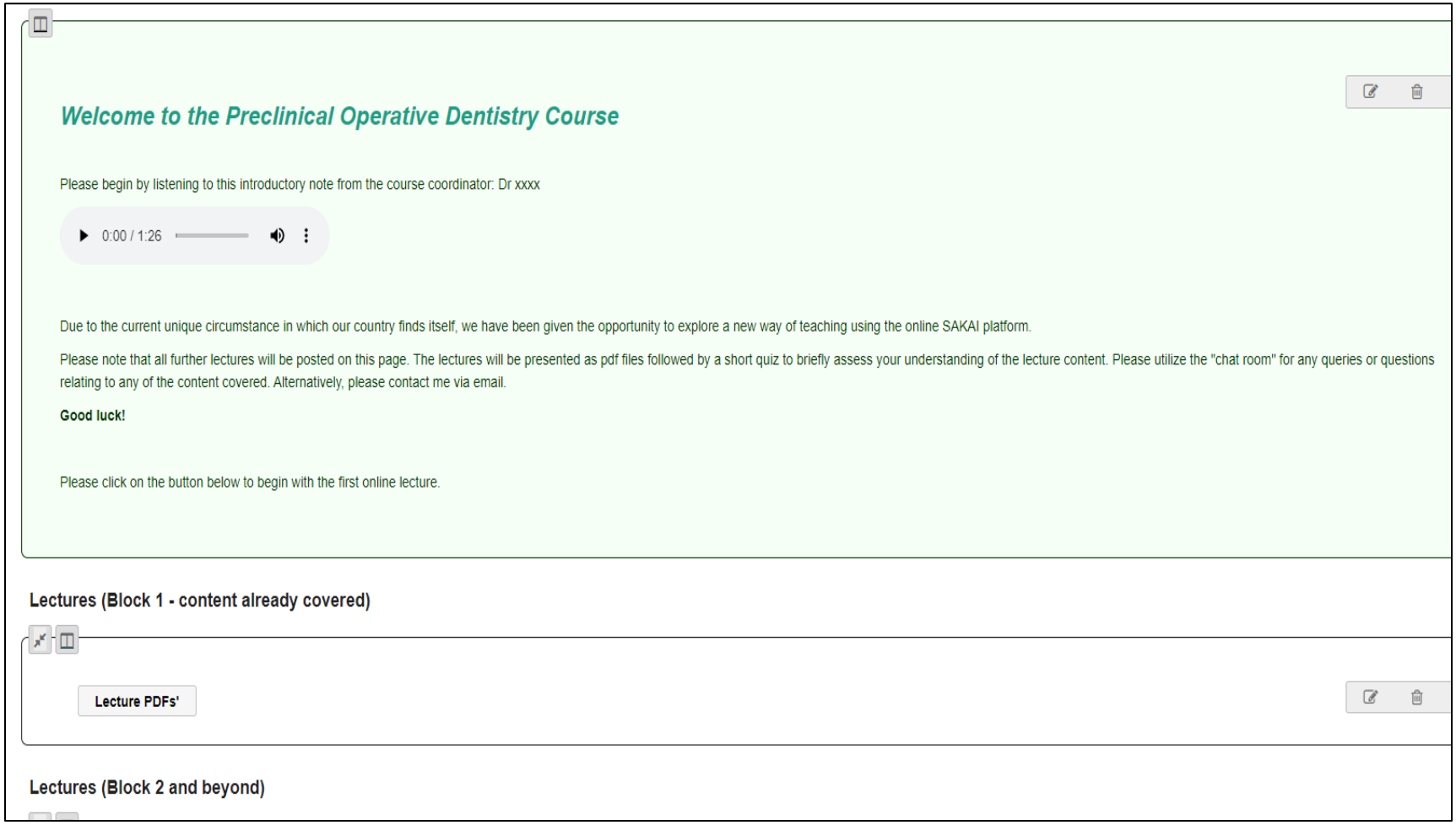
> [name of colleague] and I talked about how to get the courses online to a certain extent due to the practical component. No one else was online but us. (Participant 11)

Subsequently, through the course reviews and the interviews, I was able to triangulate participants' comments with what I observed in my review of their pre-clinical courses. The images in the figures that follow demonstrate that the early development of participants' basic digital skills through experimentation impacted their understanding of pedagogical practices.

An element of pedagogic reasoning is evident in Figure 5.6, as the course review demonstrates that the lecturer was careful about the order of transmission and representation. Online lectures were presented, followed by some notes and an attempt to determine the baseline understanding of students. A quiz followed, with the opportunity for students to use the chat room for queries or questions. The lecturer also availed himself via the email platform.

(a) Elements of pedagogic reasoning in the course design

Figure 5.7 *Snapshot of a page in a dental course*



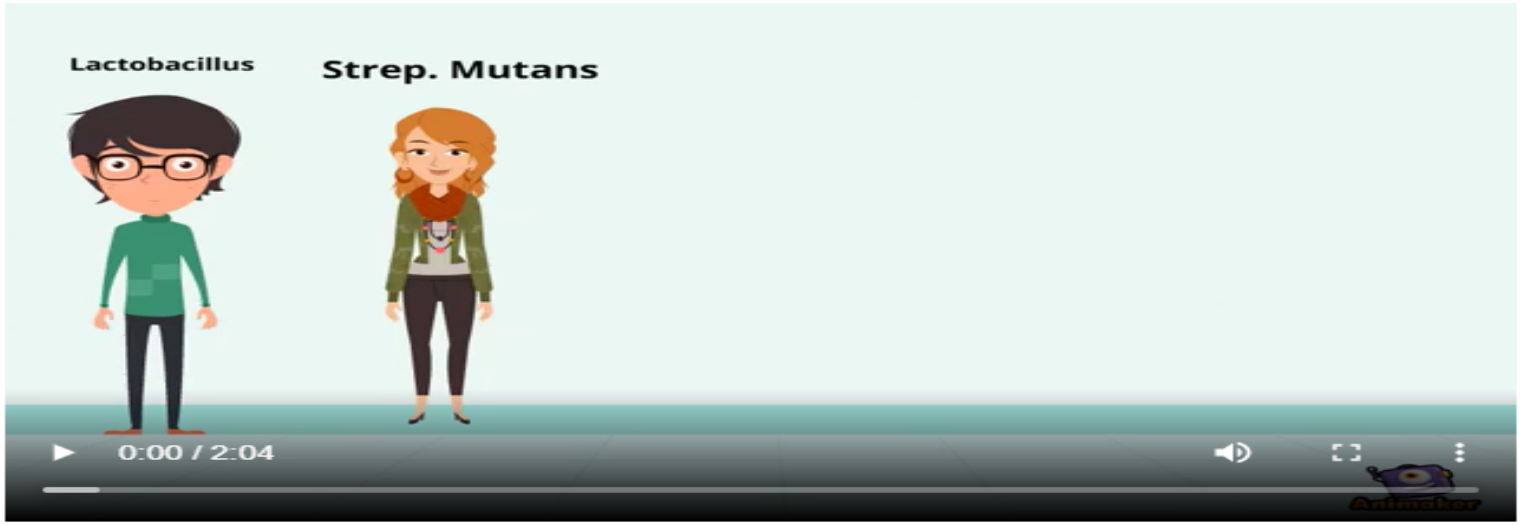
LECTURES

Add Content + | Reorder

Lectures > **Cariology**

Its CARIES time again!

Lets watch this short video (Courtesy Mr [redacted]) before continuing...

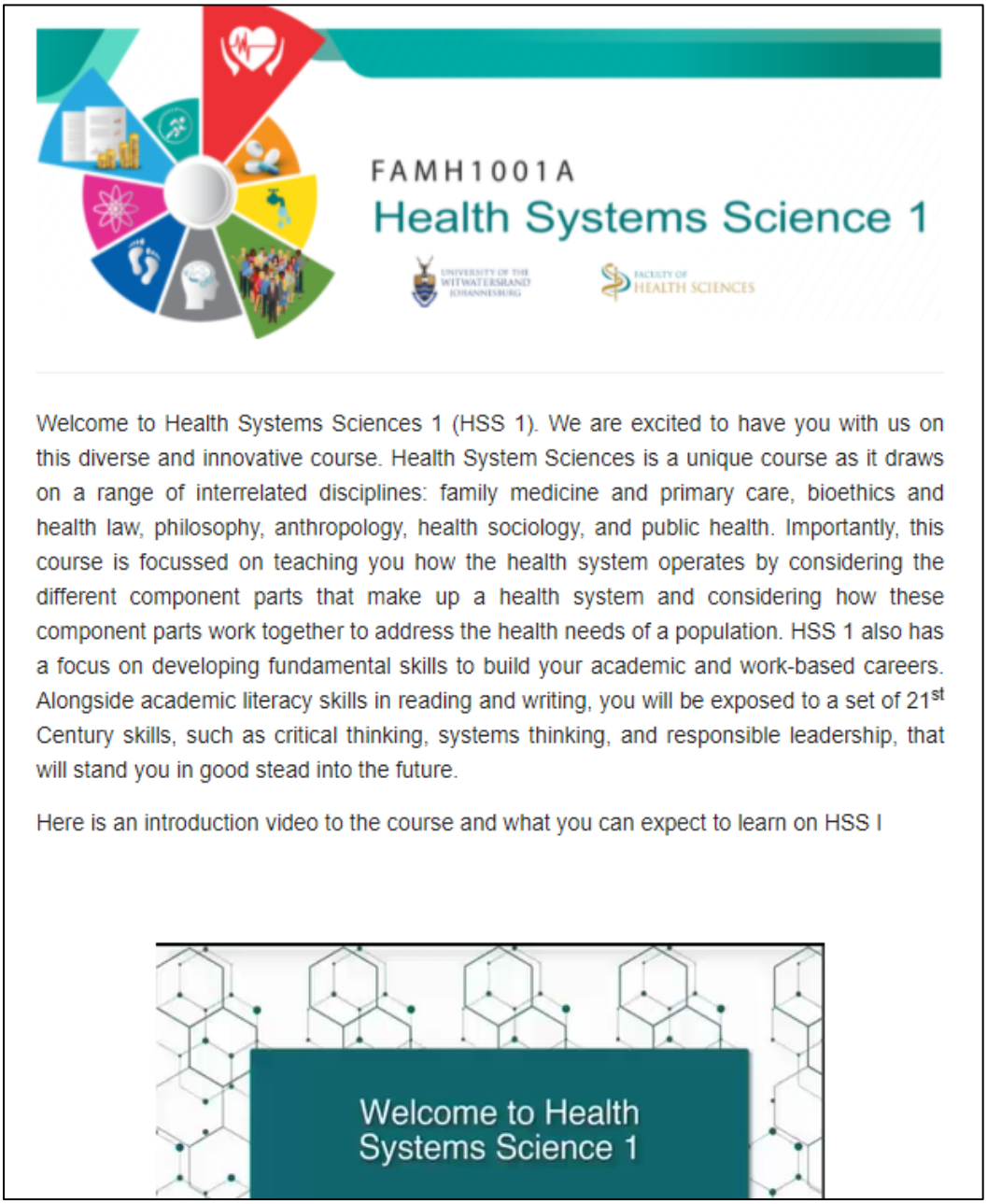


Please go through the lecture presentation below.

Dental Caries.pdf

In Figure 5.8, an online course lays out the procedures and sessions to follow with linked skills-based and case-based pedagogical practices.

Figure 5.8 *Snapshot of a Health Systems course*

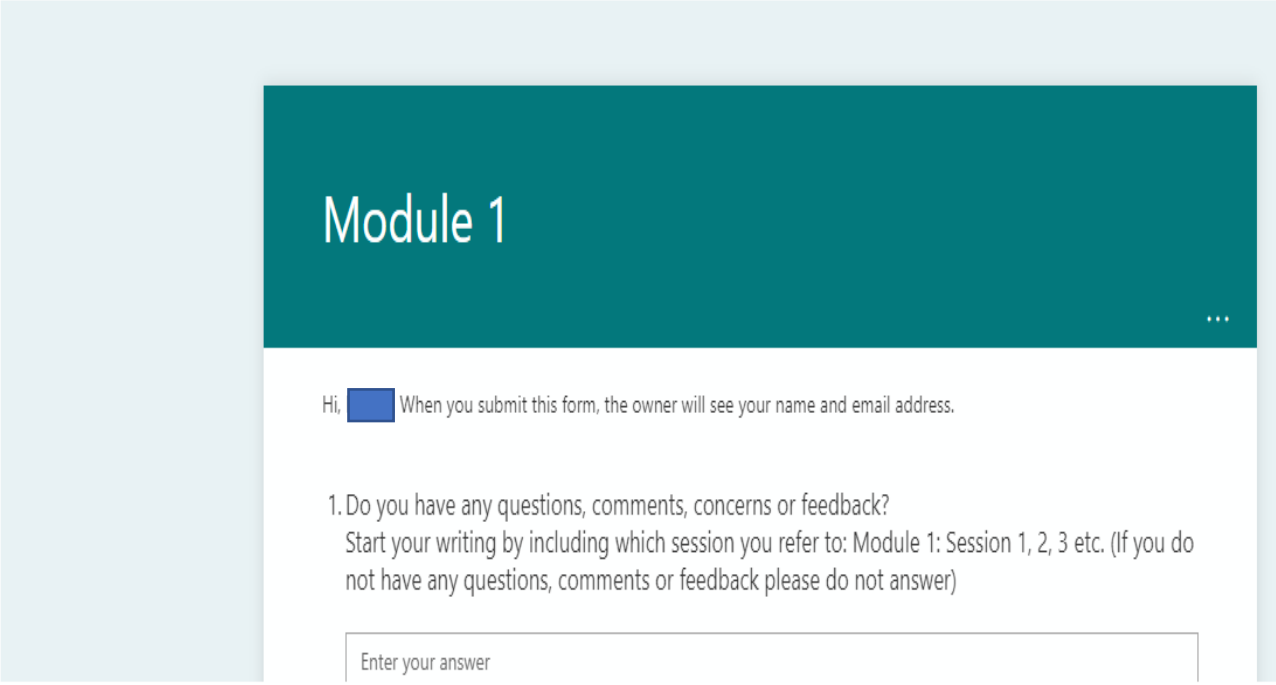


people on the course but I know how to deal with this in order to work together

- [ ] I know how to show leadership in terms of building a community
- [ ] I recognise the strength in diversity
- [ ] I understand that I need to be more inclusive
- [ ] I am able to use this information to help me think about a good way to introduce myself

Questions, Comments and Feedback

Open in new window



Health Systems Sciences II is a blended learning course. Your learning experience will be delivered through a mix of face-to-face and online modalities. There are usually 6 sessions per week as follows:

- Session 1 is a face-to-face lecture.
- Session 2 is an online tutorial.
- Session 3 is a face-to-face tutorial.
- Session 4 is a group work session.
- Session 5 is a face-to-face lecture.
- Session 6 is a self-study session.

Course Numbering

Course Numbering

The structure of the course numbering system is as follows:

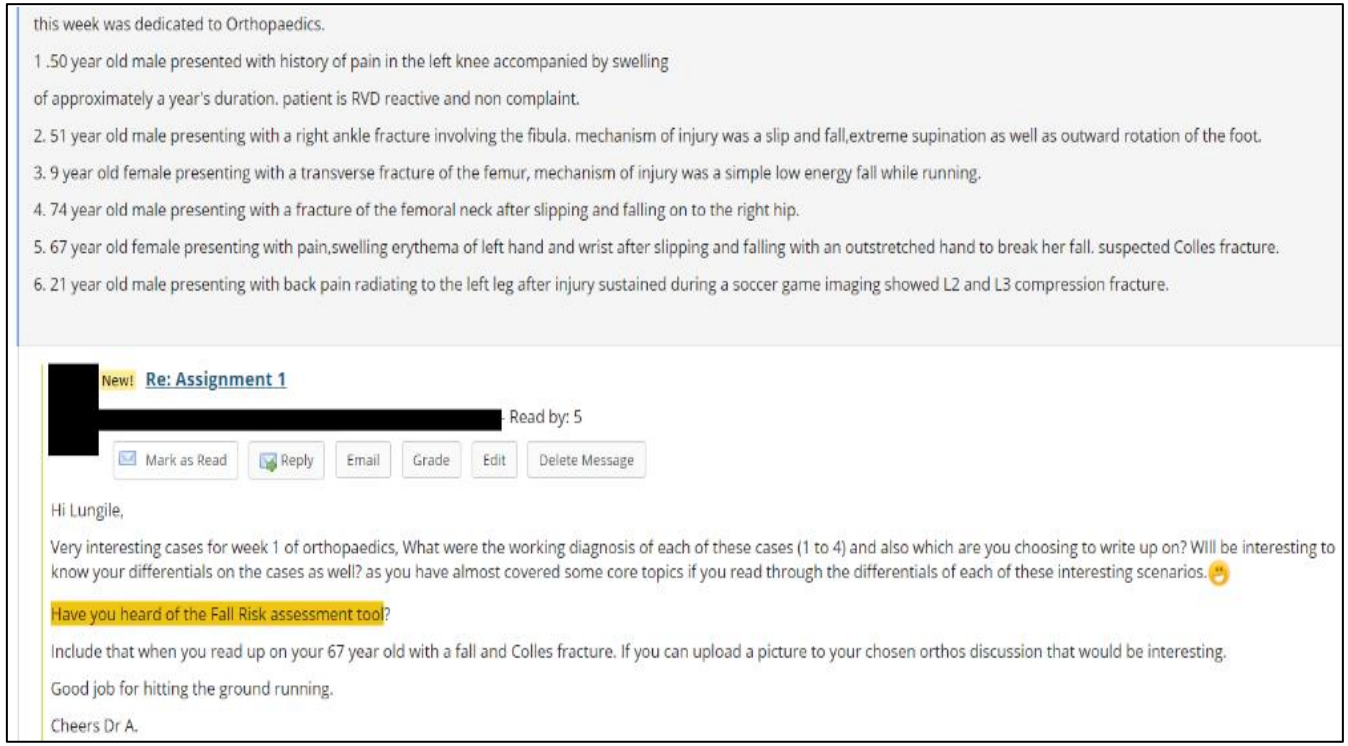
Module **1** | Week **1** | Session **2** = **1.1.2**

Module **3** | Week **9** | Session **4** = **3.9.4**

Core Content Sessions		Linked Skills-Based Sessions	Self/Case Study
Day	**Times**	**Lecture**	**Focus**
Mondays	14:00 -15:30	Session 1 (a) **(face-to-face lecture)** Topic overview & class brainstorming session.	Review what students know about a given topic (prior learning). Lecture content is presented on specific topics related to the module

Figure 5.9 illustrates how the lecturer used the discussion forum as a learning tool, demonstrating a form of CDP practice.

Figure 5.9 *Snapshot of a clinical medicine course*



Figures 5.10 and 5.11 establish that there was an attempt to introduce content and structure for online presence. Due to insufficient resources, understanding or knowledge, the course site was not fully developed. The research participant provided multiple means for collaboration and integration. The quality was excellent, and expectations were clear, as students were inducted into how and where to respond. Clear instructions were provided, and work was evaluated on MS teams and through assignments. There was chunking of items as I proceeded deeper into the course.

Figure 5.10 *Snapshot of a clinical medicine course*

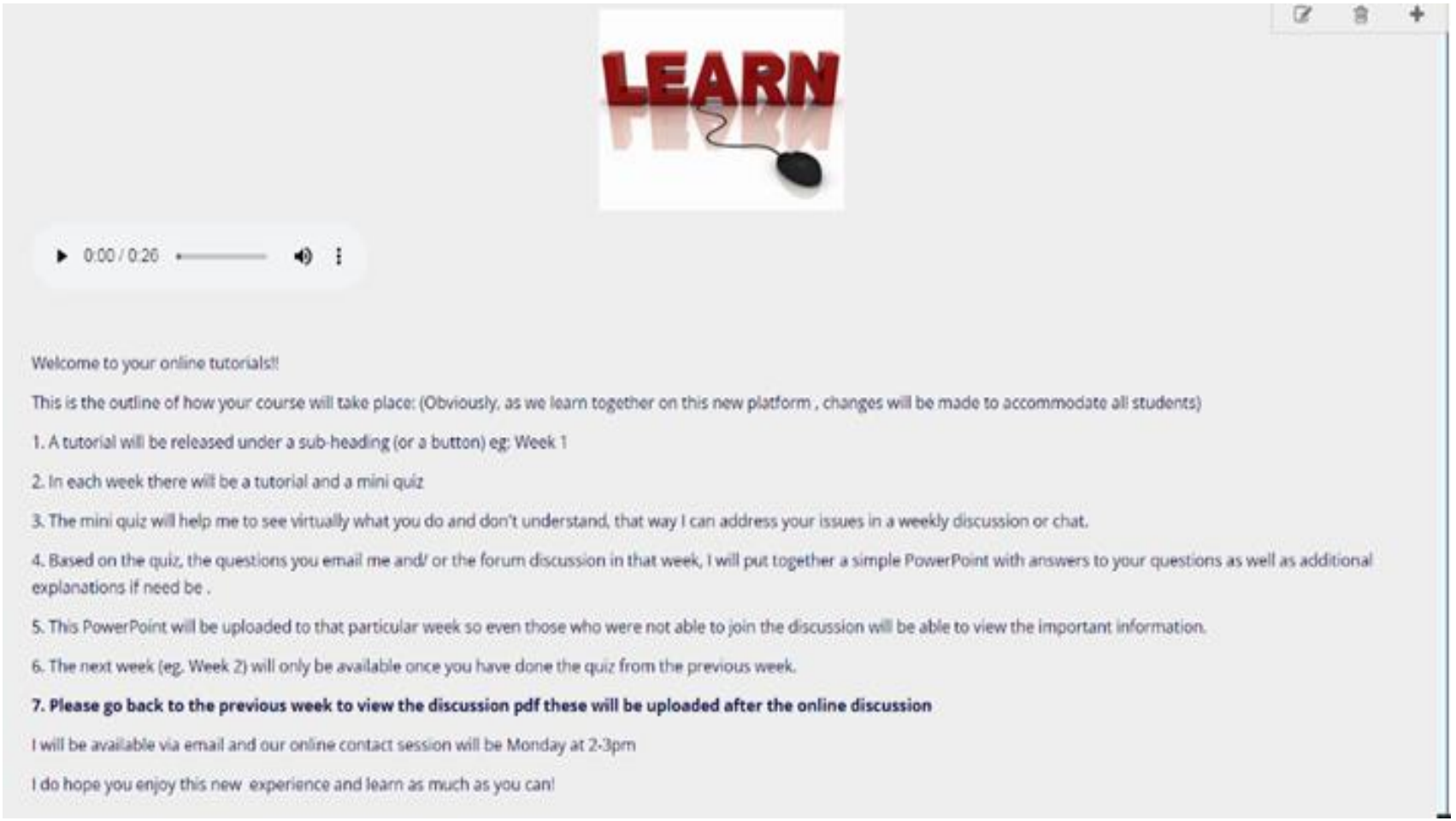
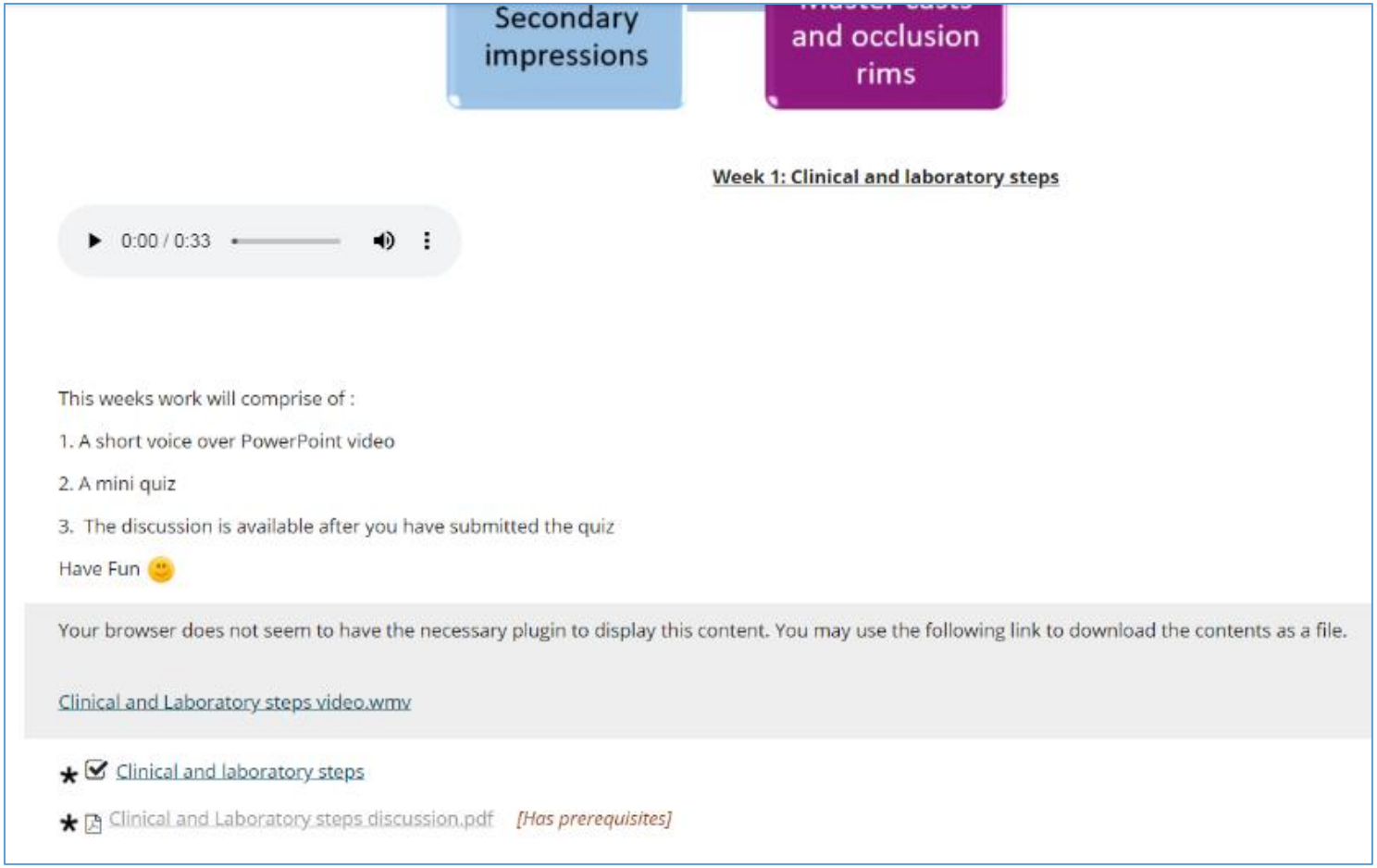


Figure 5.11 *Snapshot of a page in a dental course*



In this period, all the participants had a semi-active ResearchGate, ORCID and LinkedIn online identity. These were cultural and *agential enablers* to digital competence and pedagogical practices since these identities were formed in the online space for various reasons, like keeping updated and establishing research links. It appeared that possessing an online identity was a pre-cursor to experimentation that would lead to improved digital competence. However, reality could prove to be nuanced and complex.

In terms of teaching practice, online identity and voice, some participants indicated that it was deliberate yet calculated because they did not want to be classified as mere course tools. Statements of this nature have implications for the interplay of identity and power because academic identity is co-dependent with power and agency. In this regard, Thomas et al. (2017) refer to how managing differing identities in the online space is a challenge. Participant 12 stated, "I have an identity that is configured for blended teaching, it's almost calculated"; while Participant 6 stated, "I think blended teaching forces me to become more structured and intentional and I hate it as I have to plan a lot more to teach". The interviews revealed emotional aspects of online identity while they demonstrated a richer understanding of the self in adaptive conditions.

Due to engaging in online pedagogies, the academics' concept of identity was viewed through two virtual online spaces: synchronous and asynchronous. I suspect that the identity interacted within a polysynchronous space and time continuum, which is a paradigm of space with time within virtual environments. Collectively, there are consequences for power and identity in this study.

Two participants were of the view that their pedagogical voices aligned to contextual relevance which served as a critical pedagogical *enabler*. Participant 12 considered the lived experiences of students, while both participants found that they had to sift through international voices and extract only what was suitable to the local teaching context. Hence, the international voice was not discarded, but rather applied in a balanced, yet relevant, manner.

> I am often wary of international voices due to our context. (Participant 12)

> So, I believe that everyone is different, and I have my own voice in my teaching, my choices of methodology in my classes. I also believe that international voices always must be contextual. I use it, sift it for relevance and use what is relevant to our context. (Participant 10)

The Wits framework for the CPL of academics as university teachers in a research-intensive context embedded in the School of Teaching and Learning while the CLTD's Strategic Plan 2016 provided for staff development opportunities for digital literacies and blended. These documents, as *structural enablers*, meant that all academics were encouraged, but not forced, to enrol for CPL in the CHSE and CLTD to prepare them for their roles as teachers.

> The FO course really helped me put myself in the shoes of the student. (Participant 6)

> Once I attended the FO course and the one on Open Pedagogies, my colleagues enrolled for them as well, but it was a hassle to get the approval to attend. (Participant 8)

The CLTD offered teaching, supervision, and research courses which staff attended to acquire learning and teaching skills, and a few participants attended specific courses – like the Facilitating Online course, that enabled them to improve their pedagogical skills in the online modality. Participants were selective about the courses that

they enrolled for as it appeared that while the culture was perceived as *enabling*, it was also constraining because of the difficulty in getting leadership to 'allow' them to attend. This is presented in Section 5.3.2.

Wits enhanced teaching through digital literacies and technologies through the Teaching Development Grant, which served first as a *structural enabler*. Consequently, due to the availability of funding, academics used it as a resource and a stronger culture of engaging in DT projects increased in the schools. The culture was influenced by some academics who took it upon themselves to re-curriculate courses for the online modality.

> The funding from CLTD was useful as many colleagues latched on to it to also get their courses going for BL. (Participant 6)

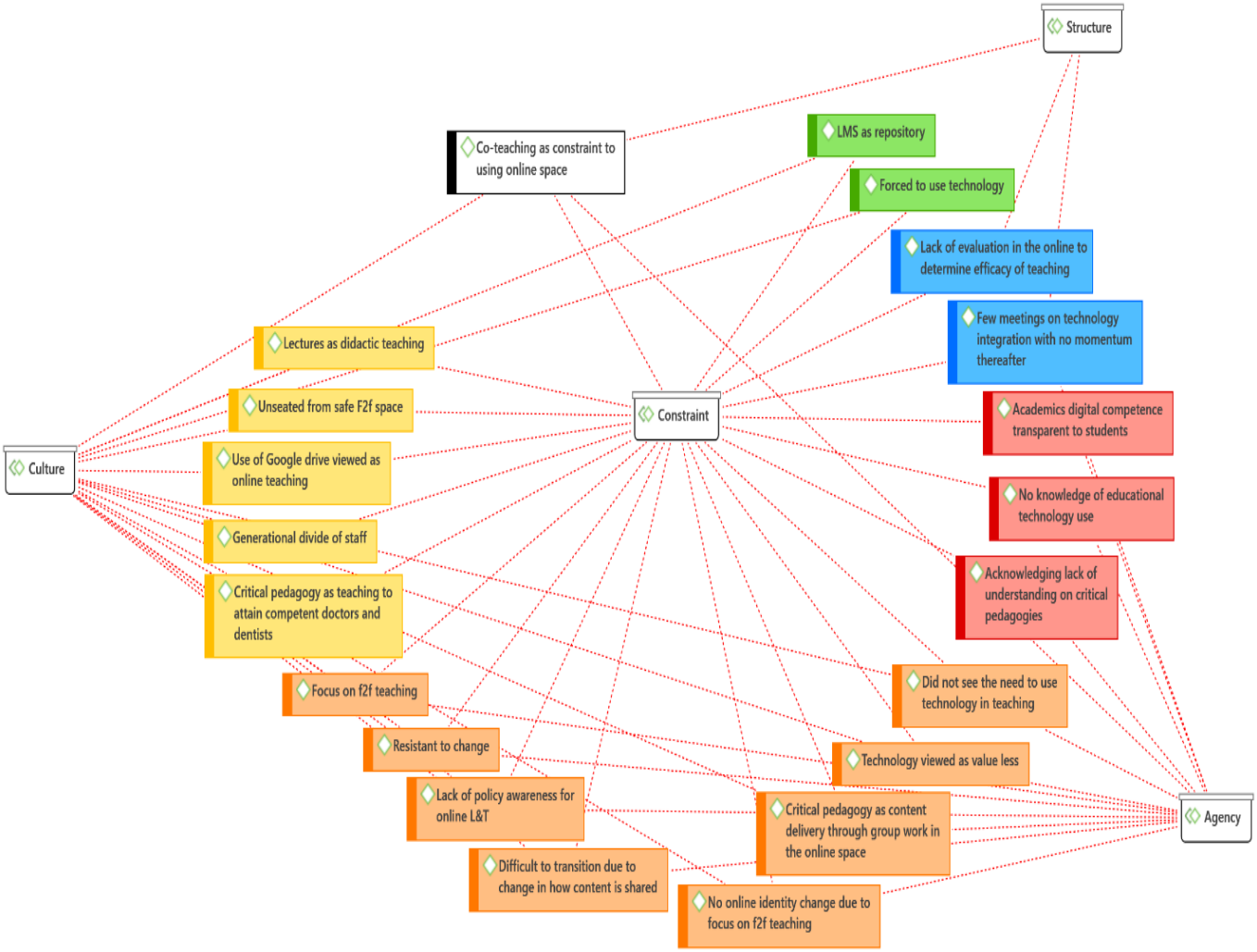
The Wits policy on staff development to promote innovation and global competitiveness in teaching practice served as an *enabler* as well. With respect to improving their own teaching, academics were expected to have their teaching performance evaluated by students and/or peers at least annually. Such evaluations served several purposes: two of these were to identify areas in learning and teaching in need of improvement – thus forming the basis of focussed staff development – and to systematically compile a teaching portfolio, which contributed to staff promotions. These structures were enabling if the culture was such that blended learning and practices were aligned with the requisite evaluation of both the face-to-face and online areas of practice.

In 2017, the CHSE developed the Masters in Health Science Education (M: HSE). This formal qualification was made available as the second *enabling structure* to improve the pedagogical practices of academics. Like the PG Dip (HSE), the master's programme was also not required, but rather served as an opportunity that could be taken advantage of, depending on how academics exercised their agency.

A large part of the enablements related to academic agency and culture, which signified that academics could consider the wider social context of the students to inspire conscientisation and promote social change through critical pedagogic practice. In this period, it was evident that there was limited knowledge of critical pedagogic practice; as a result, expertise in critical digital practices was lacking as well.

5.3.2 Constraints to CDP practices

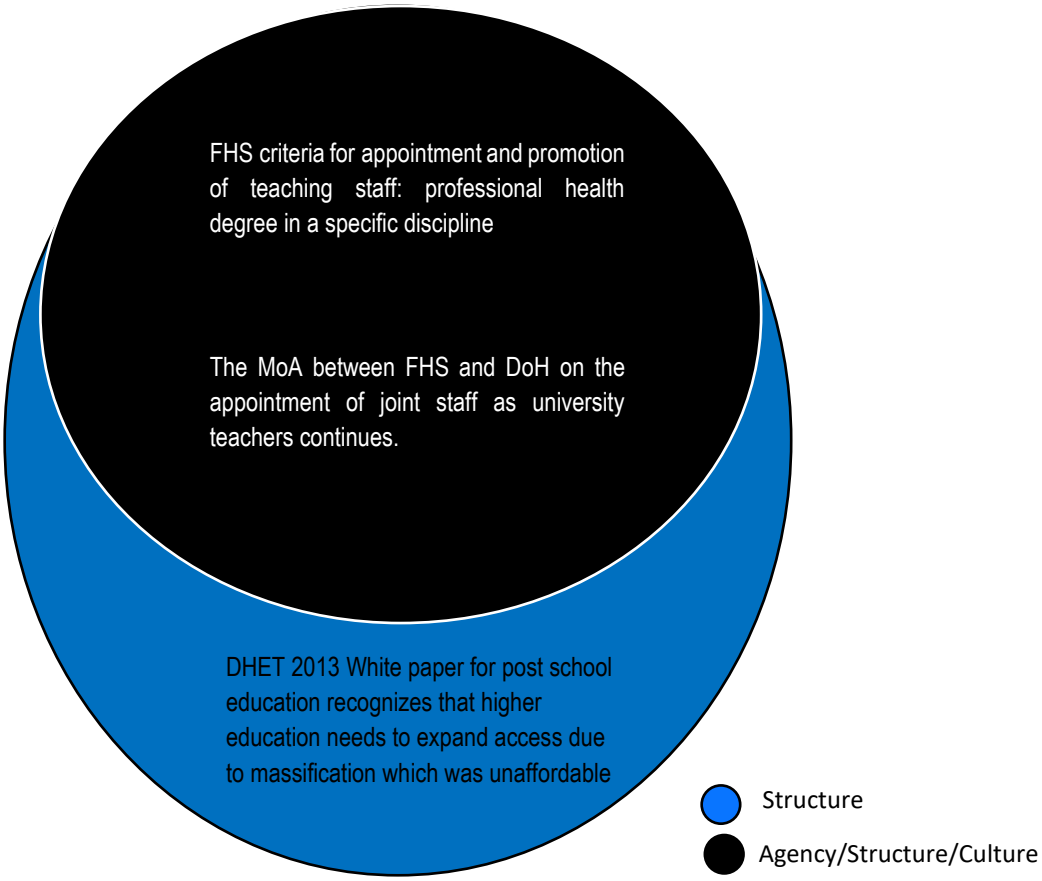
Figure 5.12 *Constraints visualising structure, culture and agency*



Index:

Structure, Culture & Agency
Agency
Structure
Culture
Structure & Culture
Culture & Agency
Structure & Agency

Figure 5.13 *Constraints found in document review and evidence from documents*



Evidence from documents
"Participation rates in universities will increase from just over 937 000 students in 2011 to about 1.6 million in 2030"
"The criteria for appointment for teaching staff in a Health professional degree in relevant discipline or Masters degree completed or near completion in relevant discipline (as determined by the School)"
The MoA demonstrates "The employment contracts of joint staff members will state that their job requires them to take responsibility for academic and clinical activities agreed by both parties"

Even though the DHET's 2013 White Paper for Post-School Education and Training (Figure 5.13) recognised that higher education needed to expand access due to massification, in oral health and clinical medicine contexts it was difficult to massify unless clinical training could be simulated to accommodate the larger groups of students. The critical pedagogic practice enactment was at the interface of where and how many students were reached through providing access. By introducing simulation, the digital pedagogical experience would allow for massification. Participants 7, 9 and 10 in Figure 5.12 were of the view that there were few meetings on technology integration that culminated with no momentum and if there was momentum, it was within the domain of select academics at the school.

> We were having meetings yes, but that's where it stopped unless you were [x], [x] or [x]. (Participant 10)

Leadership's selective actions had *constraining* implications for digital competence and CDP practices because leadership, by its very nature, played a key role in socialising academics into learning and teaching practices that aligned to the Wits vision. Through these actions, a form of L&T culture would manifest, but if only selected participants were included, then there were implications for the professional and emotional experiences of those excluded, as this demonstrated why certain L&T practices reproduced while others elaborated or transitioned. Power imbalances and inequities that impeded transformation emerged. In this period, minimum attention was paid to online L&T evaluations which *constrained* determining the efficacy of teaching.

> I always use to think about us having no indicators of how we performed in the online space as teachers because of insufficient evaluation of our practices. So how would I know where to improve? And besides, we were monitored on how much we did at the hospitals (Participant 9)

If the focus was on ensuring quality pedagogic practices, irrespective of the modality employed, then this had to be conceptually and pragmatically aligned to be supported by rigorous evaluation structures. It appeared that the focus was not on improving teaching, however, but rather on attaining service delivery goals for joint academics or furthering the research initiatives for full-time academics, which constrained pedagogical practice.

The cultural view of teaching practice in this study was one of graduateness because critical pedagogic practice was culturally harmonised as 'teaching for' competent doctors and dentists. Participant 6 stated, "We are always thinking about the exit level competencies" while Participant 8 engaged in a pedagogy for "a competent medical doctor improving the health of the nation" and Participant 9's pedagogical practice focused on "having the necessary medical knowledge and skill in performing examinations and healing to save as many lives as possible". These skills were viewed as the gold standard and pre-requisites to be successful in the clinical field. Teaching for graduateness *constrained* successes in life as a critically-minded and conscientised individual. Or perhaps teaching for graduateness was linked to a signature pedagogy (Shulman, 2005) that entailed a pedagogy to heal or save lives – which, according to the culture in health science education, alluded to critical practice. This culture was intricately linked to the notion of teaching as a didactic process of transmission, as exemplified by Participant 12, who stated, "I started off with didactic lectures". So, if what students were to learn required more than rote learning, then a similar shift in pedagogy was required.

One of the requirements was for academics to attain a deeper knowledge of ways to address the diversity of students. Being professionally qualified with insufficient pedagogical knowledge and skills was a huge *constraint* that limited the understanding of any teaching practice, be it using face-to-face or blended learning modes. Furthermore, many academics in this study viewed the use of the Google Drive as online teaching, when it only amounted to the delivery of content using edtech.

> We used the G drive as an online space to teach, you know…. All the notes were placed there so they [students] had access for referrals. (Participant 10)

The comments asserted by participants collectively indicated a pedagogical culture that aligned to a clinical use of words like 'referrals' that constrained CDP practices. This was because there was little focus on knowledge that prepared students for the cognitive, emotional, and social needs of individuals and society, to one that was aware and responsive to the health needs of individuals by saving lives. This was a double-edged sword that had

implications for being socially accountable, as it implied an implicit pedagogy that extended beyond mere responsiveness to the urgent needs of society. This could be another form of conscientisation and critical pedagogic practice in health science education.

A significant number of participants acknowledged their limitation as a *constraint* due to an insufficient understanding of critical pedagogic practice and the integration of edtech in learning and teaching practices. Their argument was that technology was not an imperative as it was not enforced by the institution. Similarly, there was no need for them to engage in it if their teaching practices were in the face-to-face mode which continued to 'churn out' competent doctors and dentists.

> I had no inclination of critical practice as I engaged in didactic lectures. In fact, it was terrifying going to a Wits-e course because I had no need. (Participant 9)

> I did not know the full-blown look of a fully-fledged technology curriculum and pedagogy in health science. (Participant 10)

> I always send all content to the HoD who placed it on Sakai through the administrator. This was to support the tutorials. This is how my pedagogy changed. (Participant 13)

The comments questioned the type of graduate that Wits was preparing: were students developing the capacity to engage with challenging issues through a process of critical thinking and conscientisation? I suspect that a few academics were in fact implicitly engaging in critical pedagogic practices and not critical digital pedagogic practices but remained unaware until they became conscious of this through the interviews.

In a similar vein, some participants expressed reluctance to integrate edtech into their teaching practices for fear of being 'shown up' to students.

> I didn't want to be shown up or called out by my students who knew more on technology. (Participant 9)

> Students could see my lack of skills and the type of identity I exuded online. (Participant 11)

This reluctance *constrained* academics' digital competence, attendance at CPL courses and online presence. A major *structural constraint* was the use of the LMS as a repository which normalised a constraining culture of delivering content as an online pedagogical practice, as depicted in Figures 5.13, 5.14, 5.15 and 5.16.

Figure 5.14 *Snapshot from a course demonstrating insufficient interactive use of the LMS with limited mediation of content*

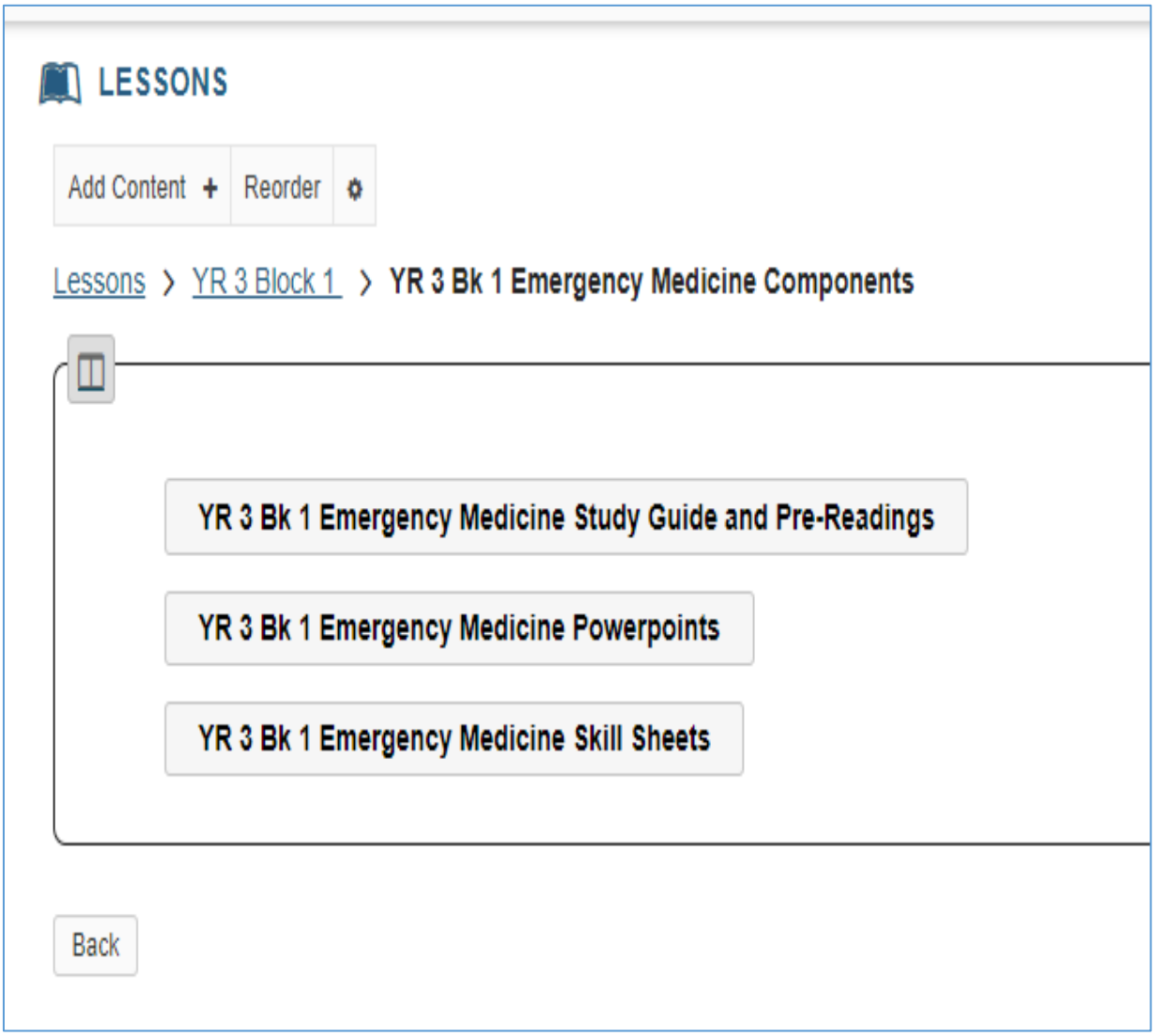
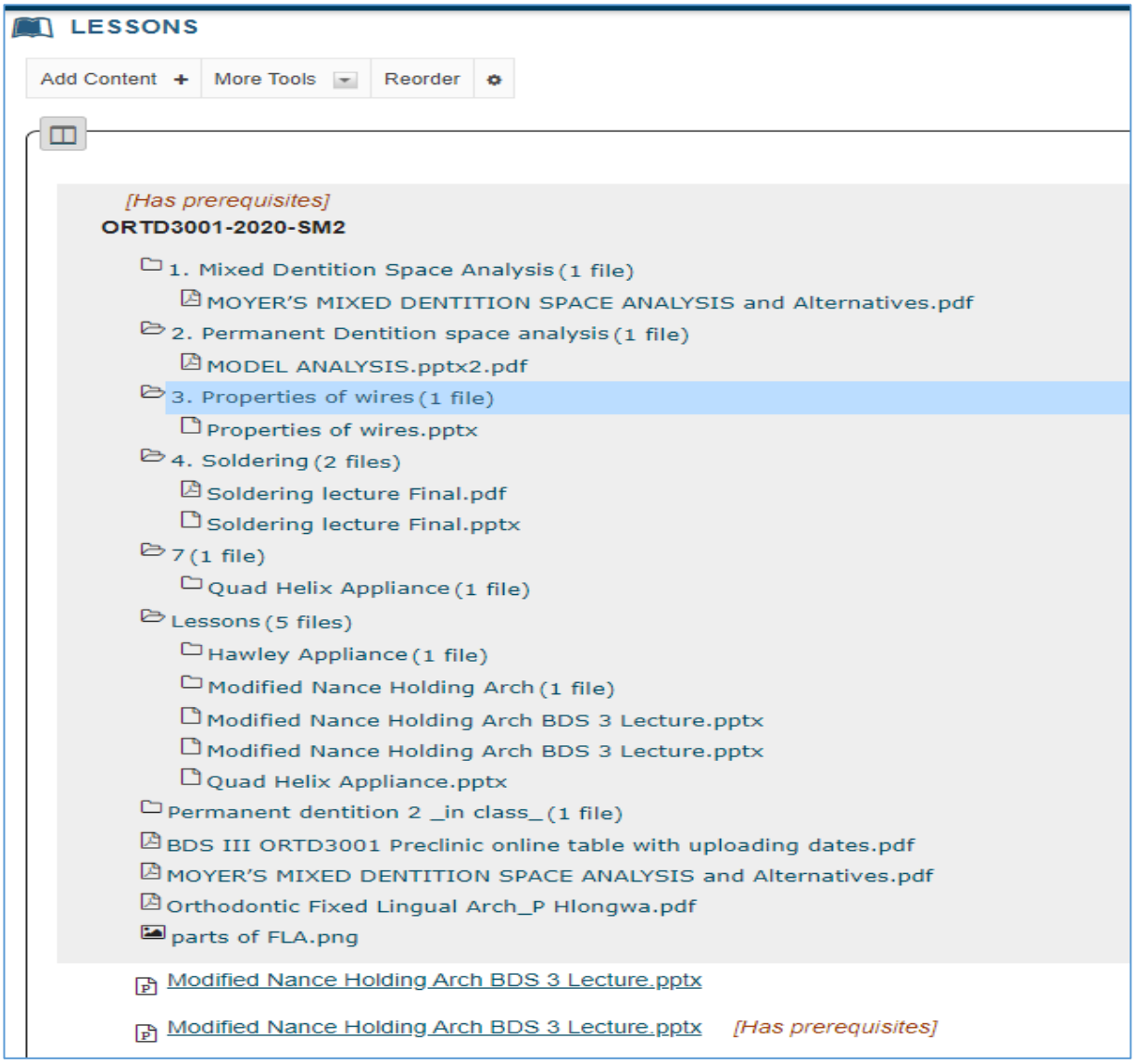


Figure 5.15 *Snapshot from a course demonstrating insufficient interactive use of the LMS with limited mediation of content*



> I went on training and used blended learning in 2016. When I started, I did not use all the functions, I used it more as a dumping ground for all materials…there was a lot of problems on Sakai that hindered and discouraged me. (Participant 12)

Figures 5.14 and 5.15, along with the quote by Participant Twelve, signified that the LMS was predominantly employed as a repository of content and not as an online tool for collaborative learning and teaching. Even with a stable LMS, the use of teaching practices that integrated edtech would have been minimal since many academics

were still more comfortable with face-to-face teaching and learning than they were with blended learning. However, some academics found that the LMS served as an easy way to provide content to students.

Related to this is the significance of many participants reporting that they sent their content to the HoD's office, where an administrative staff member loaded it onto the LMS. This act of leadership perpetuated a *constraining culture* that set the tone for the use of the LMS as a repository. It was also one of the reasons for the cultural constraints discussed in Section 5.3.2, where participants viewed Google Drive as a structure for online learning and teaching practices.

Figure 5.16 *Snapshot of a page from a published course without lesson development*

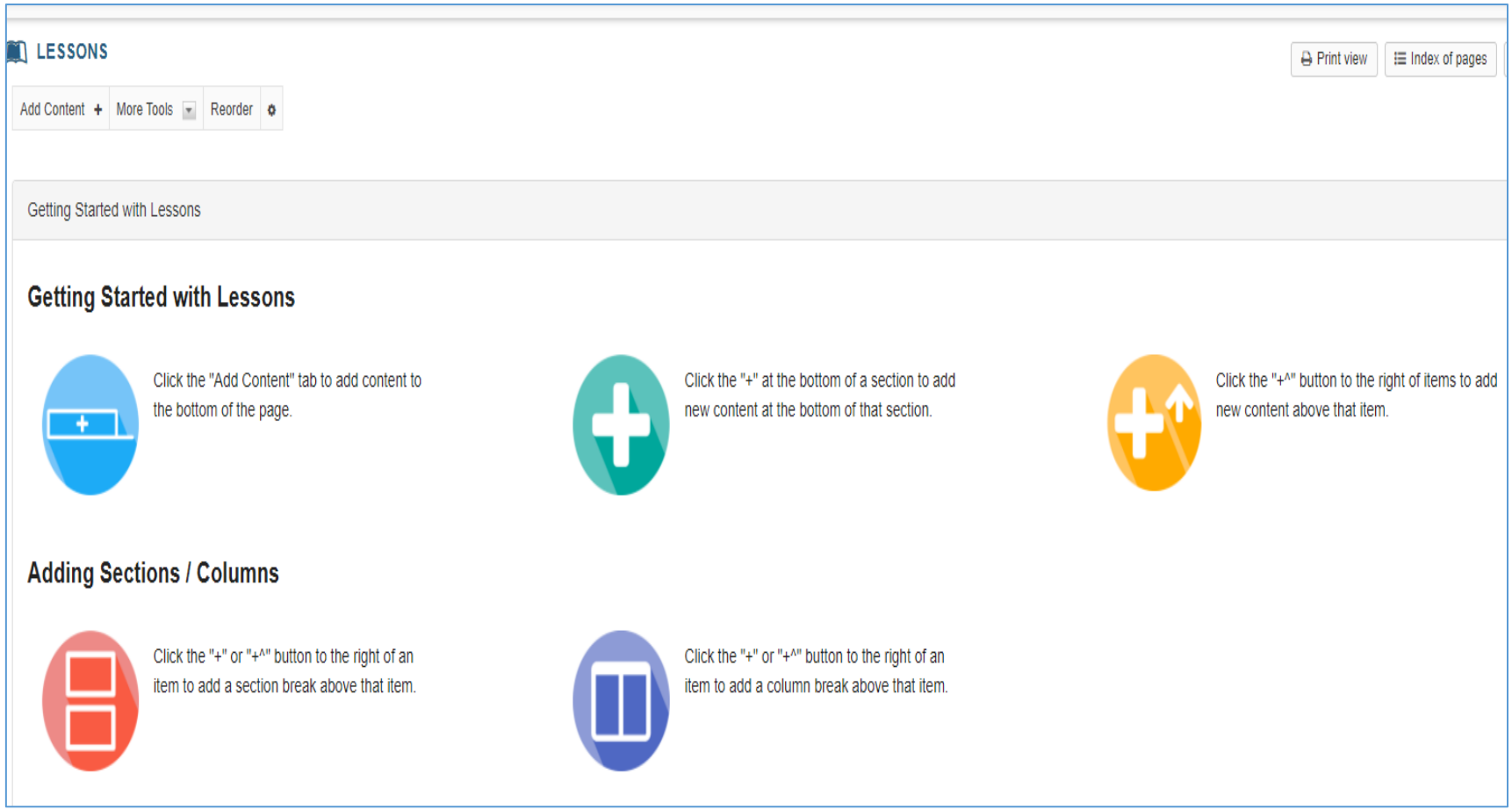
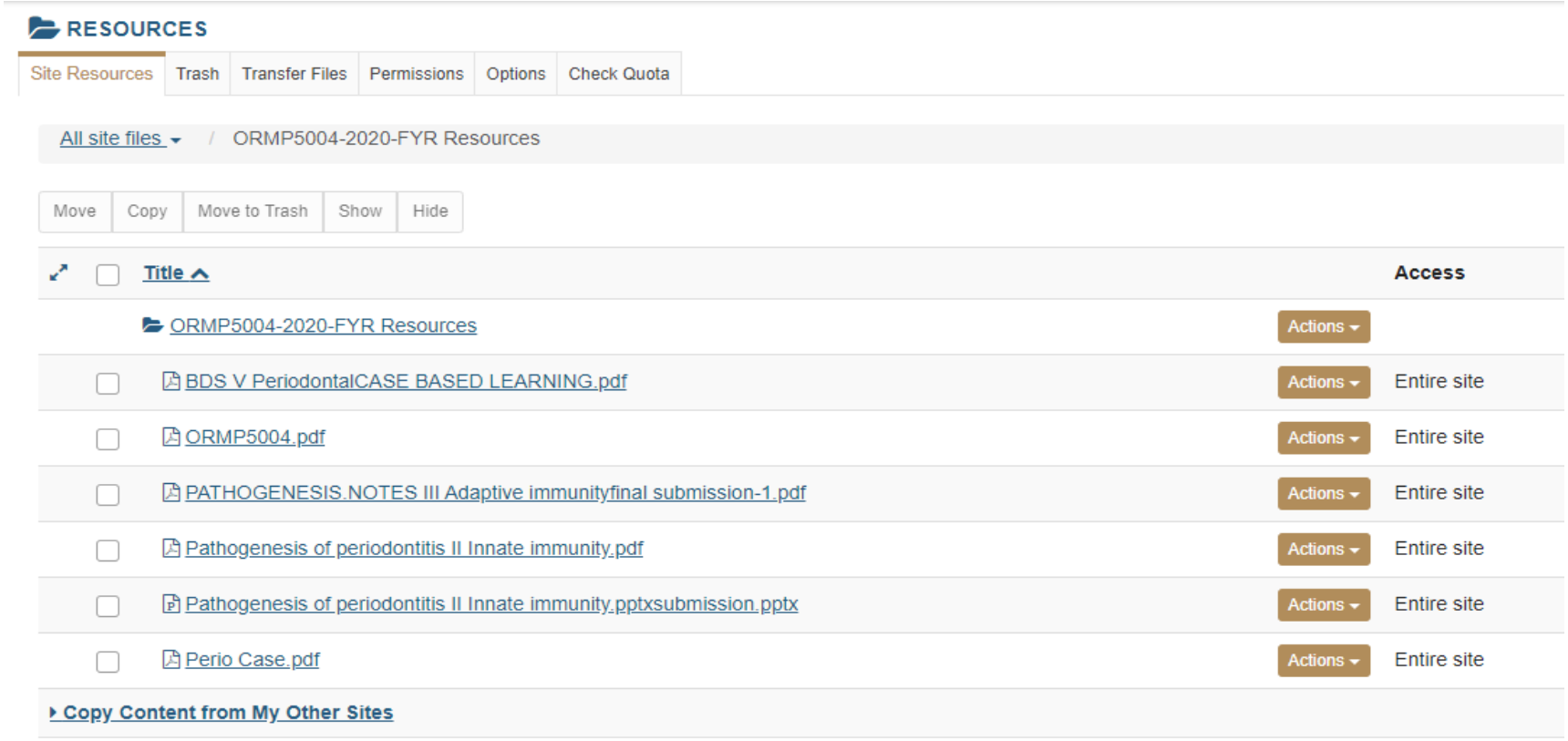


Figure 5.17 *Snapshot of a page from a course demonstrating content delivery on the LMS without lesson development*



> Within the unit, academics used the LMS when they were forced to, mainly to send notes to students (Participant 13)

Figures 5.16 and 5.17 aligned to the statement made by Participant 13 as the review demonstrated that the course was a shell since there was no development on the site apart from content that was loaded for students in the resource folder. Rules, regulations, policies, course packs and clinical rotation schedules were not made available on the site.

Concurrently, the document study disclosed a stipulation in the Teaching and Learning plan for this period that blended learning initiatives should have an online presence but did not stipulate stringent rules and regulations on how and what was required (an indicator that academics could exercise agency) . So, securing a course site was sufficient since there were no stringent guidelines, monitoring plans, reviews and blended learning initiatives which did not represent key performance areas (KPAs). Participant 13 engaged in fifth-year learning and teaching with training occurring in practice. At most, the LMS served as a repository for content because the course site remained undeveloped, as its use was not mandatory. Participant 13 did not have training on the flipped classroom or using uploading video recordings of practical lessons to the LMS for the positive reinforcement of clinical procedures which illuminated the culture and agency of the participant. At a L&T level, there was insufficient agential and cultural advocacy (academics at Wits were not required to possess a teaching qualification). It could be that being a joint academic meant that (they work for the DoH, private practice and then teach) they were focused on service delivery first and foremost, while L&T was viewed as a lesser priority?

While leadership served as an *enablement*, it was *also a constraint* because it impeded the digital competence and the knowledge of critical pedagogic practices of some academics by impacting their agency and mental models. Leadership overtly supported staff appointed by Wits at the expense of joint academics.

> I was interested in BL, but I was not forced nor supported from leadership or reminded about the university initiatives. I was disillusioned by the HoD as he favoured a few other academics only and they were fully supported consequently. (Participant 11)

> I have no encouragement from the boss. I have no agency, or any autonomy, as most joint staff feel that the boss favours the Wits staff. (Participant 7)

It appeared that joint academics felt unacknowledged by Wits because, despite everything they did, there was not much support and, at the same time, they were admonished by the DoH around the service delivery mandate.

In terms of enacting CDP practice, some participants conceived it as a distribution of content through group work in the online space.

> So, CDP practices would imply the way we deliver content online. (Participant 11)
> It is when students collaborate through group work or break away rooms on Teams. (Participant 7)

This was a *cultural and agential constraint* as participants assumed that placing students in collaborative groups in the online space equated to CDP practice since students engaged in discussions and co-created knowledge. While it is true that this was one aspect of students asserting rights collectively with responsibilities in a group instead of being led, CDP practice involved much more than group work in the online modality.

Many participants did not see the need to use technology in teaching because they viewed it as valueless, and their focus was on face-to-face teaching. Subsequently, this was indicative of the prevailing *constraining culture* at that time since they voiced their negative views on edtech integration.

> It was not a priority for most of us; there was no need. Why? Why? I felt vulnerable about having to start at the bottom while we are on top and highly competitive. (Participant 7)

> I really didn't have the time to think about teaching with technology. There was no need, really. (Participant 13)

> I think that our basic education has instilled in us that face-to-face was all there was. (Participant 12)

> In the department, we have some dinosaurs who were reluctant and felt like they hated online. It was a struggle. The culture is very inclined to f2f. They all have different views questioning technology. Because it's modern does not make it better. (Participant 6)

> I tried to tinker from time to time, but there was no desire at all. It had a negative impact on me personally. I just did not see the value in it, and I was just learning so many other things. And due to having no value, it was pushed to the bottom of the pile. (Participant 9).

Participants gave the impression that they were already succeeding in the face-to-face space, therefore trying to master another learning and modality would represent a setback. Participant 7 highlighted that, as medical doctors, they saw themselves as already delivering a high standard and did not see a need to change. Participant 6 was of the view that the generational divide was a constraint to academic adoption of edtech in learning and teaching practices. This was displayed by participant 9, highlighting resistance to transition as a *constraint.*

> In all our meetings there is a very negative approach; nowhere did it capture what we really wanted. Maybe leadership should have embraced it and shown us the value, but we are reluctant to change. (Participant 9)

Another *constraint* was insufficient policy awareness and support for online learning and teaching, which was highlighted in academics' reluctance to transition their teaching practices. Participant 11 stated "we do get communication, but we don't have time to read the emails," while Participant 13 believed "there was not much support from leadership and faculty". This resistance to transition learning and teaching practices was further emphasised by Participant 13 in terms of how content was shared and how the LMS was employed as a repository: "We sent all PPTs and videos to [name of person] to be transferred on to Sakai". This led to a limited online identity due to academics not taking responsibility for appropriately integrating learning and teaching practices through the LMS, due to their continued focus on face-to-face teaching,

> My identity has not changed. I like how I teach, and students are graduating. Right? (Participant 9)

The *constraining assertions* from academics were a collective display of their' attitude (mental models) to the world in the form of a culture, identity and agency that was influenced by the prestige and terrain of the profession, social trends (global influences and institutional culture) and subjective elements like self-motivation, reflexive and reflective practices, beliefs, interests, norms, values and behaviours. To a large degree, these aspects

manifested as generative mechanisms that connected to academics' digital agency and knowledge of CDP practices.

The FHS required a professional health degree in a specific discipline to be appointed or promoted as a teaching staff. This was a *constraint* because it served as a structure that informed cultural and agential limitations, like not seeing the need to attain a knowledge base for CP practices. Co-teaching as a community of practice (CoP*)* served as a *constraint* to integrating edtech for L&T practices. Even though co-teaching was an unwritten artefact, it was an accepted culture in the case study.

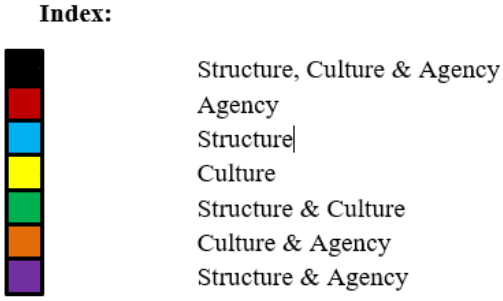
> Like I said, when I took over the course, it was 2017 and I wanted to update it for online. I struggled as the previous coordinator refused to share her typed out notes. She refused to make the course online. There are many of us in this situation, but we are silent to keep the peace. (Participant 11)

Introducing new learning and teaching practices meant that there was more open collaboration for improving the community of practice. If one member of the community was reluctant to engage in new ways of doing and being, then the practice of co-teaching became a constraint unless the agency of the academic was strong enough to persuade the reluctant part

5.3.3 Co- occurrences and summation of enablements and constraints

Figure 5.18 *Co- occurrences between enablements and constraints*





The only co-occurrence between the enablements and constraints in Figure 5.17 was leadership. While leadership was an enablement to certain academics, it was a constraint to many. This affected academics' digital competence and knowledge of CDP practices because all decisions (regarding attendance of CPL and research) were made via the leadership of the school and departments. The prejudiced actions of leadership *constrained* self-development, while influencing academic agency.

5.4 T3-T4: 2020-2022 "White coats and digital devices": Structural and cultural reproduction or elaboration

Voyant, an online linguistic/text analytic tool was employed to generate a word cloud for the interviews conducted in the T3-T4 period of interviews, as a way to simplify key words. Since Atlas.ti was hierarchical to attain a true sense of the words of the participants, Voyant removed the conjunctions from participants' responses, providing a deeper word cloud.

Figure 5.19 *Word cloud showing weighting of terms mentioned in interviews*



The word cloud in Figure 5.19 indicates that the words ‘teaching’, ‘online’, ‘think’, ‘student’ and ‘know’ were words that were foregrounded as having greater importance, while the words ‘people’, ‘identity’, ‘practice’ and ‘online’ were background and appeared to be of less importance. Data also emerged from the course reviews (refer to Appendix H to understand how these percentages are arrived, and what the criteria are for each category) as enabling and constraining factors around the pedagogical knowledge and reasoning that participants embodied in their pedagogical practices. Table 5.3 provides more information on the outcome of the reviews.

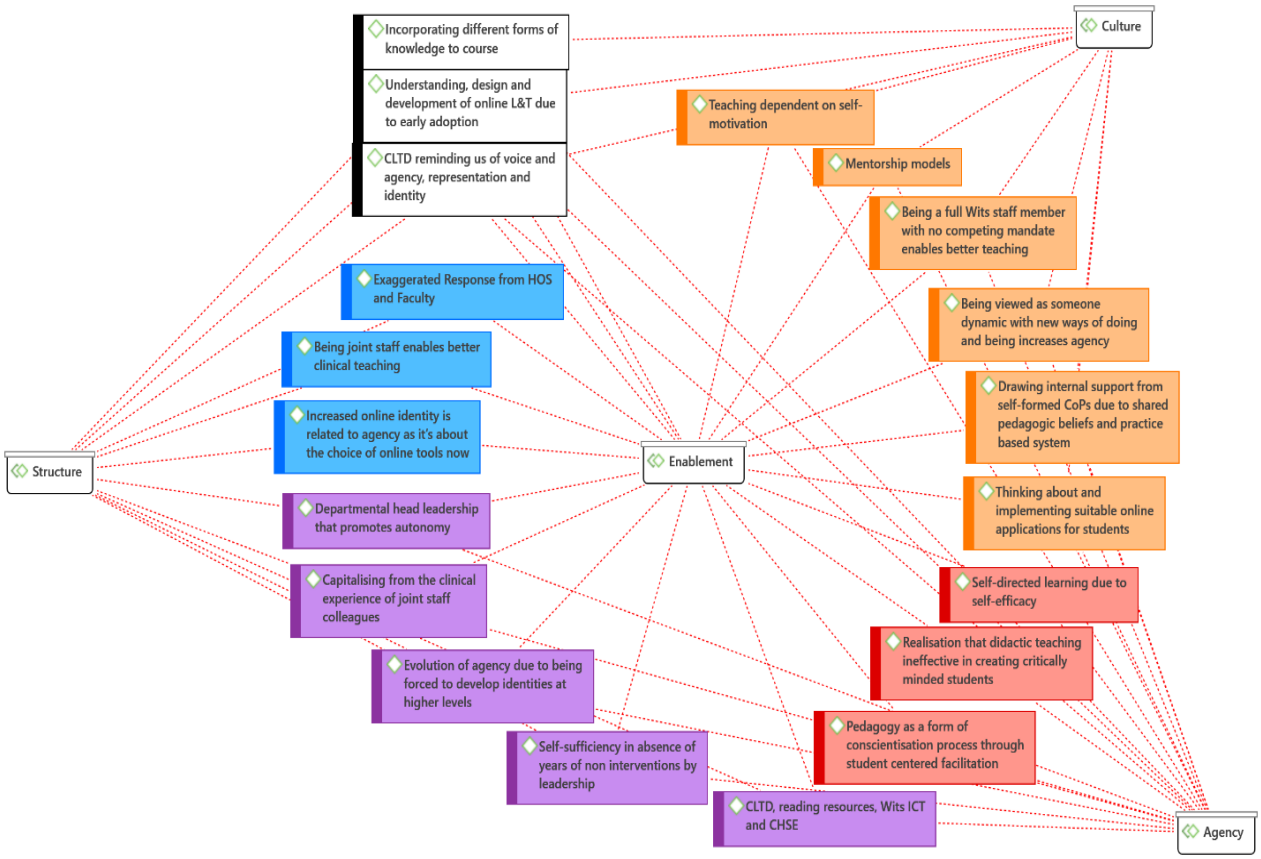
Table 5.3 *Course review data*

	Pedagogic Reasoning		
Rx Participants	*Not Evident	*Evident But Not Fully Developed	*Fully Evident
Participant 6	6%	4%	90%
Participant 7	19%	35%	46%
Participant 8	30%	53%	17%
Participant 9	32%	37%	31%
Participant 10	9%	40%	51%
Participant 11	26%	59%	15%
Participant 12	32%	31%	37%
Participant 13	97%	3%	0%
Case study average	31%	33%	36%

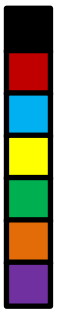
Table 5.3 indicates that the participants’ courses that were reviewed ranged from showing no evidence of pedagogical reasoning to showing strong evidence. Fully evident pedagogical reasoning was 3% higher than evident but not full developed reasoning. This signified an increased level of pedagogical reasoning in this period. Participant 6 remained at 90% which indicated some complacency even though support and resources were available. This goes against the tenets of critical pedagogic practice of constantly evaluating and improving one’s practice. Participant 12 had improved on pedagogical reasoning, as evidenced by attaining 37% fully evident. Participant 10 increased by 11% in fully evident pedagogical reasoning. There was a decrease in the ‘evident but not fully developed’ domain by 2%. The ‘not evident’ domain decreased by 5% and the ‘fully evident’ domain increased by 6%. It appeared that through interventions and circumstances, participants shaped their pedagogical practice through improved reasoning. Seemingly, participants grasped the online environment seriously in this period. Perhaps this was due to the imperatives from the macro environment.

5.4.1 Enablements to CDP practices

Figure 5.20 *Enablements visualising structure, culture and agency*

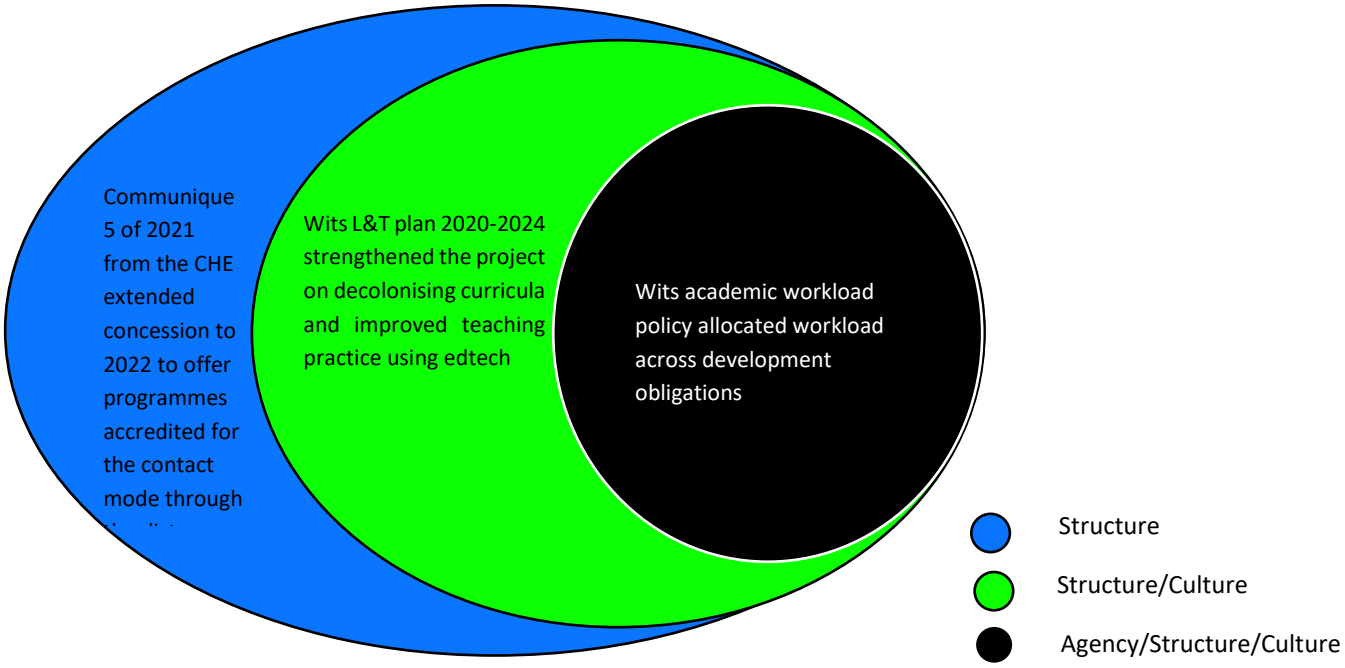


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Figure 5.21 *Enablements identified in the document review and evidence from documents*



Evidence from documents
"In the absence of any certainty about whether and when institutions will be able to resume uninterrupted contact learning and teaching, the Higher Education Quality Committee (HEQC) has decided to extend the concession to institutions to continue offering programmes accredited for the contact mode to be offered in the distance mode for the 2022 academic year"
"Participation in professional learning related to university teaching will be supported and encouraged while placing emphasis on a decolonised curricula"
"university teaching will be supported through workload policies that explicitly provide time for this"

A communique distributed by the DHET (July 2021 presented in Chapter Four) served as a *structural enablement* to DT by requiring academics to engage fully in online L&T. Concurrently, most participants voiced the opinion that there was a strong response from the Head of School and other faculty in this period, in contrast to their weak engagement with online modes of L&T in the previous period.

> The response from faculty was exaggerated really. I understand why they had to do it. Faculty was trying to push due to teaching continuity. (Participant 12)

> From faculty, it's more communicative, more teams meeting. The dean's office is no longer so far. There is more visibility and collaboration with the CHSE. (Participant 10)

Even though the response from leadership was viewed as exaggerated, it created more visibility and collaboration, and provided incentive to improve the digital competence and an opportunity to reshape academics' pedagogical

practices. In this period, pedagogical conscientisation (through reflexive and reflective processes specifically focussed on teaching) *enabled agency* in a positive manner through student-centred learning and teaching practices.

> I feel that you need to engage in an ethic of care because you need to provide the rope to allow them to get to the next level. This relates to my agency now, as I suppose it's this deep-seated healer need, as both a clinician and educator. (Participant 9)

> Previously, I was the authority in this side, I am now the facilitator and guide rather than stipulating and directing. I am also a learner now. (Participant 12)

Through the process of conscientisation, there was a realisation that didactic teaching *constrained* the development of critically-minded students.

> I used to didactically lecture but now I push them to be critical. I think about ways to facilitate student learning. (Participant 6)

> My previous teaching was more didactic but because I am using the blended approach and know that they are engaging with the course materials, and I pose questions and push them to critically question the choices of someone that they see as an authority. (Participant 12)

This realisation allowed academics to facilitate student learning by transitioning from the periphery to student-centred L&T practices. At the same time, conscientisation of the academic 'self' occurred relating to Archer's (1995) double morphogenesis (Chapters 2 & 7). It enabled self-directed learning due to reflexive, reflective practices. Participant 8 articulated this rather nicely:

> Through reflecting, I learnt something about myself. While thrown in, I could have drowned, but I learnt new strokes to swim in the online space and learnt about myself whilst getting back to the surface. I think that I underestimate myself and I search for people to advise and tell me that I am doing a good job. (Participant 8)

Another important *cultural and agential enablement* was the view of many participants that self-motivation through reflection shaped CDP practices.

> I have moved from thinking about how to use technology to how to empower myself and I am using it in my teaching. (Participant 7)

> For me, my interest is my love for teaching. And that's a problem within a research-intensive university. So, I motivate myself to improve my teaching. (Participant 9)

With improved confidence and competencies, academics became dynamic with new ways of doing and being that *enabled academic agency.* This signalled the move from being a primary agent to a corporate agent (Archer, 2003).

> It is a nurturing kind of identity because I am always trying out new things with them and trying to get feedback to improve. (Participant 12)

> I think the fact that I can digitalise a practical course has increased my agency, as a lot of people still did not do what we were meant to do last year. When I help someone, I feel better about myself. (Participant 10)

With heightened confidence, academics developed internal support by forming informal CoPs based on shared pedagogic beliefs and practice-based systems.

> I helped my colleagues with developing their content. Some of them saw it as a chore while others started appreciating how online can assist them and make it easier. (Participant 12)

> The culture was not a prompt except for [name of colleague] who assisted me through his courses and knowledge. (Participant 11)

These mini-CoPs served as *a cultural and agential enablement* since they embedded a particular culture with high levels of social capital amongst like-minded colleagues (corporate agents) which increased the agency of academics in their learning practices and digital competence. The development of CoPs created scope for the development of formal mentorship models throughout the schools.

> We were all forced, as we were not previously online. And I became the online champion to help others. The culture has changed, as we communicate now much better due to the dependency on each other. (Participant 11)

> I have a mentor in [name of colleague] who guides me and assists me in teaching practices, as well. (Participant 7)

> I see myself as a guide and a mentor – in the online space, especially. (Participant 12)

Consequently, academics began thinking about and implementing suitable online applications for students for creating improved learning experiences. This meant that they took the experiences of their students and peers into account.

> Now I see how this blended learning platform can facilitate better. (Participant 9)

> I feel like I am a seeker and refuse to follow the status quo. I am continuously looking for new ways to make it easy for students, especially in the online space. (Participant 12)

There was an assumption amongst participants that being a Wits staff member with no competing mandate enabled better teaching, while being a joint academic enabled better clinical training. The following statement was made in this period – perhaps due to the imperative of integrating edtech in learning and teaching practices, as it was not raised in the previous period even though the appointment of joint academics persisted as the norm due to the MoA between Wits and the DoH.

> As a Wits academic, I had time to attend CPL training. So, my teaching will naturally improve due to my effort. I teach alongside my other colleagues. Their jointness makes them better clinical trainers and teaching is dependent on their commitment. (Participant 9)

This served as a *cultural and agential enablement* because of the assumption that academics employed by Wits had access to CPL, which improved their teaching practice. However, joint academics were adept at clinical training and due to their service rendering load, spent many hours in the hospital. Their teaching practices served as a sacrificial entity, as they also had access to CPL courses but were dependent on leadership and their intentions and actions. This had repercussions for the MoA with the DoH because changes in their job descriptions would allow for changes to the dynamics of clinical trainers as academic teachers as well. There had to be some balance in the learning and teaching practices of joint academics. Only one participant made a positive comment on leadership that promoted autonomy in the case study:

> We have very good leadership, and it filters down in that I have freedom to be creative and find solutions. And he totally supported me in improving my teaching through providing resources. (Participant 6)

The CLTD, Wits ICT and the CHSE served as *structural and agential enablers* as most participants were of the view that when they were forced to attend CPL programmes on pedagogical practices and edtech integration, it augmented their learning and teaching practices while igniting their passion to teach.

> I have used the eZone, but not properly. I think because of the course that I am part of, students are always in clinical. And I use the simulation lab which serves as a form of creativity. It served as a prompt in my teaching. (Participant 7)

> For me, personally, it was certain academics from the CLTD who actually empowered me further because of their strong social justice philosophies coupled with their knowledge of teaching with technology. (Participant 12)

> We relied very heavily on CLTD as they gave some ray of hope. And I like the social justice thrust that emanated strongly from the Centre… it was a reminder. (Participant 6)

> I take most of my teaching tips from the courses we attend at the CLTD, plus the PG Dip here at the CHSE. (Participant 8)

So, in this period, due to the imperative to integrate edtech into learning and teaching practices, it seemed that academics attended programmes that enhanced their teaching practice. The attention to sense-making around critical pedagogic practice practices materialised as patterns because of participants' interactions with support agents who enacted social justice philosophies.

The clinical experience of joint academics also served as a *structural enabler,* because the assumption was that being a joint academic enabled better clinical training at the hospitals as most participants were of the view that joint academics colleagues were stronger at bedside training.

> We have capitalised from them due to their clinical experiences. We learn so much from them on clinical practices and evidence-based medicine. (Participant 8)Due to the self-formed CoPs, the expertise of joint academics on clinical training was thus capitalised on by those academics who were appointed by Wits. In this period, non-interventionist patterns of leadership provided a space for some academics to exercise greater autonomy and agency. This was due to increased agential levels that served as *structural and agential enablements.*

> I had carte blanche now to do anything. My voice counted as I felt like it never had before within the division. Maybe it's because leadership does not know much about online pedagogies and did not interfere. (Participant 9)

> My agency emerged mainly through and after Covid 19 as the boss was very quiet. I think this highlighted my autonomy when he was absent. I saw my strength in myself and my teaching style in online teaching. (Participant 8)

> Another strength is me telling leadership, "Just stay out of my course because you had no idea about what and how I was teaching as you didn't bother – so how are you going to assist me if, for the past few years, you have never bothered to support my teaching practice and I managed with other help from the university?" (Participant 7)

These comments indicated that participants experienced *enablements* to their teaching practice due to the increased opportunities to exercise their agency under the conditions brought about by Covid-19, but this was related to ineffective leadership around the continuous and progressive support of all academics in their learning and teaching practices. In this case study, it appeared that the presence of leadership reduced the altruistic and scholarly activities of many participants while it increased the agency and activities of a few around learning and teaching support. Perhaps the non-interventionist approach of leadership was due, in part, to the challenge of coping with the unexpected requirements brought about by Covid-19.

> It's 2021 and there has been a need to express myself more and be more receptive, engaging and reactional to things. Through my agency, my attitude developed, and my identity has changed. (Participant 8)

> It's about drawing boundaries and I only respond if it's the HoD or a student with a crisis. Here my agency has increased as it evolved to one that is now stronger. (Participant 6)

> There was a lot of identities I developed in the last year as we were forced to develop identities at higher level meetings through active engagement. (Participant 10)

Consequently, the online identity of a few academics increased and improved because they made pedagogical choices that suited their practice as they were given space to act as self-sufficient agents. Many participants were of the view that their agency evolved because they developed various identities at higher levels through numerous meetings in the online space.

In this period, the Wits Learning and Teaching Plan 2020-2024 *structurally enabled* the university's projects to decolonise curricula and improve teaching practice using edtech. As a *cultural enablement,* first, like the previous plan it embedded a critical stance that aspired to the creation of counter-hegemonic spaces aligning to critical practice. Second, it legitimised norms and habits on edtech integration due to a necessity in the fully online context. However, it did not sufficiently address tensions and compromises between the different modalities of learning and teaching, which was an area that needed further analysis and discussion.

The Wits academic workload policy served as an *enabling structure* to all full-time academics in the case study but not to joint academics, because it allocated workload across development obligations. This meant that a culture

of professionalisation of learning and teaching practices was formed due to the Wits Framework for CPL of academics as university teachers that was established in the latter part of the previous period in this study. However, much still depended on the agency of participants even though many asserted that the CLTD and the CHSE served as structural enablements as they had provided CPL courses on digital competence and pedagogical practices. In a similar vein, the interviews revealed that the CLTD served as a *structural, cultural, and agential enabler* due to how the courses were facilitated, and the facilitators reminding them of voice and agency.

It appeared that early adoption of technology practices resulted in better understanding, design and development of online learning and teaching practices.

> Due to earlier interest and experimentation with technology, now it's a lot like, "How I can better design this course so that I don't have to explain too much?" (Participant 8)

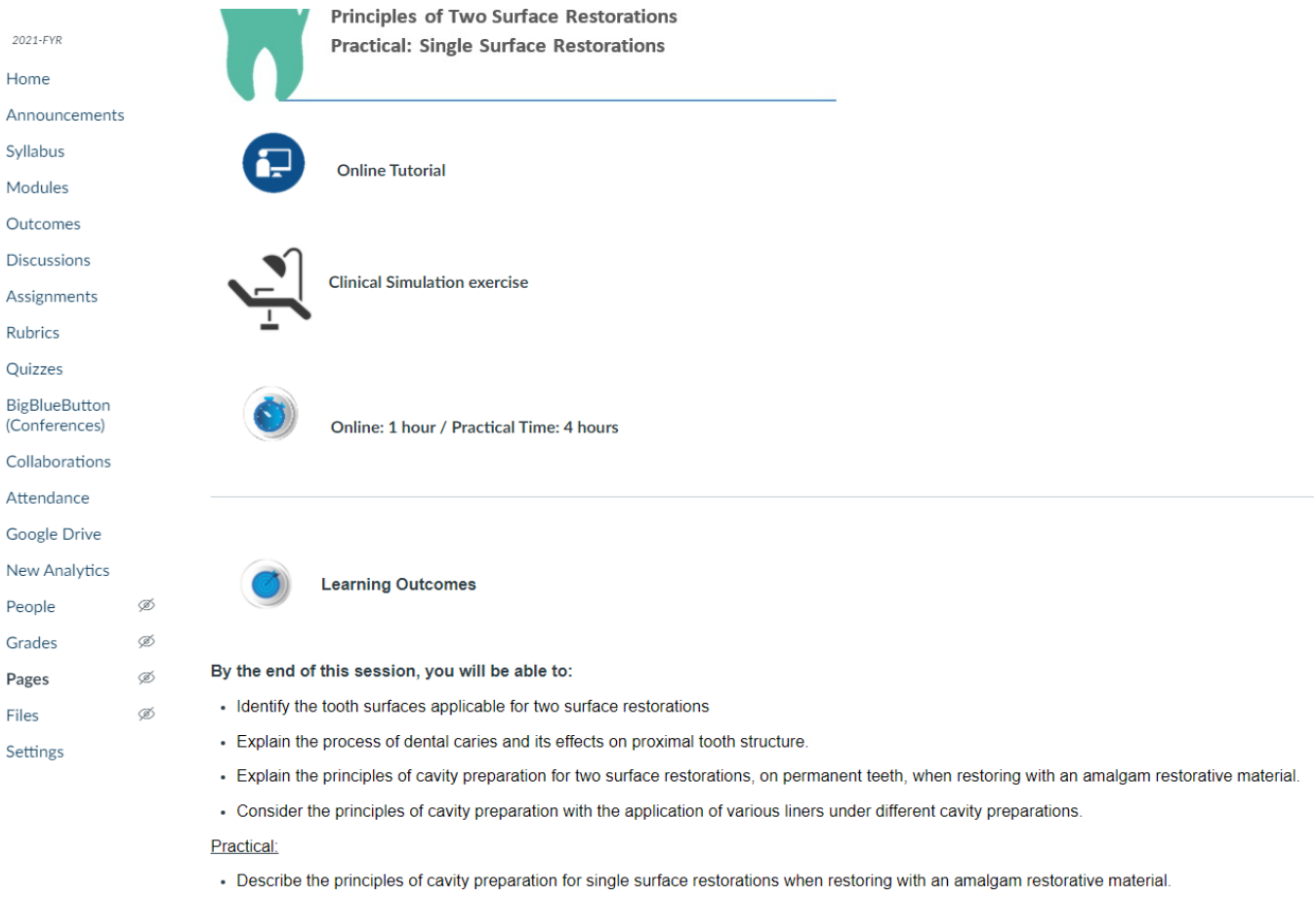
> I have always been experimenting with technology for my teaching, so I sort of knew a little on how to design and align my course to the ILOs. (Participant 12)

Consequently, Participant 12, asserted that in a small group, they incorporated various forms of knowledge into courses that they designed, developed, and facilitated.

> I think while we develop their knowledge and skills, we also have to inculcate their emotional responsibility. This entails like naming their simulation model and making it into a family member and they attach a person behind the simulator. Creating a narrative behind this to create empathy. To understand the emotions behind the patient. (Participant 12)

One of the courses that was reviewed illustrated the statement by Participant 12 about providing students with access to different forms of knowledge in the online modality. An online tutorial, simulation and practical activity were included on his course site (depicted in Figure 5.22). Upon going further into the course, I noticed that students had to assign a family name to their simulation model while creating a narrative to demonstrate knowledge and understanding of empathy and emotions in patient care. This also aligned to promoting the ethic of care which was not a formal part of the specific curriculum in dentistry as confirmed by all participants. However, Participant 12 exercised his agency and incorporated it into his pedagogy and assessment.

Figure 5.22 *Snapshot from a course created by Participant 12, demonstrating access to various forms of knowledge and pedagogic practices*



Likewise, Figure 5.23 demonstrates another form of knowledge that medical students needed in this specific curriculum, where examination of heart function is used to arrive at a diagnosis. While images of the actual presentation that demonstrated CDP practices could not be provided for ethical reasons, it clearly demonstrated a pedagogy of care that took the lived experiences of students into careful consideration and where the use of the digital simulation tool served as CDP practice. Providing students with access to different types of knowledge is one way of enacting a CDP practice which, over time, could strengthen the culture in the school and enable critical practice due to high levels of agency.

Figure 5.23 *Snapshot from a course created by Participant 8, demonstrating access to various forms of knowledge*

Hospital Medicine

During the French revolution, France, and Paris in particular, became the focal attraction in the world of medicine. The principles utilised in the French medical community thrived. This period of innovation, centred around the hospital, has been referred to as a 'medical revolution', as it emerged from a political revolution.

Revolutionary leaders vowed that universal health would do away with the privilege and corruption related to the old hierarchies and inequalities. However, this picture soon faded as diseases continued to affect the population. The revolutionary government needed to respond to the fact that its soldiers and sailors were often in need of medical attention when they were sick or wounded, which allowed for the development of the hospital.

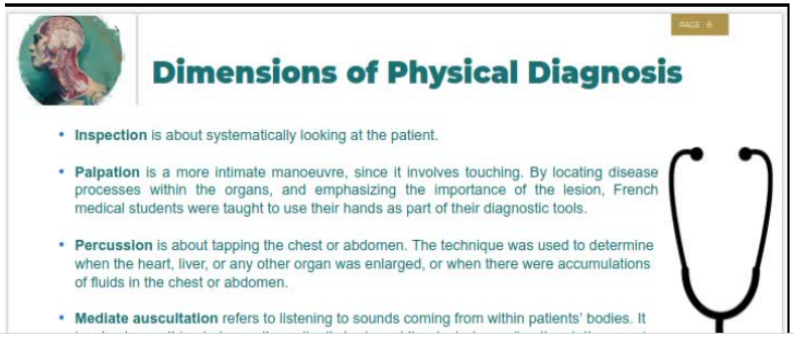
Medical schools were designed to train more practically rather than theoretically, and training was done inside the hospital. Importantly, the division between the physician and surgeon fell away as medical students were trained in both medicine and surgery. Some key features of medical practice that are still evident today from the practice of medicine within the French School are:

- physical diagnosis;
- pathological-clinical correlation;
- and the use of large numbers of cases to elucidate diagnostic categories and to evaluate therapy.

Four cardinal dimensions of physical diagnosis, still taught to medical students, are inspection, palpation, percussion, and auscultation. With these practices, new technologies emerged, such as Laennec's stethoscope of 1819.

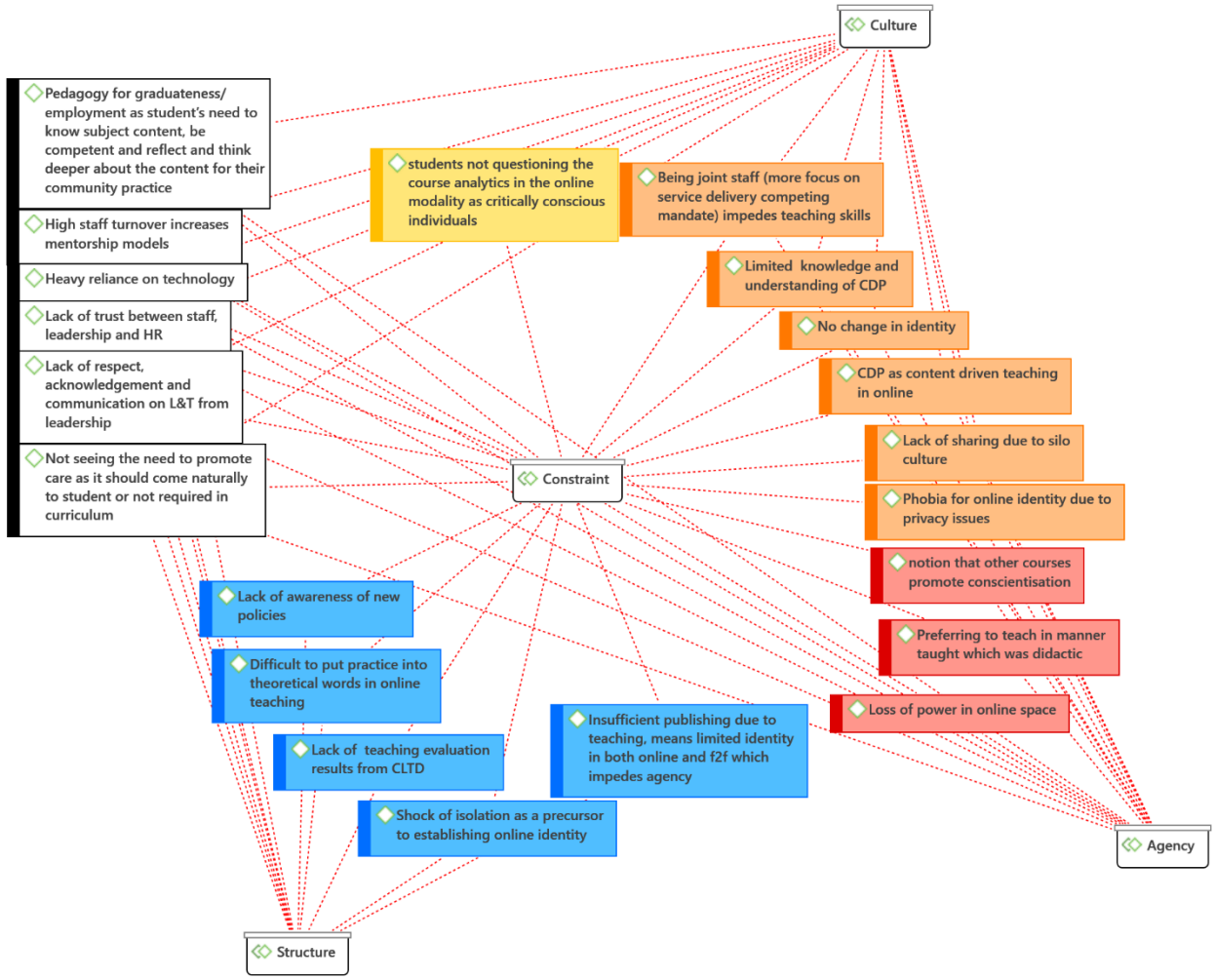
A final legacy of hospital medicine is the development of the asylum, where mental and psychiatric conditions were relegated to mental hospitals. The session concludes with a discussion about the lasting impact of psychiatric medicine.

procrastination graph-1.png **Watch the Presentation**

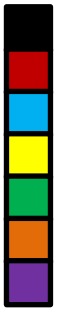


5.4.2 Constraints to CDP practices

Figure 5.24 *Constraints visualising structure, culture and agency*

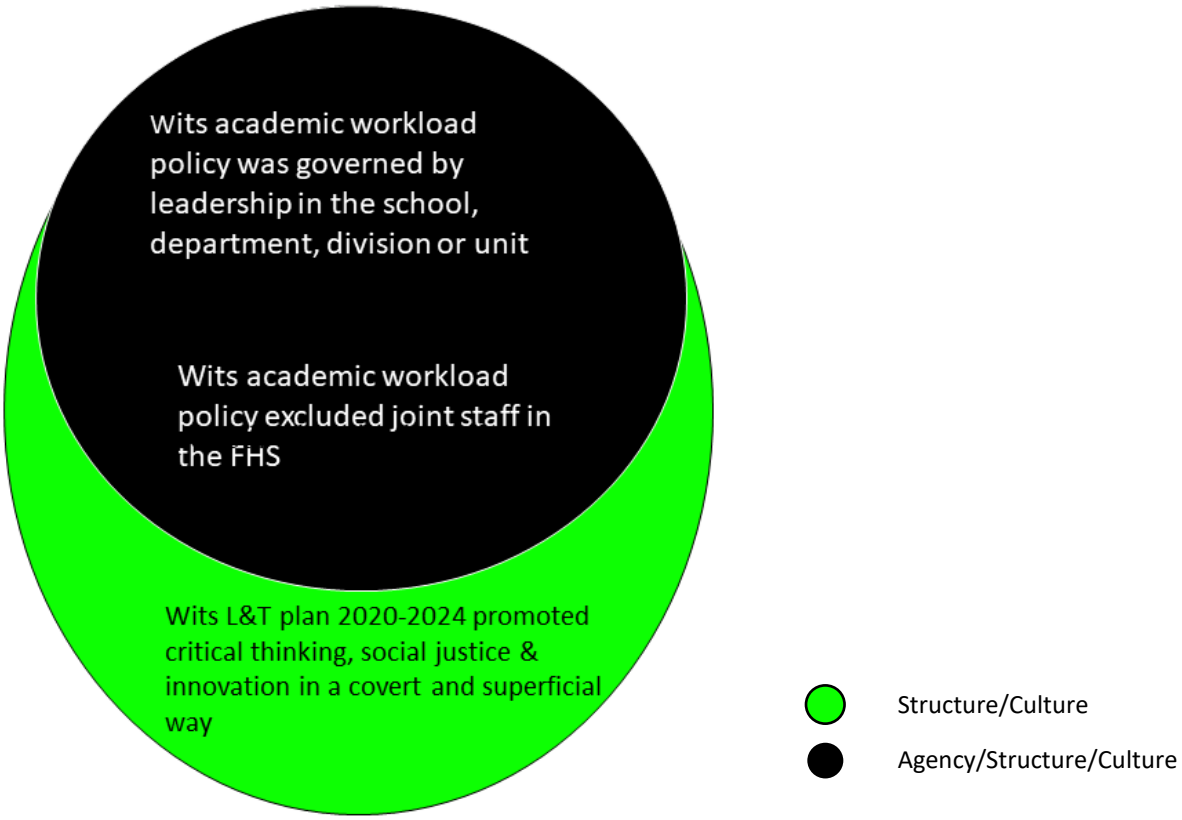


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Figure 5.25 *Constraints identified during the document review and evidence from documents*



Evidence from documents
"This policy requires Heads of School to allocate academic staff workloads transparently and through consultation, balancing these loads against staff career development obligations with a balance of academic activities by agreement between an academic staff member and his/her Head of School"
"This policy applies to all members of the academic staff at the University, except joint-staff in the Faculty of Health Sciences (School of Clinical Medicine, School of Oral Health Sciences, School of Public Health, and School of Pathology). The workload of these members is subject to the conditions of employment of the Gauteng Health Department (GDH), or the National Health Laboratory Services and the relevant University policies for joint staff.
This is my view due to observation; it is not specifically stated in the L&T Plan.

All participants asserted that their students did not question the course analytics on the LMS. This was a constraint as it implied that students were not exercising critical consciousness as individuals.

> They never question to whom all the LMS information is going. They ask clinically orientated questions only. (Participant 11)

Some participants stated that even though students did not ask questions on the privacy of information, they informed their students that certain entities, such as ICT staff and the CLTD, had access to data on the LMS.

> As much as you have some lecturers promoting critical practice there are many lectures who don't, and they get students to accept what they say. (Participant 12)

This statement implied a culture of teacher-centredness that does not align to the core principles of CDP practice of problematising, questioning and breaking down power barriers that impeded social justice. Some participants preferred to teach using the didactic pedagogy with which they had been taught. Participant 9 stated: "My teachers, throughout engaged didactically which had a profound effect on how and what I teach and motivate and impart knowledge to my students." Participant 11commented "I model the behaviour of my predecessors, as how I was taught is how I teach". This was an *agential constraint,* as participants' prior experiences shaped their current pedagogic practices, reducing their use of agency. Most participants demonstrated a limited knowledge and understanding of CDP practice.

> I think it's the bare bones, the absolute essentials that must be present in a teaching environment. (Participant 9)
>
> My tutorials and lectures are structured within case-based learning. (Participant 7)
>
> It's all very new. (Participant 10)

On average, participants did not have a true understanding of CDP practices, which represented a *cultural constraint* as they viewed CDP practices as online content-driven teaching

> So, CP practice would imply the way we deliver content in the online. (Participant 11)

This manifested in many academics utilising the LMS as a repository for content and not as an integrated, collaborative learning environment. One of the tenets of critical pedagogic practice is to establish strong communities of practice that facilitate sharing. However, due to the culture of silos that prevailed, there was inadequate sharing, with evidence of the development only of 'mini' communities of practice.

> As a jointee, there is no sharing culture from full Wits staff, as I do most of the sharing. Recently we shared some exam questions in GEMP 4, and it was only me and [name of person], another jointee who did so. (Participant 7)

In this period, there was no change in identity described by many of the participants because of insufficient understanding of CDP and online learning. If participants were merely delivering content by uploading PowerPoint presentations and PDF documents onto the LMS, it implied that they were only using didactic pedagogies in the online modality. Two participants asserted that they felt uncomfortable about creating an online identity; most used their online identity at a minimal level, for research purposes only.

> The POPI act is a constraint as there are legal issues that make me liable as the administrator. (Participant 6)
>
> I have a phobia for putting personal info in the online space due to privacy issues. I am very uncomfortable doing this. (Participant 13)

The comments relate to cultural and agential aspects because an online identity relates to academic presence in the online space for research and L&T purposes. A significant number of participants were of the view that their *agency was constrained* due to insufficient publishing which translated to a limited identity in both online and face-to-face modalities.

> My online identity has diminished my agency at Wits only because I struggle to get my research going. I have this fear and insecurity of my online identity (Participant 8)

> As I don't publish, there are effects on my agency because I am not viewed as a contributing member of the academy. And the stronger the online identity the higher the agency, so I have not much agency. The higher powers see me as lower on the hierarchy. (Participant 7)

Consequently, transitioning to an online modality appeared as a pre-cursor to establishing an online identity in a silo.

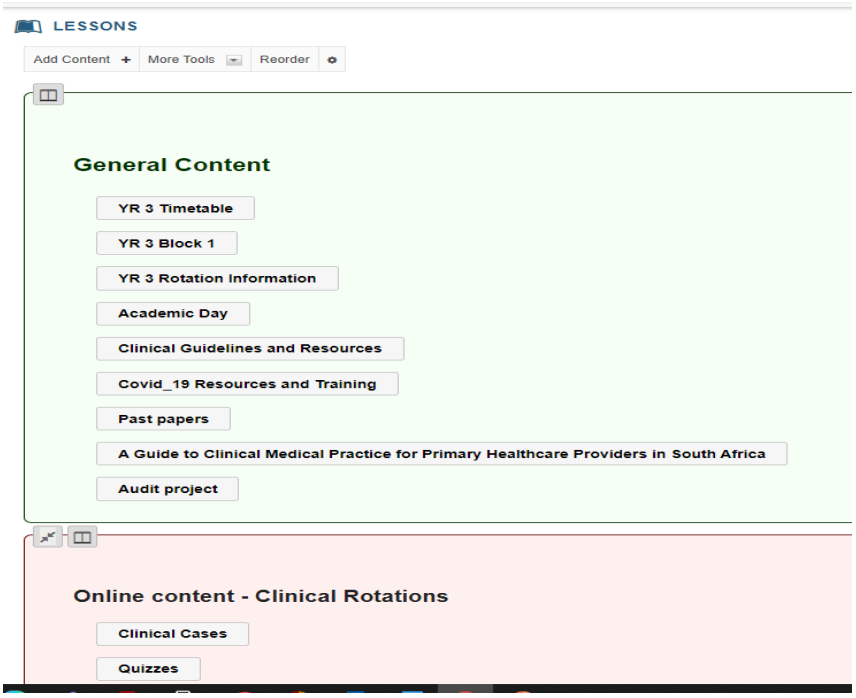
> I think it is the shock of being isolated in the online space that caused people to establish their online identities. If we were in a room on campus the initial foundation of building identities would be different. (Participant 12)

The comments relate to *structural and agential constraints* due to not having peers around to assist in creating a safe space for students and the self. Being a joint academic also *constrained* clinical teaching practices in the online modality, as described by Participant 11, without a broad repertoire of digital pedagogies to support demonstration.

> You want to explain a concept to a student, but you don't know how to put it into words as we are used to 'show and tell'. (Participant 11)

Figure 5.25 demonstrates a case in point, where the academic has loaded content without evidence of structuring the site to enable students to navigate the course using a range of interactive pedagogic practices to achieve intended learning outcomes (ILOs). The provision of theoretical content alone was an inadequate pedagogic practice.

Figure 5.26 *Snapshot of course demonstrating theoretical content to explain clinical aspects*



The development of a robust pedagogic repertoire to support student-centred L&T on a digital platform was further hampered for joint staff by the directive to focus on service delivery, as noted by Participant 11:

> It's a challenge to balance patient treatment versus teaching. I am told to focus mainly on service delivery by the boss. This sets my teaching skills back. (Participant 11)

> We are employees of the DoH, and we have to follow their protocols first. They do allow for teaching and training, but the service delivery part is strong. And when you are scheduled for patient care, you have to leave everything and go to the hospital. But my teaching could balance the service delivery. (Participant 12)

This implied that the stronger emphasis on service delivery curtailed the development of the necessary pedagogical repertoire of joint staff and the enthusiasm of the early adopters. Accountability emerged as a *structural constraint* because nobody tackled this conundrum between the DoH and Wits. One impact was that most participants who were joint staff had remained unaware of new policies at Wits due to their focus on service delivery.

> I have heard about it in passing from the CLTD announcements, but I have not engaged with it. (Participant 8)

> So, I am aware that it exists. When we attended courses run by CLTD, it was mentioned. However, I have never been aware. Makes a difference now. (Participant 9)

> Never heard of it. (Participant 7)

> Not at all. (Participant 11)

This unawareness of policies by joint staff, resulting from the competing mandates of Wits and the DoH, *constrained* their CDP practices. It appeared that the pressure to focus on service delivery first and L&T practices second, undermined their academic agency.

While the Wits Learning and Teaching Plan 2020-2024 overtly enabled umbrella practices like blended L&T, it was much less explicit in its directives regarding critical thinking, social justice and innovation. As a structure, it acted as a *cultural constraint* because, if implemented, the culture of L&T would be negatively influenced ambiguous and did not provide concrete direction.

The academic workload policy excluded joint academics in the FHS and was implemented by management at the level of the school, department, division or unit. Joint staff in the SoOHS and SoCM carried a complex workload because the duality of their appointments implied a responsibility to Wits and the DoH with respect to teaching, research, service and administration.

> This policy applies to all members of the academic staff at the University, except joint staff in the Faculty of Health Sciences (School of Clinical Medicine, School of Oral Health Sciences, School of Public Health, and School of Pathology). The workload of these members is subject to the conditions of employment of the Gauteng Health Department (GDH), or the National Health Laboratory Services and the relevant University policies for joint staff. (Wits university, 2020)

There was no policy addressing joint academics at Wits except the recurring MoA with the DoH. As a *structural constraint*, the workload policy thus did not apply to most participants in this case study. Their culture was impacted because competing mandates replaced teaching as secondary to service delivery. Much depended on the agency of the joint academic, which the data verified was, in fact, weakened by this situation. The data also revealed that pedagogies were selected to promote throughput over the development of critical consciousness.

> Our pedagogy is developing our practice so that students understand their place in communities. This makes it relevant to them and the community. (Participant 8)

Concomitantly, participants realised that there was much reliance on technology, and their use of the LMS reflected their levels of digital competence.

> I think about the LMS and the way we use it becomes a constraint as our reliance on technology is heavy now.(Participant 6)

It appeared, in this period, that a heavy reliance on technology implied that participants needed to improve their digital capabilities since it impacted on their teaching practices. Participants did not see the compulsion to teach 'care' in practice as they viewed it as an instinctive quality which was not a part of the curriculum.

> I don't have a course that says, 'this is how you should demonstrate care to a patient', but I sensitise them. One student addressed a patient as "bro" and this is not what we teach, as we teach professionalism. (Participant 7)

> Showing how to care is not a part of our curriculum. And besides, students should learn this from home: it's common sense. (Participant 9)

The ethic of care linked to social justice which was enacted in critical pedagogic practices. Participant 9 assumed that all students should have learnt the ethic of care in their home environment. Because it was not structured into the curriculum, it impacted the culture, consequently creating a gap in academic agency which materialised as a *constraint.* Another *multilateral constraint* raised by a significant number of participants (seven) was insufficient respect, acknowledgement, and communication from leadership.

> My methodology did not change because of circumstances and no encouragement from leadership. (Participant 11)

> Hierarchy diminishes the excitement of motivation to teach, as then I could have just done the minimum. Others get the preferential treatment, and they have high levels of agency. (Participant 7)

> Leadership in the school is a challenge because we are scared to communicate and not comfortable to raise issues because we are not heard. (Participant 8)

This culture *constrained* participants in all regards because leadership, as the guiding structure, was expected to create an enabling culture for learning and teaching practices and, especially in this period, improve digital competences. It appeared that this did not occur which fuelled sentiments of mistrust between staff, leadership, and Human Resources.

> Also, at the faculty level, they know about this problems and they chose not to do anything about it. (Participant 7)

> We cannot make changes without permission, but then we don't get support from where this permission comes. We don't get responses when asked and then we get tired waiting. (Participant 12)

Due to the negative culture around leadership in the schools, it appeared that the agency of many academics was eroded. Concomitantly, due to a high joint staff turnover, a gradual and marginal increase in appointments manifested which impacted negatively on existing joint academics. This occurred through the clinical training grant that enabled graduates from designated groups to be employed by the DoH as joint academics.

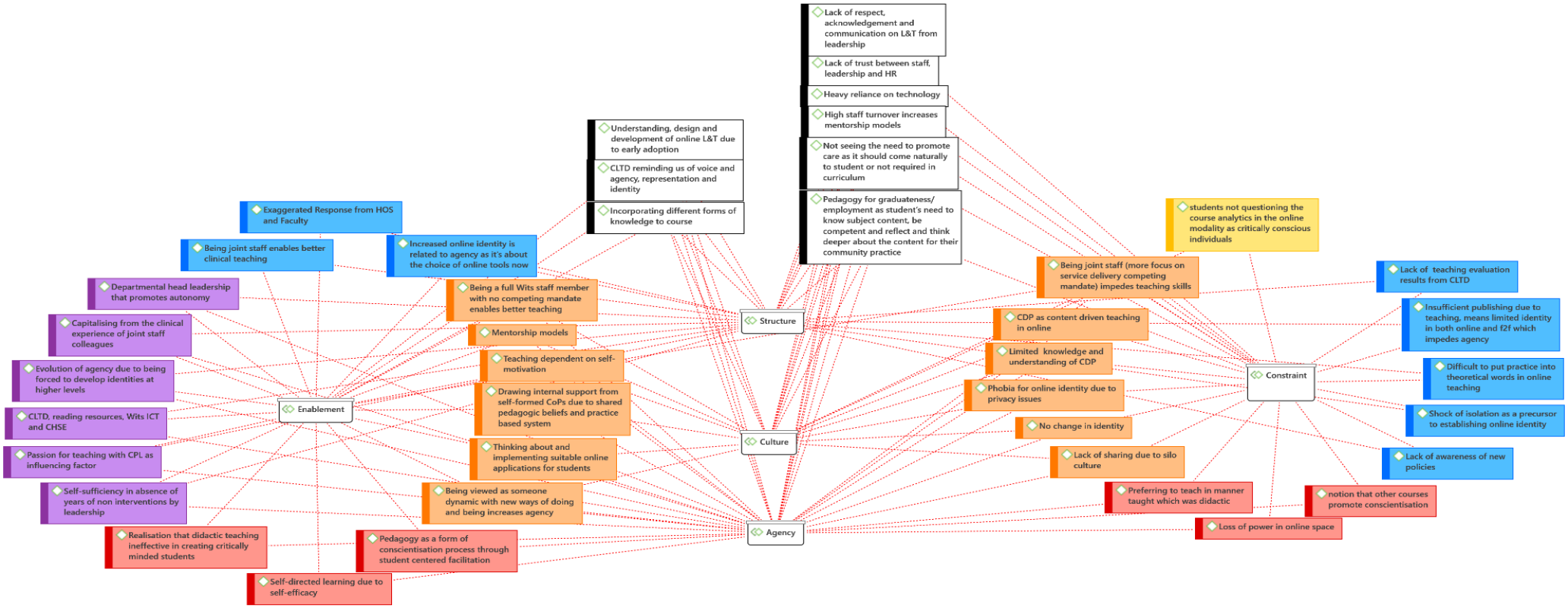
> There are usually staff shortages and new staff are employed who don't know the work. This hinders the progression of my courses as I have to juggle between courses – which limits my progression on my course, as well – and showing them the best way to teach. (Participant 12)

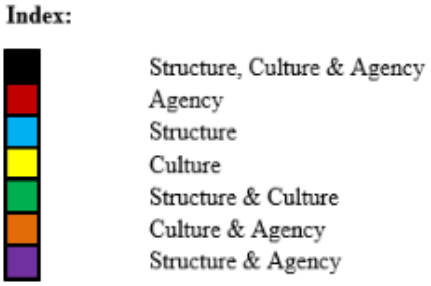
> Sometimes it's counterproductive, as that co-dependency sometimes becomes an obstacle to my progression. People always want you to mentor them and you lose your own time helping others and you don't progress. (Participant 6)

The culture was such that new joint appointees were seldom inducted correctly and were pushed towards the experienced joint academics to be mentored. Consequently, participants felt that this process *constrained* their learning and teaching practices.

5.4.3 Co- occurrences and summation of enablements and constraints

Figure 5.27 *Co-occurrences between enablements and constraint*





There were no co-occurrences between enablements and constraints in this period as per Figure 5.27 because all academics were on the same footing. They engaged in emergency remote teaching (ERT) in 2020 and continued with online learning and teaching in 2021. Clinical training occurred at the hospitals which aided joint academics and on days they were not at the clinics they engaged in the online space, developing their teaching practice. Previously, they had experienced some conflict resulting from their competing mandate, but in this period, both Wits and the DoH had the same goal post translating to teaching practices took centre stage.

5.5 Summation of chapter

The MoA between the FHS and the Department of Health, a pre-existing structure that was identified in the document review, shaped decisions throughout this study's periods. Through the MoA, during period one the DoH structurally placed joint staff (who did not have a qualification related to pedagogical knowledge and skills) as academics, which aligned to the criteria of the FHS for appointment of teaching staff. Consequently, the CHSE and CLTD played a role in developing the teaching and learning practice of joint academics through various courses. However, attendance of courses was not mandatory and thus depended on the agency of academics.

During the longest period included in this study (T2-T3), interaction occurred due to the snowball effect of structural conditions of the previous period. The findings revealed various conceptualisations of critical pedagogic practice and CDP practices that focused on preparing students to be competent doctors and dentists. Academics' levels of digital competence depended on their self-efficacy, perseverance, and tenacity, while some did not see the need to integrate edtech into their L&T practice as they used the LMS didactically. Apart from many factors that either enabled or constrained L&T practices, the action, or inaction, of leadership featured prominently as a constraint. Individual agency enhanced and supported CDP practices through the manifestation of the academic's mental models (reflection) and research identity that was influenced by voice, profession, social trends and subjective elements.

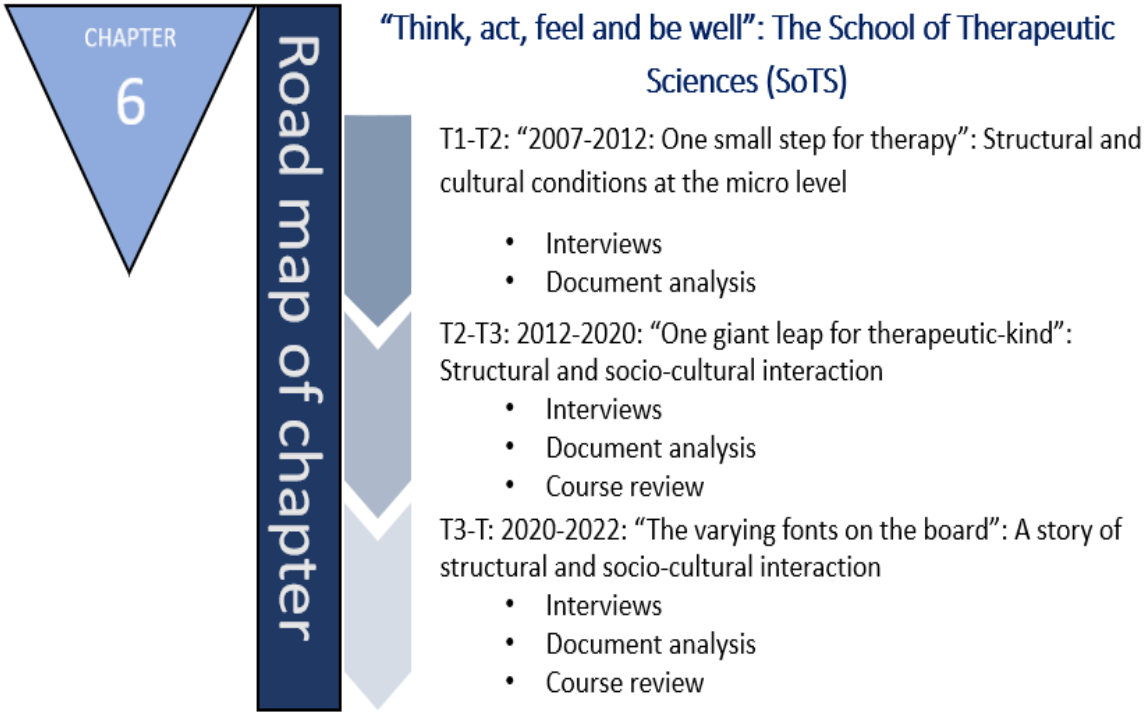
The shorter T3-T4 period highlighted structural and cultural elaboration in L&T practices, even though the discourse pointed to thinking and practices that are at odds with CDP practices. It also revealed that 'becoming' and 'being' a critical pedagogue demanded not only a knowledge base of visible activities but also specific skills and invisible social actions originating from the 'self' through reflection and then enactment and conscientisation through teaching practice. The next chapter focuses on therapeutic sciences in the Faculty of Health Sciences during the same time periods.

Chapter 6 "Think, act, feel and be well": The School of Therapeutic Sciences (SoTS)

6.1 Introduction

Chapter Five presented the findings of data collected from the Schools of Clinical Medicine (SoCM) and Oral Health Sciences (SoOHS) from 2007 to 2022, divided into the three morphogenetic/ morphostatic (MM) periods. This chapter presents the findings of the case study conducted on the School of Therapeutic Sciences (SoTS) for the same period. The departments within the SoTS include occupational therapy (OT), pharmacy and pharmacology, physiotherapy, sports medicine science and nursing. The SoTS engages in pedagogical practices and knowledge production on the design and administration of a variety of non-surgical therapeutic treatments and on rehabilitation in post-operative situations. For the past twelve years, the school has focused on integrating blended learning as a strategy. While each department has embraced its own primary curriculum facilitation strategy, the leadership of the SoTS encouraged problem-based learning (PBL) as a key pedagogical practice. This strategy aimed to maintain and/or enhance the standard of education in the face of increasing student numbers. For this study, data was gathered from nine participants (agents) through in-depth interviews and course reviews as depicted in Figure 6.1. Secondary data was gathered through a study of key documents relevant to the three periods under study (T1-T2, T2-T3 and T3-T4).

Figure 6.1 *Road map of chapter*



All of the participants held professional qualifications and had been appointed by Wits, except for Participant 17, who was a joint academic and was thus subject to the employment conditions of the Memorandum of Agreement (MoA) between Wits and the DoH. Of the nine participants, only two participants had been employed at the university during the T1-T2 period and were thus able to provide data relating to this period. All nine participants provided data on the T2-T3 and T4 periods. For ease of reference, Table 6.1 was inserted as a list of acronyms employed in this chapter.

Table 6.1 *List of acronyms employed in Chapter 6*

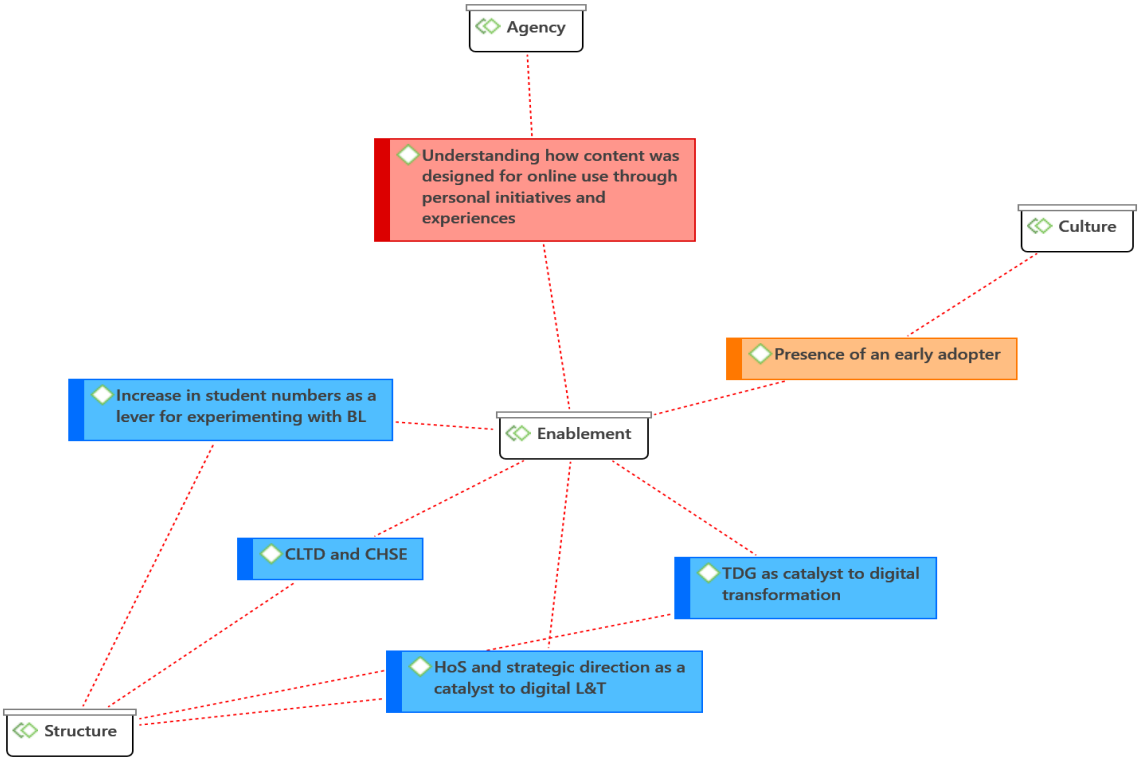
CDP	Critical digital pedagogy	DT	Digital transformation	LMS	Learner management system
CHSE	Centre for health science education	ERT	Emergency remote teaching	M/M	Morphogenesis/Morphostasis
CLTD	Centre for learning teaching and development	FHS	Faculty of health science	SoCM	School of Clinical Medicine
CPL	Continuous professional learning	HE	Higher education	SoHS	School of Oral Health Sciences
CR	Critical realism	HS	Health science	SoTS	School of Therapeutic Sciences
DHET	Department of higher education and training	L&T	Learning and teaching	SR	Social realism/realist

6.2 T1-T2: "2007-2012: One small step for therapy": Cultural and structural conditions at the micro level

I began the case study with the in-depth interviews, as there were two participants who had been employed at the SoTS during this period. Participant 18 was based in the physiotherapy department while Participant 22 was in the occupational therapy department. The enablements and constraints that influenced the implementation of online teaching and learning during this period are presented below.

6.2.1 Enablements to CDP practices

Figure 6.2 *Enablements visualising structural, cultural and agential codes*

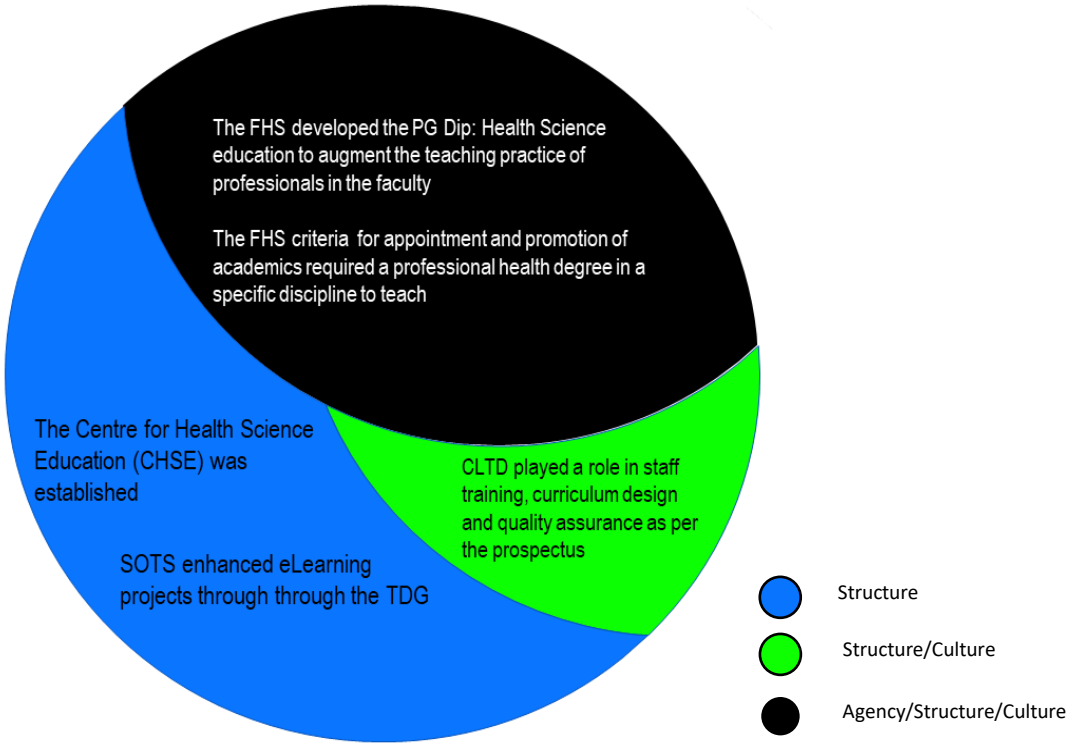


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The evidence from the document study presented in Chapter 5 is relevant to this case study as well. This data has not been duplicated here, however, aspects specific to this case are presented within the context of this case study.

Figure 6.3 *Visualisation of document study enablements*



During this period, the Head of School of the SoTS played a strategic role in thinking about edtech in L&T practices. It appeared that, at the inception stage, the Communiqué was a catalyst that benefitted the DT project. The directive also served as a key *structural enabler* to assist with the increasing number of students without a concomitant increase in the staff ratio.

> The HoD and HoS needed someone to take up the responsibility of creating an online space and inquired about what I would do and change. Of course, I gave him a whole spread of answers. In 2009, he called me and proposed the opportunity for me to create an eLearning project for the school emanating from the OT dept … This strategic direction was instrumental for me as an enabler. I had 2 years to make it work ….. at this stage we had a third in student increase and staff did not increase. (Participant 22)

Another catalyst in this equation emerged through the Teaching Development Grant (TDG) that was used to launch a project that would, over time, snowball into a space to assist both academics and students through digitally-mediated learning and teaching practices.

> The whole thing was TDG-funded. And I was allowed to hire a graphic designer, which I did. In 2010, I bought an iPad and played with it and worked out many niggles through experimentation. In the next tranche of TDG funding, I bought iPads for the OT staff. (Participant 22)

In the same period, Participant 18, a professional physiotherapist with no experience with pedagogical practice, attended courses at the CLTD and CHSE to acquire pedagogical knowledge and skills.

> I attended two courses in 2012. Planning a lecture was the one course at the CHSE…. I didn't really know anything on pedagogy until I attended a course at CLTD. (Participant 18)

Even though there was no mention of any critical pedagogic practice by either of the participants with reference to this period, it was evident that a combination of strategic motives, the identification of early adopters and proper use of the TDG in the SoTS context were key *enabling factors* that gave some direction on digital learning and teaching practices at the SoTS. This conclusion is based on the comments made by Participant 22 (above) regarding the role of the TDG in funding the digital initiatives.

The presence of Participant 22 as an early adopter shaped the learning and teaching culture by serving as a form of mentorship in the SoTS. Apart from facilitating group interactions, Participant 22 attended digital conferences (locally and internationally) and assimilated ideas on how to improve teaching in the online space.

> [name] used to come and talk to us about Moodle and the OT department was well on track on using it. She represented eLearning but her office was in the OT dept. The HoS then gave her a project to run on eLearning. She was doing her PhD and it was based around Moodle… that's how we got the smart boards and clickers as well. (Participant 18)

It appeared from Participant 18's narrative that, at an early stage, the presence of an early adopter influenced and strengthened academics' digital competence only. There was no real effort made to think about or enact critical pedagogic practice. For Participant 22, personal initiatives and experience in the field presented an opportunity to attain a better understanding of how content was designed for the online environment.

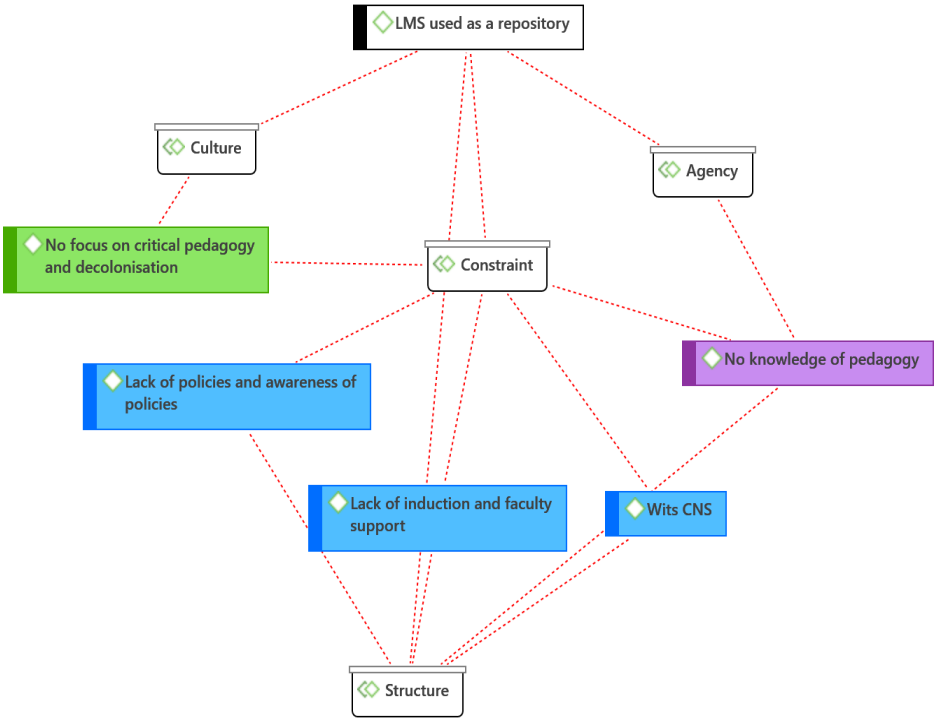
> I created a little business that did media and developed a magazine. This was my first foray into understanding what the online space offered and how content was designed for online consumption. (Participant 22)

Participant 22's notion of "online consumption of content" suggests a consumer approach to understanding online learning content, which was different to the approach of shaping content for pedagogical practice. The manner in which she exercised agency, permitted her to think about the material aspects of structures within the blended L&T space. The literature focuses on agency as a crucial element to social life through structures and culture. To be considered an enablement, it must stand in a position where this is demonstrated (Archer, 2003). This substantiates the argument that the personal concerns of the agent drive agential actions, which aligns well to the actions described by Participant 22.

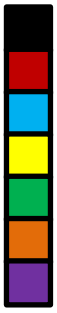
The document study revealed that the PG Dip in health science education that was offered through the CHSE was being implemented to augment academics' pedagogical expertise. This meant that Participant 18 had access to opportunities to improve her ability as an academic, which could have influenced her agency if she had registered for the programme. For a professional to be appointed as a lecturer they were required to have a professional health degree; this did not guarantee that they had adequate pedagogical knowledge. This meant that they needed to (but were not forced) engage in CPL to develop their pedagogical knowledge and skills. In this instance, the literature illuminates tensions within the neoliberal movement that negatively influence academic achievement and focus because of the embodied conditions of increasing workloads (Mountz et al., 2015).

6.2.2 Constraints to CDP practices

Figure 6.4 *Constraints visualising structural, cultural and agential codes*

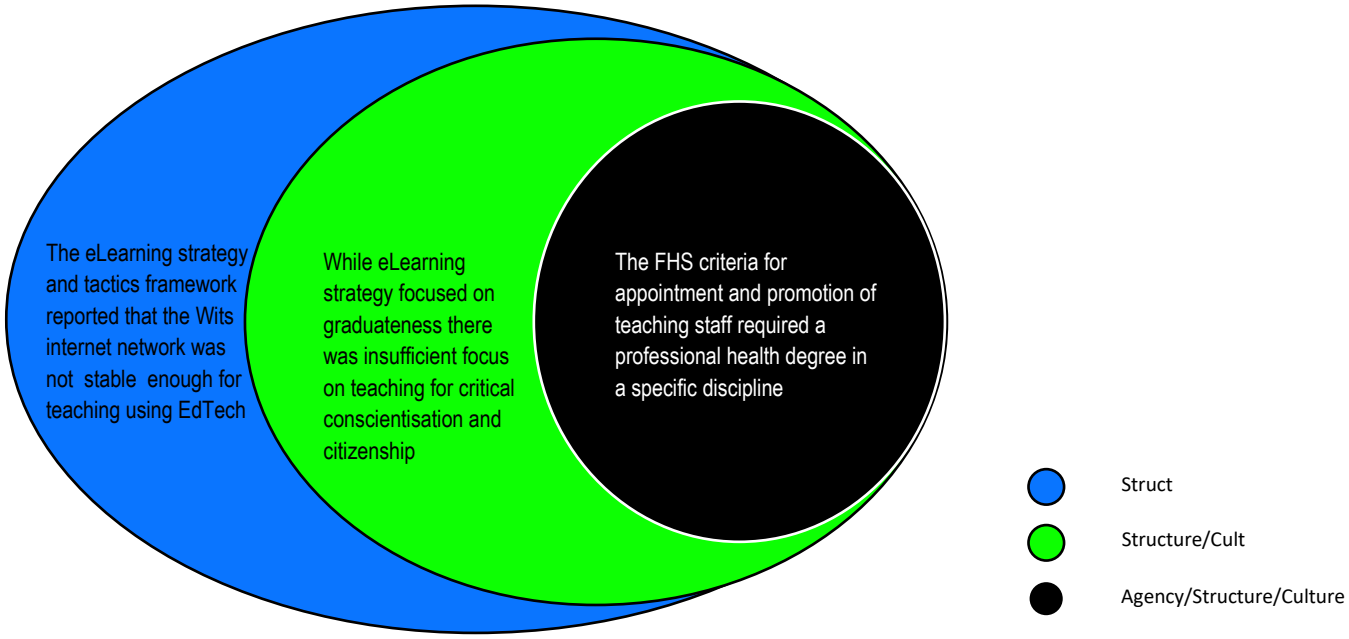


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Figure 6.5 *Visualisation of document study constraints*



The only *constraint* that Participant 22 experienced was the Wits Computer and Network Services (CNS), as her view was that she was progressing by ensuring that the SoTS was 'eLearning ready' even though a preferred LMS (Moodle) was employed by the school while the rest of the university was being socialised into using Sakai.

> The concern from the CNS side was duplication of resources and mind-set around sharing of server space as there was a principle thing around supporting two LMS's instead of one (Participant 22)

However, it appeared that Moodle was not the only additional LMS in use in the faculty: in Chapter Four (4.2.1) it was noted that Participant 4 mentioned that a GEMP platform from an Australian university was also in use, but in the SoCM. This could explain the position of the CNS on supporting multiple LMSes. At the same time, Participant 18 reported that there was no orientation or induction process offered to them as a new member of the professional staff, since there was limited or no faculty support:

> As new lecturing staff we needed some induction, and none was laid out to me. Faculty did nothing at this stage. (Participant 18)

During this period (as mentioned in chapter four and five), two staff members in the faculty S&P merged into the CHSE. This meant that it was early days for the CHSE which was in its infancy and building its capacity to provide support to academics. Academics thus had limited support for developing their CDP practice.

Both participants were of the view that there was inadequate policy frameworks and awareness of policies that focused on digital transformation (DT) of the university and school during this period. Participant 22 was aware of the eLearning strategic initiative but stated that "this did not work well as it was not implemented well, and

academics did not take it seriously". She felt that because the initiative was a home-grown system it had many problems and was subsequently not adopted by the university. There appeared to be limited focus on CDP practice and thinking around decolonisation in this period.

> Social justice was unheard of and with #FeesMustFall, that's when all the talk for decolonisation came into play. (Participant 18)

> My aim was for them to know how to use Moodle, so they had to be competent in doing so. (Participant 22)

As articulated by both the participants, no emphasis was placed on critical pedagogic practice as this came into play in the second period of this study through the #FeesMustFall movement and social justice initiatives. While Participant 22 was focused on socialising academics into ways of utilising the LMS, Participant 18 remained unaware of social justice and decolonisation initiatives. Professional staff appointed as lecturers under the Wits-DoH MOA possessed limited, if any, knowledge of pedagogy.

> I didn't know how to teach as I came out of professional practice and I didn't think on ways in which I should be teaching, and I went with instinct… I admit that I don't know what critical pedagogic practice is, Naz. (Participant 18)

'Not knowing' was a huge *constraint* as it placed much pressure on the academics to seek ways of doing and being. Much depended on the academic's agency and beliefs around wanting to learn and improve pedagogical practices. Even though the LMS was used as a repository by Participant 18, in the early days Participant 22, in good faith, placed content on CDs and distributed them to students because academics, during this period, possessed limited knowledge and skills for using technology in teaching and learning.

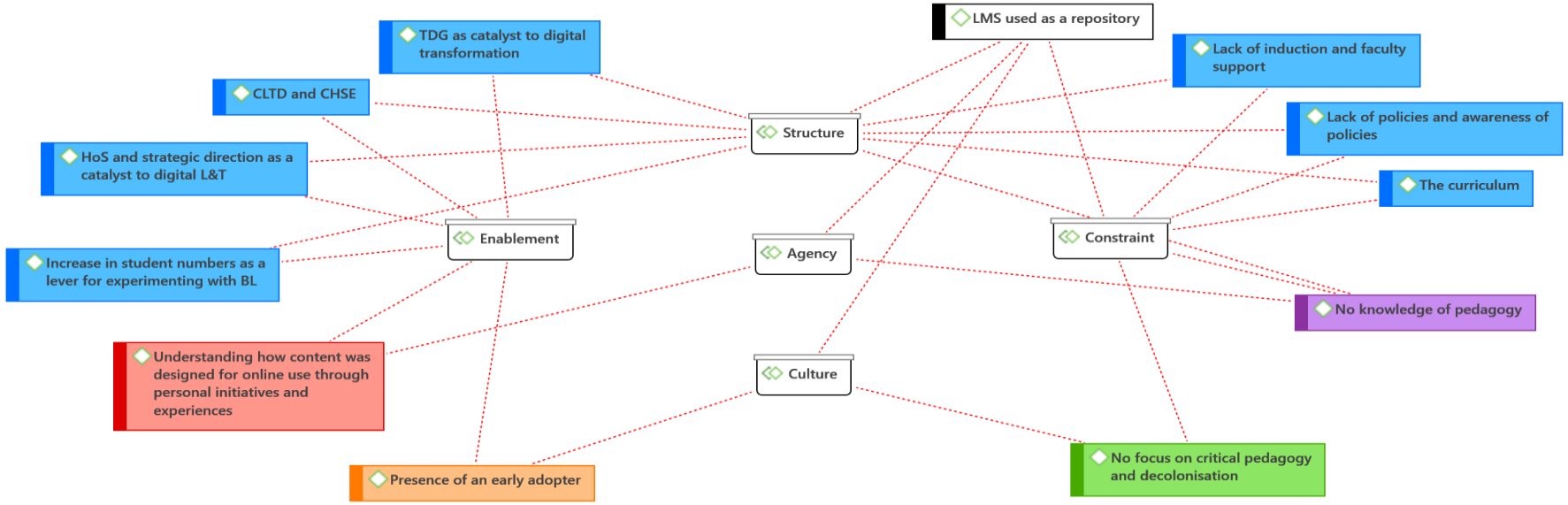
> We created content on CDs for student around 2008/2009 and the whole curriculum book was moved on to CDs that costed R5 a CD, which gave resources, assessment forms and so forth to students. When opened, the CD looked like a web page with links. (Participant 22)

> I attended the CHSE course around pedagogies and how to present, verbal skills, and how to deliver your content in the LMS and then discuss it in the contact class. (Participant 18)

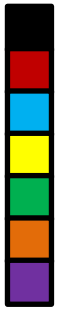
Although done in good faith, placing content on a CD for students did not amount to critical pedagogic practice, but rather a start to integrating edtech into learning and teaching. Furthermore, the raising of awareness process in dialogue through words, action and reflection in learning and teaching was missing, as argued in the literature (Brown & Renshaw, 2006). While Participant 22 was looking for innovative ways to deliver content to students, Participant 18 was attending courses on how to facilitate the delivered content at a moment in time. Some of these actions were the pre-cursor that informed digital pedagogic practice of academics.

6.2.3 Co-occurrences and summation of enablements and constraints

Figure 6.6 *Co-occurrences of enablements and constraints: visualising structure, culture, agency codes and networks*



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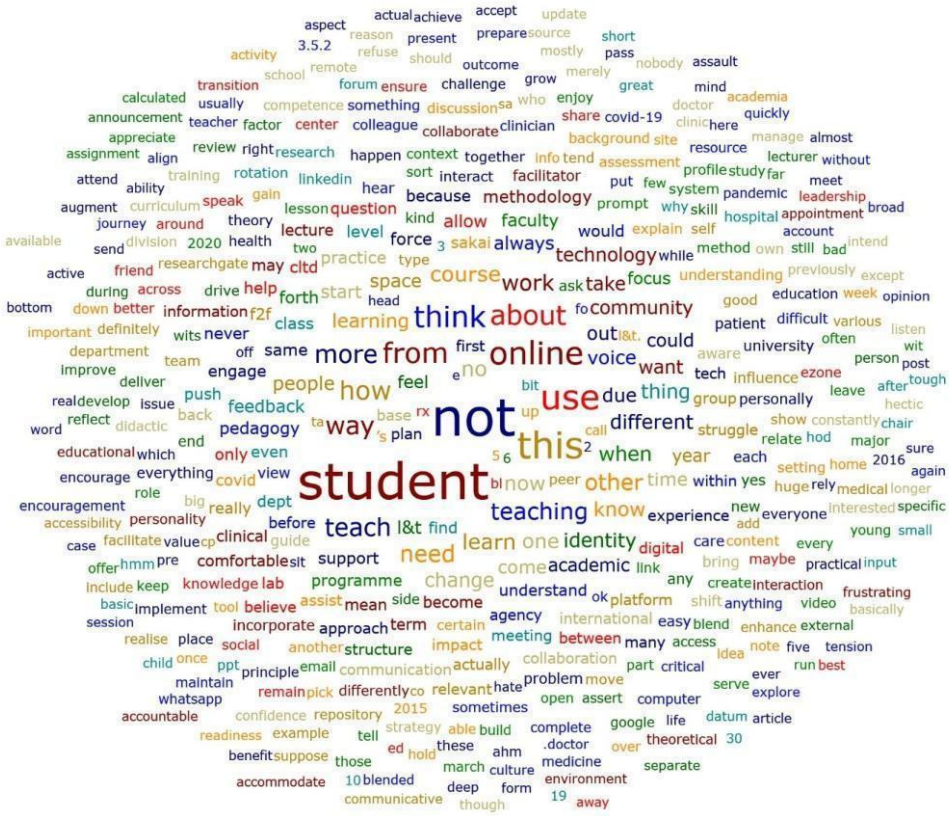
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According to Figure 6.6, there were no co-occurrences in the interviews in this period because the institution was in its digital infancy and experimenting with DT and blended L&T practices. This experimental phase was not part of the structures nor ingrained in transitioning the culture of learning and teaching and shaping pedagogical practices. When something was experimented with, there were no structures attached to it, and it was not viewed in a serious light for uptake by academics. However, there was a co-occurrence in the document study. The criteria for appointment and promotion served as an *enabler*, since possessing a professional health degree meant that academics had to attend CPL to attain pedagogical knowledge and skills. It also served as a *constraint* as being only professionally qualified impeded the academic as a critical pedagogue. To effectively engage in L&T practices, meant that these professionally qualified academics had to enrol in programmes to enhance their pedagogical knowledge.

6.3 T2-T3: 2012-2020: "One giant leap for therapeutic-kind": Structural and socio-cultural interaction

During this period at the SoTS, the academics continued to use Moodle as their LMS. The visual representation of the frequency of words employed in the interview process revealed a few words that emerged often.

Figure 6.7 *Word cloud visualisation of terms from interviews*



The words ‘student’, ‘online’, ‘teaching’, ‘technology’ and ‘community’ were foregrounded and interpreted as important in the narrative. The course review data on pedagogical reasoning were woven into the interview and document study data. This provided a succinct presentation of enabling and constraining factors that shaped academics’ knowledge of CDP practices. A summary of the results of the review is presented in Table 6.2.

Table 6.2 Review of courses on Moodle to assess academics’ levels of pedagogic reasoning

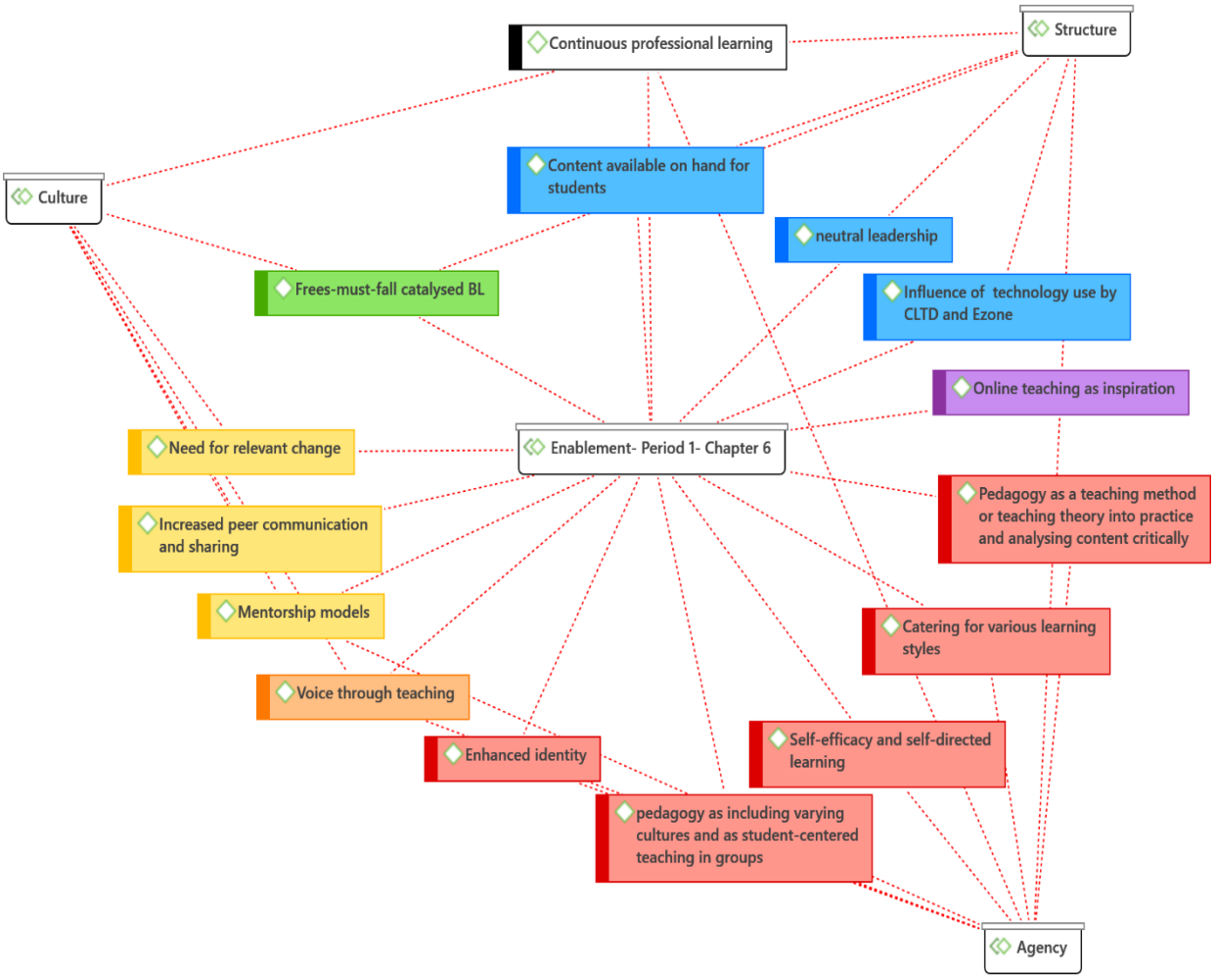
	Pedagogic Reasoning		
Rx Participants	*Not Evident	*Evident But Not Fully Developed	*Fully Evident
Participant 14	47%	53%	0%
Participant 15	66%	31%	3%
Participant 16	33%	67%	0%
Participant 17	0%	19%	81%
Participant 18	20%	50%	30%
Participant 19	31%	63%	6%
Participant 20	38%	62%	0%
Participant 21	19%	81%	0%
Participant 22	Support of online L&T practices to all participants		
Case study average	32%	53%	15%

Table 6.2 indicates that on average, no evidence of pedagogic reasoning was found in 32% of the content of the selected courses (for an understanding of pedagogical reasoning, refer to Section 2.3.4). Participant 15’s course contributed to the high average (66%); however this course had five facilitators. There was general information at the beginning of the course like announcements, assignments, clinical rotations, information packs, and timetables. There were also dummy tests and mock tests, but no rubrics were evident. Notably, there was no information on any of the facilitators. Additionally, there was discussion between co-ordinators and facilitators, but the study participant was absent from these.

An average of 53 % of the courses demonstrated a limited understanding of a knowledge base for teaching and pedagogical reasoning; 15% on average signalled a significant amount of pedagogical content knowledge and pedagogical reasoning. Participant seventeen contributed to this average (81%) with an extremely high percentage. It was noteworthy that this participant attended courses on universal design principles at the CLTD.

6.3.1 *Enablements to CDP practices*

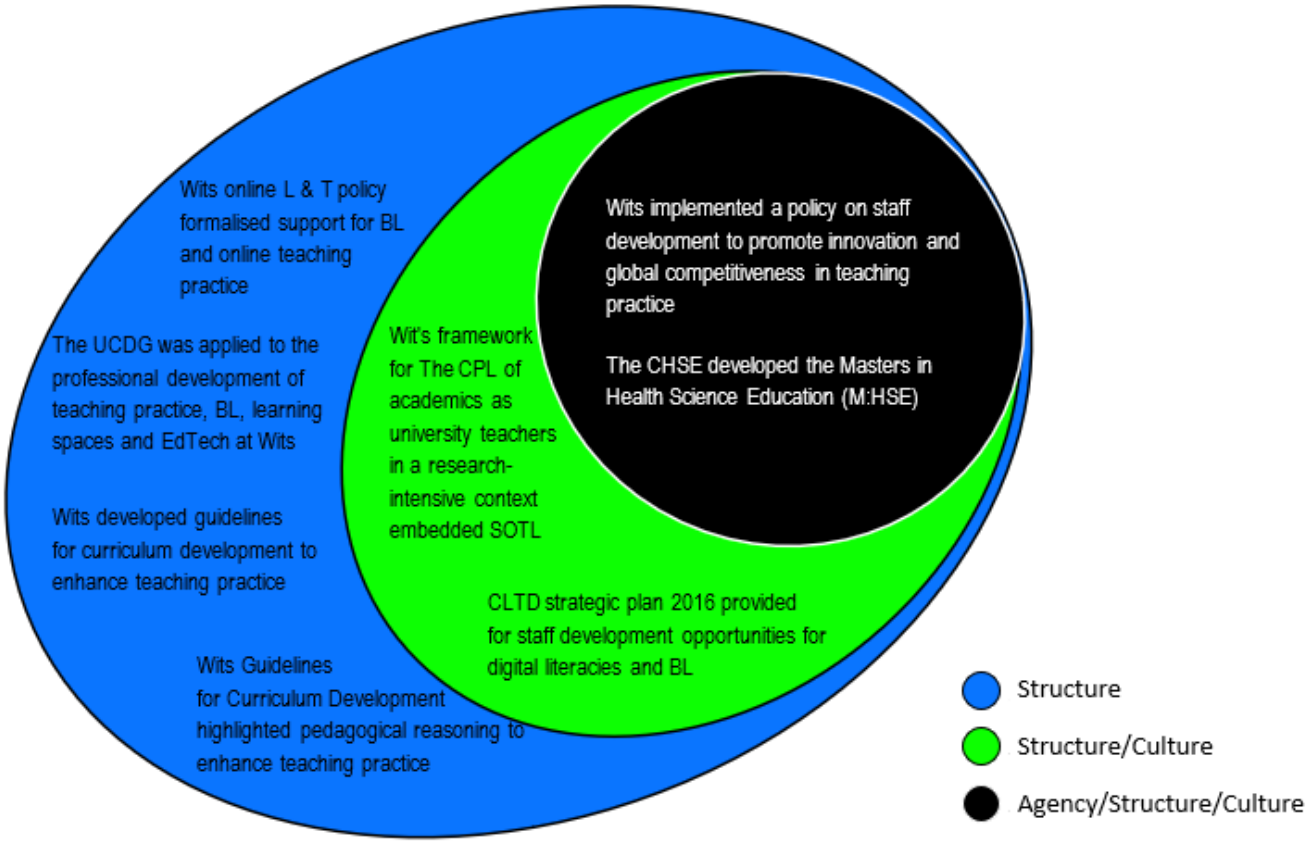
Figure 6.8 *Enablements visualising structural, cultural and agential codes*



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Figure 6.9 *Visualisation of document study enablements*



In this period, academics made a concerted effort to prepare and ensure that learning materials were in a format that was easily accessible to students. Possessing readily available content on the LMS meant that students had access to content in formats that were easily digestible as and when required.

> Look, at least we were using the LMS, because it allowed for students to fall back on when they missed lessons…it means something to those that are sick, or for other reasons. (Participant 16)

> When I came into teaching, there was pre-existing materials, and you teach and stick to what you have. So, I post this on Moodle so that students have the notes. (Participant 19)

While content delivery goes against the principles of critical pedagogic practice, the comment by Participant 16 on providing content for valid reasons illuminated her intention of taking the lived experiences of students into account. According to the literature, this aspect of content delivery in pedagogical practice, regardless of the modality employed, subscribed to a banking model (Freire, 1970). Nonetheless, this action in a non-humanising and non-critical manner appeared to consume the SoTS as it carried on from T1 to this period, as most academics were engrossed in a culture of using the LMS as a content repository.

> We are also assisted and encouraged by the CLTD to teach with technology. (Participant 20)

> Webinars on using technology from the CLTD and eZone are great. (Participant 14)

> Because we had the Ezone and were using Moodle all the time, I think we were more advanced. We were way ahead due to the eZone, especially in therapeutic sciences, than elsewhere. (Participant 19)

From an academic perspective, the influence of the edtech integration by the CLTD and the eZone capacitated academics to attain higher levels of competency. As structures, they *enabled* academics to think about and improve their practice using edtech even though they had not yet been exposed to critical pedagogic practice or CDP practices yet. So, these structures influenced digital thinking as it took academics to the first level of thinking about how to employ edtech as an enabler for critical pedagogic practice. At the same time, according to participant 14, it appeared that the sustained use of Moodle at the SoTS augmented teaching practices in a consistent way as it enabled continued pedagogical practices without the need for transitioning to another LMS. While consistency at the benefit of sustainable practices was recognised, according to the literature, it demonstrated a limited way of focusing and adapting to new ways of doing with transitioned mind-sets (Daskzko &Sheinberg, 2005) irrespective of the technology employed. The neutral actions of leadership manifested as a critical *enabler* because it implied that academics could flourish through support and autonomy.

> Higher up and the CHSE prompted me to work online. (Participant 15)

> I had funding and support from the HoS and HoD and it was like my stars was aligned. (Participant 22)

The comments were evidence that leadership *enabled* DT by employing the blended learning approach to deal with massification. Leadership aligned to the literature by being bound to the effective integration of edtech which was in sync with the changing student landscape while embodying digital leadership (Weber et al., 2019). This aspect of leadership was necessary given the need to transform L&T practices to a massified group of diverse students with no corresponding increase in staff ratio.

The #FeesMustFall student protests during this period catalysed the emergence of a crucial conscientisation process of some academics that displayed how contesting a colonised higher education system disrupted pedagogical practices. Some participants believed that the student protest reinforced a culture of thinking around blended learning practices which culminated in blended learning.

> When FeesmustFall happened, I knew that I needed to be thinking about developing proper online content. I started playing more with the LMS by developing a few blended courses. (Participant 17)

> FeesmustFall pushed me to start thinking about technology in teaching and I started to dabble with different tech out there and tried to figure out what I am comfortable with and what types of tech may be helpful to students. They needed the help. (Participant 21)

Pedagogical reasoning was influenced by the very nature of a supportive environment at the SoTS. There was an *enabling culture* that was beginning to develop, and academics were supported which influenced them to think differently about their pedagogy. This thinking informed agency. Subsequently, many were inspired to engage in online teaching which served as a *structural and agential enablement* together with a single LMS (Moodle) that was employed consistently from 2008 until the time of the study.

> I love it as I enjoy different ways of L&T and new ways of delivering the same content; it's exciting. (Participant 17)

> I think I was passionate as I started learning skills on our stable LMS that I didn't know I had and I started thinking differently about teaching with tech, you know. (Participant 19)

While Participant 17 enjoyed trialling different approaches to learning and teaching, Participant 19 alluded to learning about her agency. What I noted was the statement "our stable LMS" which insinuated that the standardised (Sakai) LMS at Wits remained unstable. From a blended learning perspective, Moodle was firmly embedded at the SoTS since 2008 due to the availability of structures and support.

At the same time, a snapshot of pages from Participant 17's course (presented as a collective in Figure 6.9) demonstrated deep levels of pedagogic reasoning that manifested due to her passion for L&T and reflective nature. The snapshots as a collective in Figure 6.9, demonstrates clear and structured learning pathways with modes of engagement like communication, expectations, minimal course typology requirements and expected literacy skills. There was evidence of student-centred learning as students could conduct research; identify, analyse, and interpret the evidence they uncovered; draw conclusions; and present their findings that were measurable and consistent with the intended learning outcomes. Difficult concepts were chunked to enable better understanding as the participant 17 expanded and collapsed content. Collaboration with each section has a heading with additional sub-headings that provided further information when clicking further into the course. The sub-headings included content as well. Multiple opportunities for discussion and group activities were noted. Collectively, and in line with Shulman and Sykes (1986) terms, Participant 17 exhibited an established digital pedagogical knowledge base through reasoning processes for her students to attain their outcomes

Figure 6.10 *Snapshot of pages from a course demonstrating evidence of deep pedagogical reasoning*

Comprehensive Nursing: Professional Practice

We have already completed our face to face contact session for this module, therefore this module is a an adjunct learning opportunity for you to consolidate your learning from PBL sessions and prepare for tests and exams.

The modules are for self study and you may complete the at your leisure.

Completion of the online activities are not for marks or compulsory, however your engagement with the online platform will be monitored should you need additional support.

The prescribed textbook for this module and this course is:



New Approach to Professional Practice,

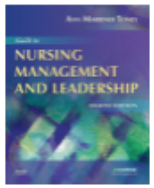
A Bhengu, B ; Armstrong, C ; Geyer, N

View Activities and Resources

Comprehensive Nursing: Nursing Management

This module focuses on the concept of Nursing Management and Administration. It includes aspects of leadership, cultural competence and continuous professional development. You will be required to complete each activity. The lesso nurse managers.

For this section please refer to the following book available online through clinical key student nurse on the library libguides databases for WHSL Nursing:



Guide to Nursing Management and Leadership

Eighth Edition

Marriner Tomey, Ann,

You will be required to refer to certain sections of this book during the course of this module.

View Activities and Resources

Comprehensive Nursing: Quality in Nursing

This module focuses on the concept of Quality in nursing. It includes aspects of quality assurance, quality control and quality improvement. You will be required to complete each activity including an assignment for submission.



Read the following chapter as a reference and pre-reading for your learning, this resource will be useful for consolidation and studying as well:



Concepts for Nursing Practice



Guide to Nursing Management and Leadership

Eighth Edition

Marriner Tomey, Ann,

You will be required to refer to certain sections of this book during the course of this module.

View Activities and Resources

Retention of Professional Nurses in SA: Nurse Manager's perspectives

Read the following article and answer the following questions in the discussion forum.

1. Highlight the management related issues that negatively impact staff retention among professional nurse
2. How can a manager manage these factors effectively?
3. What is your experience of management in the clinical setting?

Retention of Professional Nurses in SA: Discussion Forum

Using the questions from the article page, discuss the role of managers in retaining Professional Nurses in South Africa.



Image source: http://www.weteachwelearn.org/2016/05/lets-talk-about-it-facilitating-whole-class-discussions/

Nursing Leadership and Management

Tomey (2009) says that Leadership and management are both components of nursing administration. Nursing leadership is broader than management and is inspirat
Management is transforming from a more step-by-step approach to an interactive process type of leadership (Angelucci, 2005 ; Huber, 2006).

Read through Chapter 7 of this book -specifically the section on Theories of leadership and view this video as a summary:



Choose on of the headings from first column in the table below, you will then need to write an 800 word essay on the importance, contrast and integration of both lea
include a reference list of no less than 5 other sources.

TABLE 7-1

Comparison of Leadership and Management

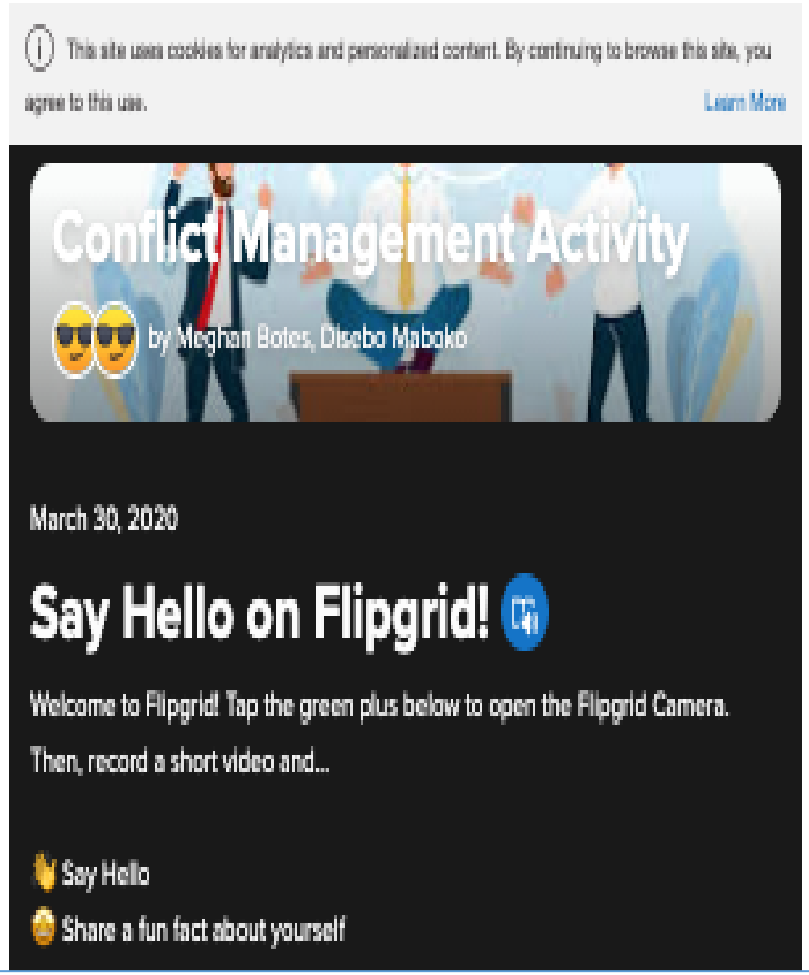
From Bennis W, Nanus B: *Leaders: The strategies for taking charge*, New York, 1985, Harper & Row.

	Leadership	Management
Motto	Do the right things	Do things right
Challenge	Change	Continuity
Focus	Purposes	Structures and procedures
Time frame	Future	Present
Methods	Strategies	Schedules
Questions	Why?	Who, what, when, where, and how?
Outcomes	Journeys	Destinations
Human	Potential	Performance

Application of Nursing Management/Leadership Styles

Nurse Managers adopt various styles of leadership. Conflict management is an occasion where leadership is vital to ensure the health of the team.

Read the article and upload your video on flipgrid:



Your facilitators will be available to assist via whatsapp or email should you have any problems or concerns.

Due to the change in delivery of this course, your yearmark assessment pathway has been redesigned as follows:

OLD STRUCTURE	NEW STRUCTURE
Test 1 – 10% (Written test)	Management - Presentation on ward planning activity (5%)
Assignment – 15% (Quality Improvement Project)	Clinical Teaching – Design a teaching module (5%)
Test 2 – Community Test (10%)	Quality Improvement Project (10%)
Assignment – Family Study (15%)	Care of the Patient in High Care, admission care plan (5%)
	Community Nursing online assessment (10%)
	Family Study (15%)
Community OSCE (20%)	Community OSCE (20%) - Deferred until further notice
Integrated Clinical Exam (30%)	Integrated Clinical Exam (30%) - Deferred until further notice

All the best! Remember that self directed learning can be tough as it requires extra discipline and commitment, don't fall behind, keep going and give every learning engagement your full attention and effort!

View Activities and Resources

Introduction to Online Comprehensive Nursing

A video introducing you to your Online Comprehensive Nursing Course



Please see tips for online learning in the file attached

How to use Wakelet

A simple step by step guide to using wakelet

Comprehensive Nursing: Professional Practice

We have already completed our face to face contact session for this module, therefore this module is a an adjunct learning opportunity for you to consolidate your learning from PBL sessions and prepare for tests and exams.

The modules are for self study and you may complete the at your leisure.

Completion of the online activities are not for marks or compulsory, however your engagement with the online platform will be monitored should you need additional support.

The prescribed textbook for this module and this course is:



New Approach to Professional Practice,

A Bhengu, B ; Armstrong, C ; Geyer, N

View Activities and Resources

Am I in the right profession?

Using the link to the poll, list the word that best describes how you feel about becoming a professional nurse.



A need for relevant change demonstrated that the culture at the SoTS was *enabled* by the leadership of the school. By its very nature, the environment was conducive for academics to fall into a culture that forced them to use edtech and transition the way of doing things which also changed their way of thinking about pedagogy.

> Even though it was very established then, the HoD just forced us to use technology as we were told no printing of notes. As we got more familiar, then we started using it. (Participant 19)

Increased peer communication and sharing was an *enablement* translating to a group of people thinking in similar ways. This was the beginning of enabling a community of practice (CoP) which further led to increased communication and learning from peers.

> We always communicated because we had structured meetings to talk about the curriculum, we had to give reports on what we coordinate. (Participant 20)

> Everyone is keeping up with this dissemination of work through effective communication. (Participant 18)

Mentorship models from outside the SoTS also translated to a culture that was ingrained in assisting one another through support mechanisms. The support from the CLTD *enabled* agency since academics were being introduced to CDP practices in structured ways.

> I think one of the things is the centre for exercise science head has encouraged us to look at [name] courses, which intrigued me and kept me wanting to go back for more. (Participant 15)

> When we approached the CLTD and eZone, they mentored us and showed us how to do things in the online modality. (Participant 21)

Developing a voice through teaching *enabled* a culture of asserting agency through support. Having a voice also improved academics' confidence which, in turn, boosted their competence.

> I think I assert my own voice in class discussions through teaching and interacting with them. (Participant 18)

> Me adding my voice through my teaching means trying to interpret the content and make it easier for students. (Participant 20)

As a result of increased agency, some participants felt comfortable to relay that they enacted pedagogy as a teaching method or teaching theory into practice and analysing content critically.

> It's the method of teaching and learning. (Participant 18)

> For me it would be like how many teachings is influenced by evidence of theory and practice. (Participant 15)

> Critically analysing and getting the concepts across to my students is how I view pedagogy. (Participant 14)

This conceptualisation meant that they initially viewed pedagogy as a mere transfer of content in a face-to-face environment. Then with the *enabling* environment in the school and a support system in place, they began to think more critically about their practice. Critical pedagogic practice became evident when participants embodied pedagogy that considered the different cultures.

> A teaching practice that is inclusive of different cultures. irrespective of differences in resources, socioeconomic backgrounds and learning styles (Participant 14)

At the same time, academics transitioned from viewing pedagogy as mere content transfer to co-creation as critical pedagogic practice was also viewed as student-centred teaching in groups.

> Critical pedagogy is very important, and I need to understand where my students are coming from, where they live, the provinces, a discussion on their experience of being at university. (Participant 16)

> It's case scenarios, allowing group work, and students' personal opinions given in lectures. (Participant 14)

Possessing a self-efficacious and self-directed learning identity meant that some participants took the initiative, with assistance or not, in identifying their learning needs. Eventually, this motivated them and created a passion for improved practices. Following Archer (2003), Wits academics' reflexive practices shaped their actions, which explains why some of them responded in specific ways to the structures and culture of the university.

> I felt empowered as I started feeling more interested in their learning and felt confident that I could do it. (Participant 17)

> I was inspired and motivated as I always had a passion from a little girl. (Participant 21)

Within the context of the therapeutic sciences, academics entered the L&T environment with certain competencies through professional practice. With added self-efficacy and competencies acquired, academics felt empowered to implement new learning prior to understanding the pedagogical practices. Possessing autonomy within the SoTS meant that academics had their own technical and leadership support and were not totally reliant on the rest of the university, since they were the only school employing Moodle exclusively as an LMS.

> The department was always learning focused and there was always technology, but there was not much pressure that we had to use it to teach. We had choice. (Participant 19)

Having autonomy meant that academics could create the internal environment and enhance agency. For some academics, a safe space was created that *enabled* identity development through engaging in blended learning. Participant 20 was one of the few academics who enjoyed online learning and teaching as it created an environment that was more ideal for him to teach in.

> Contact teaching meant I had to learn how to deal with the crowd: like focus on delivering the content to students and not looking them in the eye when I teach. I had to do a mental shift. I think a whole lot of shifting, but online gave me a safe space and improved identity. (Participant 20)

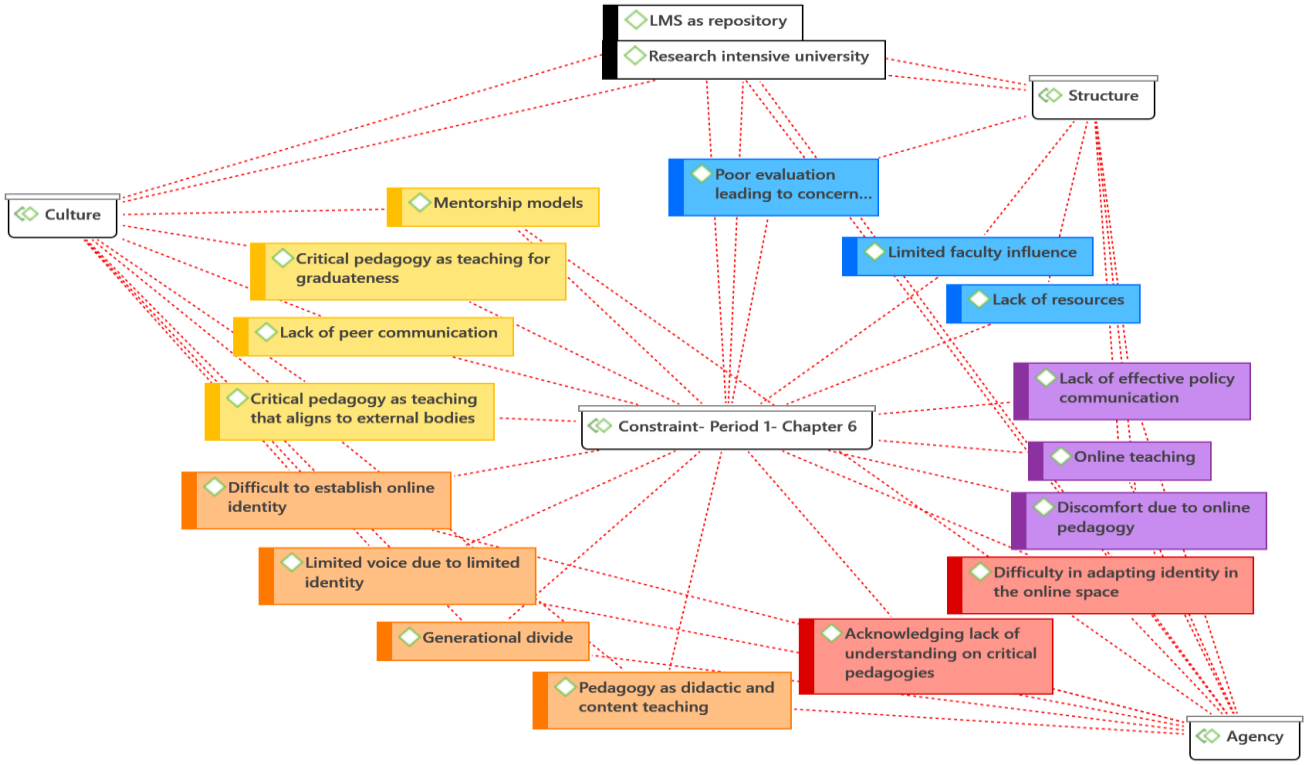
It appeared that engaging in CPL, coupled with positive leadership, acted as an *enabling* factor in getting academics au fait with edtech.

> I got much support from the Ezone. (Participant 16)
>
> I try to read up a lot and engage in CPL to upskill myself in online teaching. (Participant 19)
>
> The CLTD, eZone and my HoD encouraged me to use Moodle. (Participant 20)

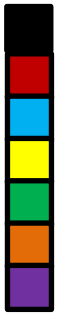
As the SoTS maximised the use of limited structural resources, it served as an *enablement* even though it depended on academics' agency and motivation to develop their L&T practices.

6.3.2 Constraints to CDP practices

Figure 6.11 *Constraints visualising structural, cultural and agential codes*

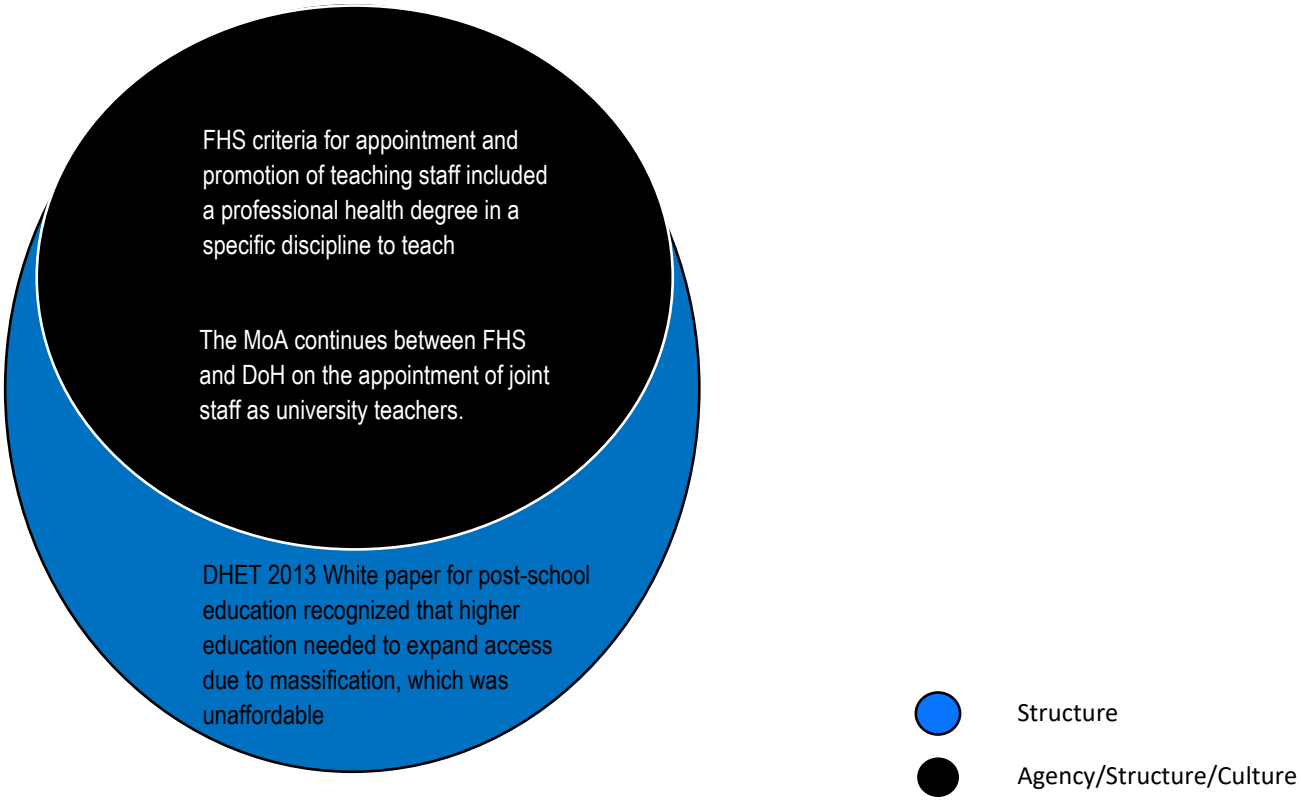


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Figure 6.12 *Visualisation of document study constraints*



As in the previous period, it appeared that the faculty itself provided little support to academics to transition their pedagogical practices to a blended modality in this period.

> We were often only reminded of the option of doing the online thing, but no faculty help (Participant 14)

> It didn't have any influence from the faculty. There was just like reminding us once to use the simulation lab, and that's it. (Participant 16)

> There wasn't any actual drive to push us to come for CPL on how to get our courses online, unless I went to the faculty office and asked them for help. (Participant 20)

It could be that the faculty focussed more on the professionalisation of learning and teaching through the PG Dip. Insufficient resources served as a *structural constraint* to academics' development of their CDP practice. Some of the constraints encountered in efforts to integrate technology into learning and teaching related to the specific context of the School of Therapeutic Science.

> Sometimes the lack of equipment – as many of my colleagues complained that the ones in the teaching rooms are not always working…this makes it difficult for us to teach. (Participant 16)

Regardless of the desire of the Wits Senior Executive Team to implement edtech as a disruptor to advance innovative L&T practices, the swiftness of its integration, especially in the SoTS, gained momentum due to an early adopter whose PhD study involved digital transformation and the subsequent set up of the eZone through collective effort. Thus, while insufficient resources may have surfaced as a *structural constraint*, it did not constrain the school in its consistent efforts to promote blended learning due to collective effort. A poor evaluation system manifested as issues of concern and trust since some participants were of the view that through evaluation, they could improve their practices.

> Ok so, the thing is that you want your curriculum to flow and incorporate technology but there was no peer review or evaluation as everybody was not on the same page. And there was not much seriousness, communication, or guidance from the CHSE on evaluations. (Participant 16)

According to the document study, the criteria for promotion of teaching required academics in nursing to attain a teaching qualification. A PG diploma or master's degree was required to teach in nursing. This is a *structural and cultural constraint* as it increased the workload of academics who facilitated in nursing. However, in this case study, even though there was one participant who was based in nursing, she chose not to make mention of this in the interview.

Enacting CDP practice itself served as a *constraint* to a few academics as they were simply not au fait with blended learning practices even though they may have been digitally capable.

> I don't have any strategies on student centred teaching in the online modality as I did say I need help here. I don't know what critical pedagogy means but my pedagogy is to deliver and teach content to students. (Participant 18)

Like a few other academics, participant 18's comment related to *constraining* academic agency as it created doubt in their knowledge (epistemology) and teaching ability. Subsequently, academics experienced discomfort due to being forced to transition to some form of online pedagogy as the HoS mandated against the printing of notes for students. This resulted in academics consistently loading content in the LMS for use by students.

> Because I was used to contact teaching, I was very uncertain and uncomfortable with online teaching. (Participant 15)

> I am forced to use technology to teach and that is difficult as I didn't use Moodle a lot. (Participant 19)

The culture around the use of critical pedagogic practices in the SoTS was that it was viewed as teaching for graduateness or teaching that aligned to external bodies.

> I think CP practice is about teaching the type of student that would have the basic knowledge of OT paediatrics that they are required to have by the HPCSA. (Participant 19)

> My module has a lot of content and I get an evaluation from the student and incorporate this in my teaching. We have a curriculum that's there and informed by association nationally and internationally. We look at these documents from the two bodies and the ELOs which determine the type of OT student that is needed in the OT environment. (Participant 20)

These comments show that the teaching culture focused on a pedagogy for graduateness at the SoTS, which aligned to the findings in Chapter Five, where evidence of a signature pedagogy (a concept put forward by Shulman, 2005) was discussed. The pre-existing culture of face-to-face practices persisted in some departments, with limited peer communication around blended learning practices.

> So, within my department, unlike others here, there was very little information and communication. We were not so involved in transitioning for online. (Participant 16)

Subsequently, as was found in the previous period, the actions of a prominent early adopter at the SoTS made up for this through a mentorship model and academics at the SoTS followed, in a way, by assisting one another in blended learning practices. However, this very same model presented as a *constraint* to the early adopters as they viewed it as a hindrance due to persistent interruptions.

Some participants engaged in a didactic pedagogy through much focus on content teaching. A pedagogical practice of this approach involved instruction that was centred on authority and telling.

> So, my teaching is based on the teaching style of my lecturers: very didactic. (Participant 18)

> What I would say is that I come from a remote area and our level of education received was not strong due to a rural-based school and lack of resources. My teachers taught mostly didactically, and this is how I teach. (Participant 20)

Perhaps this was the prevalent culture at the SoTS in this period as academics were not really focused on blended learning practices that entailed the strategies, techniques and methodology associated with transitioning L&T practices to the blended learning space. The institutional culture had some markers, in terms of a generational divide, as the older academics were less susceptible to using technology and transitioning to new practices. As shown in the comments, when there is a broad age gap and it causes *agential and cultural constraints*, it implies that the older and more experienced academics were socialised into a ready-established culture at the university.

> Being older means that I am not really interested in technology. The younger generation is driven to use technology as its appealing to them. It is also part of the university's drive. (Participant 19)

> I think most of us are the older generation and we didn't come from the tech age. We were just used to giving notes. And that pattern was still there. (Participant 18)

This implied a culture of face-to-face L&T practices with minimal use of digital competencies. The newer and younger academics, in contrast, had more advanced digital competencies and were more proficient in employing edtech in L&T practices. The implication was that the move to blended learning had to compete with older, more established institutional cultural norms.

A few academics experienced challenges in establishing an online identity due to how they used the LMS. Subsequently, many participants realised that they possessed limited voice due to limited identity in the online modality as they felt that possessing an online identity was specifically related to attaining a research identity.

> I have not published enough, so my voice and identity is limited; therefore, I don't know. (Participant 18)

> Being forced to focus more on publishing than on teaching impacts me and I cannot teach properly. The more research outputs we have the more agency we are given. We are tracked on our productivity through research. (Participant 21)

> I find that the department has a very strong research focus. You become a professor if you publish a lot but not if your teaching is in order. This is an impeding culture and I hate it, cause it means that I need to have a research identity to have more agency. (Participant 16)

> They will say that you must have a balance between teaching and research – but that's not true, as they focus more on research. (Participant 14)

This was the established culture at the SoTS as most participants focused on face-to-face practices and employed the LMS as a content repository. It could improve if participants focused on providing students with access to knowledge in various ways while also focusing on research. This would serve as a springboard to improved voice and identity in online learning and teaching spaces. Acknowledging a limited understanding of critical pedagogic practice served as an *agential constraint*. Even if an academic had no understanding of critical pedagogic practice, by exercising their agency, they could research what a CP practice entailed and how it could best serve student-centred teaching.

> Critical pedagogy, I don't know what that means. (Participant 17)

> I am not aware of critical pedagogy. (Participant 18)

The LMS was used as a repository, indicating that the institutional culture hadn't transitioned to using an LMS as a situated online learning and teaching tool that involved collaborative and integrated teaching practices.

> Well, hmm… I used the online platform to just put on notes, PDFs, and articles. (Participant 15)

> Students can do their work at leisure as they have the course pack on Moodle. (Participant 16)

I recognise that online learning is presumed to be equated to self-study (anytime, anywhere) due to the availability of materials on the LMS. However, as argued in the literature (Bozalek et al., 2013; Herrington et al., 2009), a digitally mediated learning and teaching environment that constitutes word-based files and videos is different to one that implements an established online learning and teaching design that centralises knowledge constructed through collaboration and critical pedagogic practice.

All the participants were of the view that since Wits was contextualised as a research-intensive university, research was perceived in the prevailing culture as a prime factor in expediting its academic objectives.

> You see, the culture was not so techno driven. While we were encouraged to go to Moodle training, we were always reminded that we had to focus mainly on research. (Participant 19)

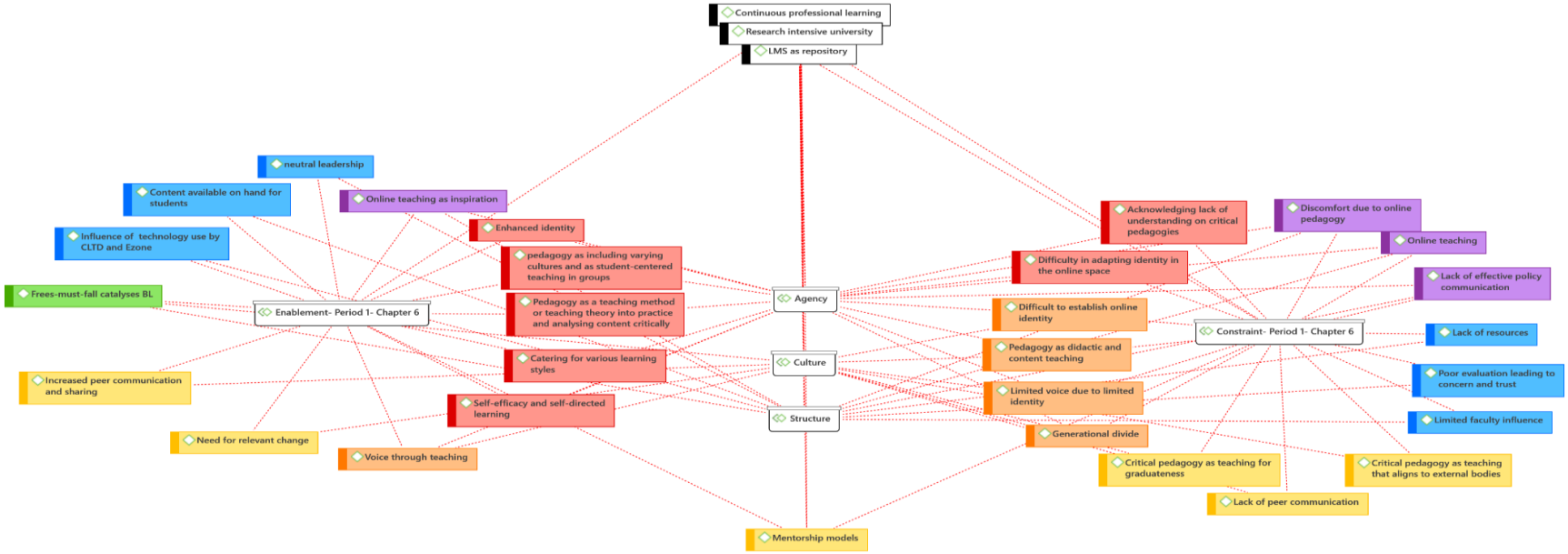
> I see professors with very bad teaching, but because they have a lot of publications, they are allowed to make decisions for all of us as they hold higher positions. This impedes our agency. It's just unfair. (Participant 21)

> Being forced to focus more on publishing than on teaching impacted me and, hmm, I could not focus on teaching. The more research outputs we have the more agency we are given. We are tracked on our productivity through research and not teaching. (Participant 18)

Even though the literature beckoned for an approach that placed value on Humboldtian notions of academic work, whereby research was recognised as inseparable from, if not identical to, learning and teaching (Fanghanel, 2011) this did not necessarily transpire in practice, as was evident in the participants' accounts. The Humboldtian ideology purports that in unifying research and teaching the result would be a co-creation of knowledge between the student and the facilitator. The participants' views made it clear that this was not the case as the macro and meso-landscape ushered in massification, ranking systems and marketisation that valued innovation as an economic necessity in higher education. This was measured against the research outputs of academics at Wits hence, the greater focus on research and limited focus on learning and teaching practices. Consequently, if participants engaged to a limited extent in research, their agency was limited, and vice versa.

6.3.3 *Co-occurrences and summation of enablements and constraints*

Figure 6.13 *Co-occurrences of enablements and constraints*



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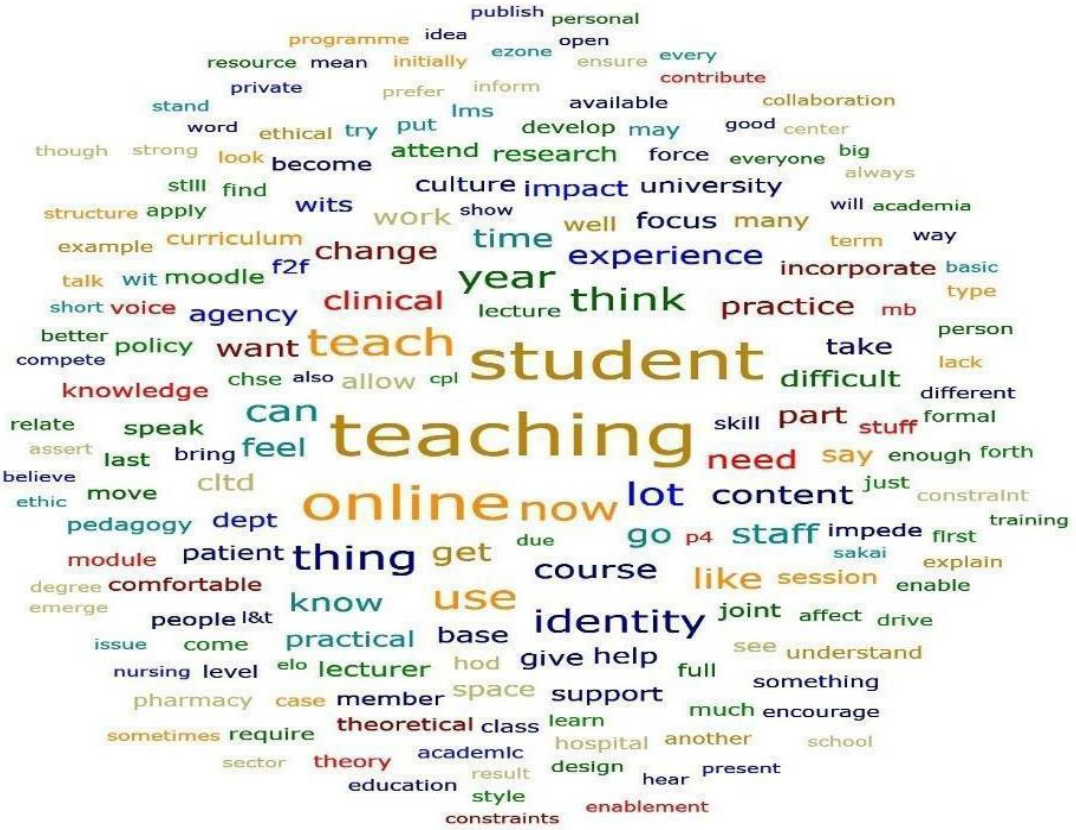
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There was one co-occurrence in this period as demonstrated by Figure 6.13. While mentorship models served as an *enablement*, it was also a *constraint* because it impeded the early adopters who doubled up as mentors to assist colleagues with limited expertise in online learning and teaching practices.

6.4 T3-T4: 2020-2022: "Possibilities for all to be extraordinary": Structural and cultural reproduction or elaboration

The word cloud in Figure 6.14 reveals that much focus was on 'teaching', as it emerged often in the narratives which signified academics' concern in 2020 around their pedagogical preparedness for a fully online environment. In line with this concern, Rapanta et al. (2020) argue that online L&T practices imply that specific pedagogical content knowledge (PCK) is needed to design improved learning experiences when edtech is integrated into learning and teaching practices.

Figure 6.14 *Word cloud highlighting terms frequently mentioned in interviews*



Apart from the word ‘teaching’, the words ‘student’, ‘online’ ‘experience’ and ‘identity’ appeared important in the interviews. A summary of the results of the course review in this period is presented in Table 6.3 and the explanation follows after the table.

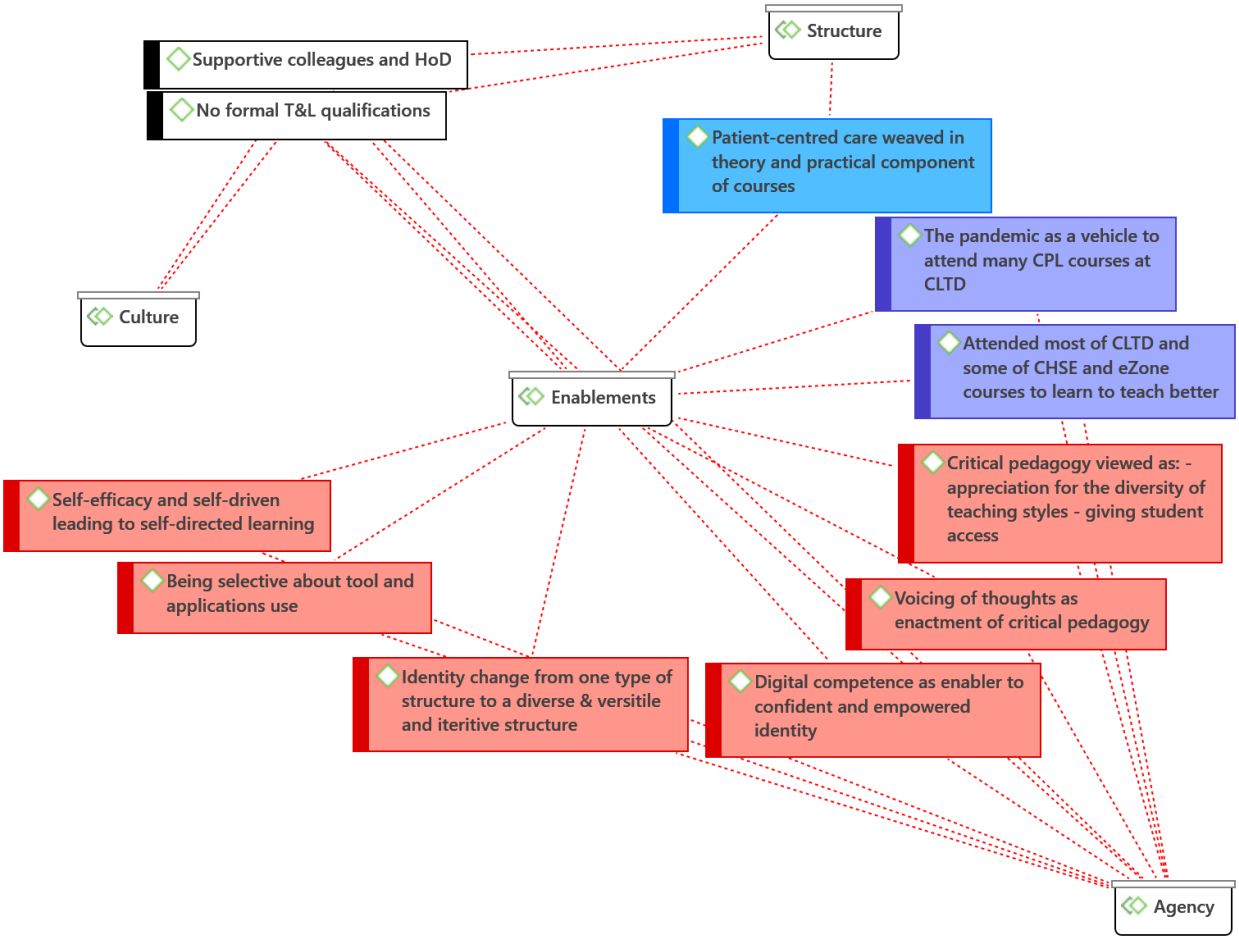
Table 6.3 *Course review data*

	Pedagogic Reasoning		
Rx Participants	*Not Evident	*Evident But Not Fully Developed	*Fully Evident
Participant 14	46%	51%	3%
Participant 15	66%	31%	3%
Participant 16	30%	68%	2%
Participant 17	0%	17%	83%
Participant 18	38%	57%	5%
Participant 19	26%	63%	11%
Participant 20	35%	63%	2%
Participant 21	17%	78%	5%
Participant 22	Support of online L&T practices to all participants		
Case study average	32%	54%	14%

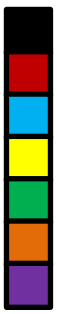
Table 6.3 indicated that on average, 32 % of the courses demonstrated no evidence of pedagogical reasoning. Participant 15 chose to use the same course as in the previous period, without implementing any changes, so the review for that course remained the same. An average of 54 % demonstrated partial pedagogical reasoning in the courses; 14%, on average, signalled a significant amount of pedagogical content knowledge and pedagogical reasoning. Participant 17 made many changes to her course and contributed to this average (83%).

6.4.1 Enablements to CDP practices

Figure 6.15 *Enablements visualising structure, culture and agency*

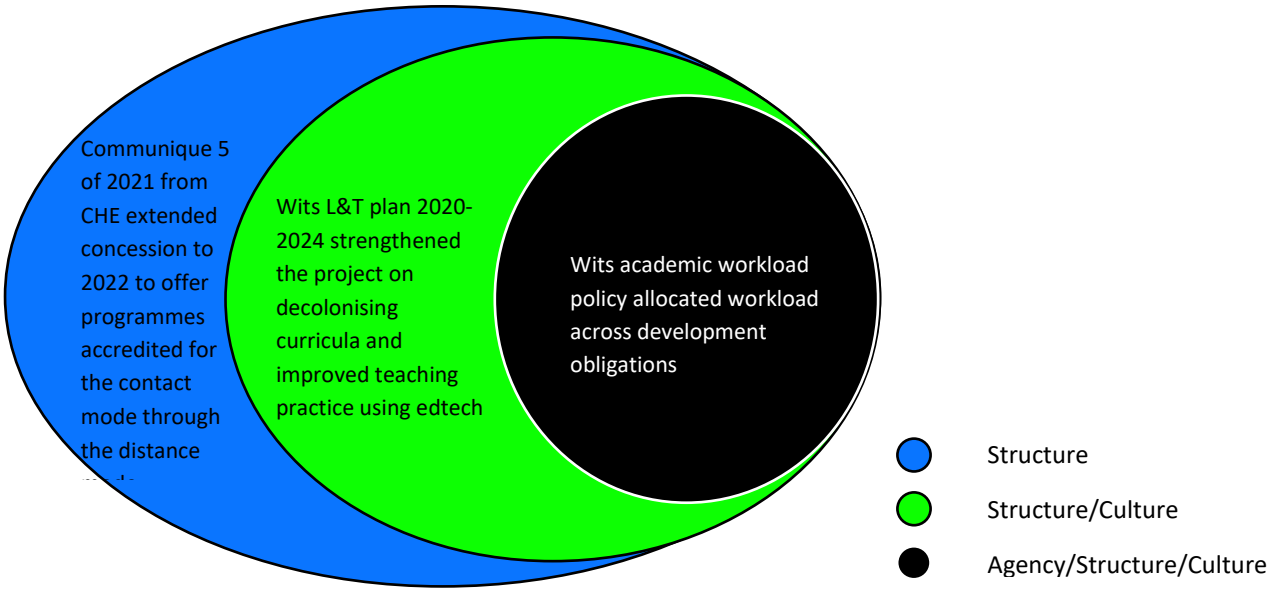


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Figure 6.16 *Visualisation of document study enablements*



Patient-centred care through community outreach was woven into the theoretical and practical component of courses, which served as one of the structures at the SoTS. This positively affected course design through effective communication skills and was an *enablement* to CDP because it built a community.

> We teach patient-centred care: so, we teach communication skills, put the patient needs first, how to treat the patient and the family, building the community about patient-centeredness. (Participant 17)

> We teach them theory for them to model it when heal patients. (Participant 20)

Participants were congruent in their reasoning around bridging the gap between theory and practice that embodied a patient-centred pedagogy and fostered compassion and social responsibility. Academics were forced (due to the pandemic) to empower themselves to teach in the online modality, otherwise they would not have been unable to transition effectively. Many academics attended the CLTD, CHSE and eZone courses to learn to teach better using edtech. It appeared that the Covid-19 pandemic *enabled* increased CPL attendance.

> Covid-19 forced me to learn other things; and not only through the eZone. (Participant 18)

> Training from CLTD has helped me to upskill myself, as normally I only attended eFundanathi courses… this was only due to Covid. (Participant 14)

Covid-19 appeared as an *enablement* because academics had to adjust quickly to emergency remote teaching (ERT) by aligning themselves with university directives; this was facilitated by various structures through the courses. Some academics enacted critical pedagogic practice by providing students access to other forms of knowledge and by adopting a range of teaching styles to accommodate the diversity amongst students.

> Pedagogy now relates to encouraging students to question how they view the world, by giving them other forms of knowledge that influences their learning; like, for example, questioning authority. (Participant 21)

> Like I stated last year, my pedagogy was centred on the many cultures that students come from. I am not worried about the learning styles as I introspect on their culture and the learning takes shape from there. (Participant 14)

The comments on practice surfaced as an *agential enablement* since reflection through improved agency manifested in a student-centred pedagogy. Once they began adapting their pedagogy to a range of learning styles, their foresight, linked to their agency improved. For some academics, their self-efficacy and ability to be self-driven catalyses self-directed learning that they view as an opportunity to teach better, which also aligns to them transitioning from being a corporate agent to a social actor (Archer, 2003).

At the SoTS, the eZone used an implicit approach to critical pedagogic practice since the student acted as the co-creator in the L&T process (as shown in Figure 4.2 in Chapter Four). This did not necessarily imply that edtech enhanced the academics' ability to be a better facilitator. Being forced to be homogenous meant that academics had to capacitate themselves to teach better in the online space.

> So being forced to move online made me happy, as I was thinking about how to do this. The problem is that I had to move very fast as my module was a key module. (Participant 16)

Viewing the Covid pressure to move online in a positivistic manner would have enabled the academics to be adaptive to different L&T modalities. It was viewed as an *agential enablement* because academics through their resilience exercised agency to transition quickly to emergency remote teaching (ERT), meaning that if it had not been an emergency they would have not moved as fast.

An identity change became apparent as academics moved from one type of structure to a diverse, versatile, and iterative structure. This implied reflexive and reflective thinking about pedagogy about the student's perspective.

> Previously, I had to teach the courses even if I disagreed. I used the online platform to do so. This was just to put on notes, PDF and articles. Now it is different. I don't think we understood the value of online teaching then. (Participant 15)

> I had to now be more structured and serious, yet fast-paced, to catch up with the technologies that can be used in teaching (Participant 14)

Some academics also acquired feedback from students, which meant that the students' views were applied to inform their pedagogical practice. This implied a form of pedagogical reasoning as academics were beginning to think critically about how they facilitated teaching, how students acquired knowledge and how they co-created knowledge with the students.

> My methodology changed as I had to worry about student incurring costs and accessibility and all of that. I got feedback from the students to see what they preferred and based on this feedback I used it. (Participant 16)

Being selective about tools and applications *enabled* academics to think about what was appropriate from the student's perspective. This was an additional way of enacting a CDP practice.

> Yoh, Covid impacted in a major way. I had to do a 180 mental shift. Things like Teams came into play, balancing between doing a podcast and a live Q&A in batches due to accessibility. My whole self changed 360, man, as I was picky about which tool I needed. (Participant 20)

> We started using different apps that I didn't knew existed, shh, like Kahoot and Padlet and AMS. (Participant 16)

Digital competence was viewed as an *enabler* since it led to a confident and empowered identity. It implied that being more competent in any skill led to increased confidence, which empowered the academics.

> I felt empowered as I started reflecting and feeling more interested in their learning and felt confident that I could do it. I was inspired and motivated. (Participant 21)

> I think it was positive and empowering as I started learning skills. I became confident that I could do this. (Participant 19)

Since the pandemic induced online teaching as an imperative, it translated that academics were now located in social spaces that 'showed up' their digital competence. According to the literature, this social pressure encouraged them to improve their digital competence by placing a high value on the use of edtech (Frank et al., 2004). Subsequently, improved digital competence also improved academic agency. Voicing of thoughts, in part, was an enactment of pedagogic reasoning and critical pedagogic practice. This was linked to academic competency: once academics were competent, confident, and felt empowered, they voiced their views.

> When I design my courses, I consider that all students won't have equal access and conducive spaces and I chat to them about it… like the community in which they live and learn. Recognising all of this when setting up the module is part of what I think about now – thanks to you. (Participant 16)

Being competent *enabled i*mproved pedagogy and being a part of an 'already established' support structure – from leadership to peers – meant that academics were part of an effective community of practice that enhanced their knowledge and enactment of critical practices and digital competence. As a collective, these aspects were *structural, cultural and agential enablements* to how their pedagogical practices were being shaped.

> I think I have a good grasp and understanding of technology, and I know that I positively impact my colleagues. This process has made me stop and bring others on board and develop my and their content more fool-proof. (Participant 17)

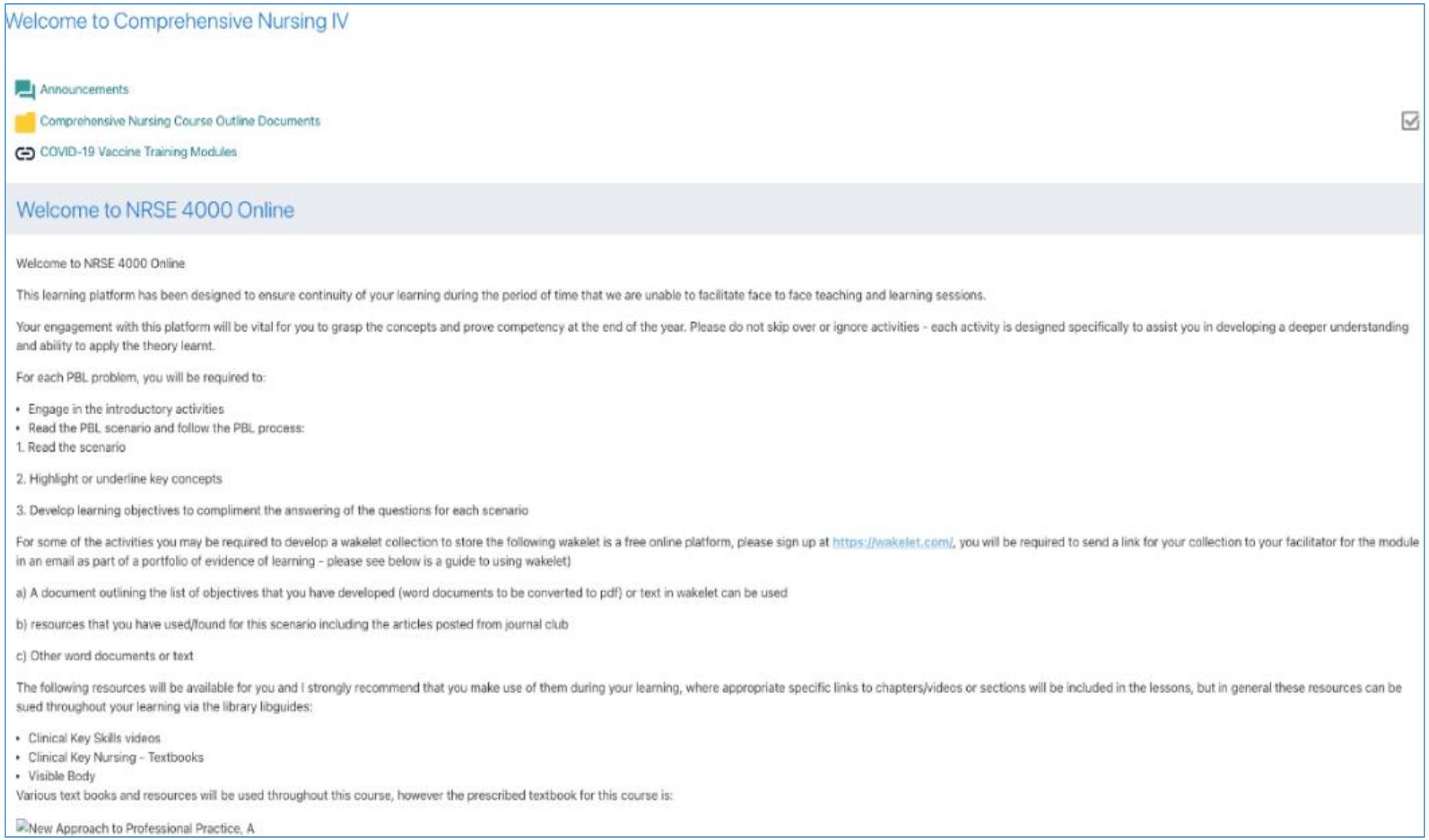
> Everybody has come on board, including management, working together towards deadlines. And there was a need to communicate better as we were not together physically. (Participant 16)

> Peer teaching became one of the change agents and they [academics] were less reliant on coming to me as they started supporting one another. (Participant 22)

Being employed at Wits as a professional highlighted the need to engage in CPL to augment L&T practices. It appeared that being a full-time academic at Wits provided access to structures. Academics may have been

implicitly engaging in critical pedagogic practice. This was validated by Participant 17 who, in the previous period stated that she had no idea what a critical pedagogic practice was, yet was enacting it through her course, as displayed as a collective in Figure 6.17.

Figure 6.17 *Snapshot of course validating fully evident pedagogic reasoning*



- [redacted]

Your facilitators will be available to assist via whatsapp or email should you have any problems or concerns.

Your yearmark assessment pathway has been designed as follows:

Management -Presentation on ward planning activity (5%)
Clinical Teaching – Design a teaching module (5%)
Quality Improvement Project (10%)
Care of the Patient in High Care, admission care plan (5%)
Community Nursing online assessment (10%)
Family Study (15%)
Community OSCE (20%) - Deferred until further notice
Integrated Clinical Exam (30%) - Deferred until further notice

All the best! Remember that self directed learning can be tough as it requires extra discipline and commitment, don't fall behind, keep going and give every learning engagement your full attention and effort!

[redacted]

View Activities and Resources

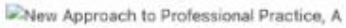
Comprehensive Nursing: Professional Practice

We have already completed our face to face contact session for this module, therefore this module is a an adjunct learning opportunity for you to consolidate your learning from PBL sessions and prepare for tests and exams.

The modules are for self study and you may complete the at your leisure.

Completion of the online activities are not for marks or compulsory, however your engagement with the online platform will be monitored should you need additional support.

The prescribed textbook for this module and this course is:



New Approach to Professional Practice,

A Bhengu, B ; Armstrong, C ; Geyer, N

View Activities and Resources

Immunology Review

Before you continue with this module it is very important that you revise your knowledge on the body's immune system. This lesson will take you through the fundamentals needed for you to grasp the concepts to follow.



Image source:

Preview | Edit | Reports | Grade essays

Basic Primary and Secondary Immune response

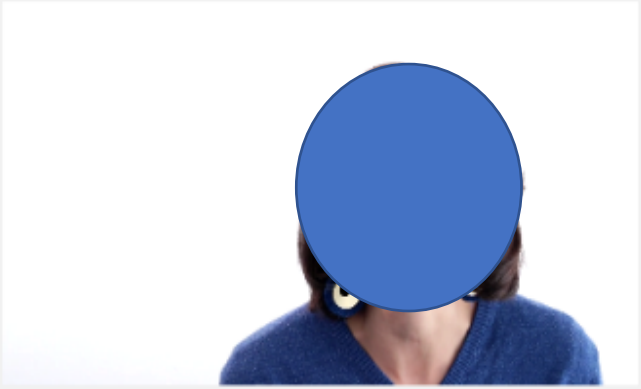
Review the following video to consolidate your understanding of basic primary and secondary immune response



Basic Primary and Secondary Immune response

Introduction to Online Comprehensive Nursing

A video introducing you to your Online Comprehensive Nursing Course



Please see tips for online learning in the file attached

How to use Wakelet

A simple step by step guide to using wakelet

wakelet

EXAMPLE WAKELET

After you have read the instructions on how to create a wakelet please see below a link to an example wakelet created for you to better understand what is required

Please note that this is a basic example and yours should include many more resources and inserted text or documents as per your searches.

Introductory session

Introductory session

Comprehensive Nursing: Professional Practice

We have already completed our face to face contact session for this module, therefore this module is a an adjunct learning opportunity for you to consolidate your learning from PBL sessions and prepare for tests and exams.

The modules are for self study and you may complete the at your leisure.

Completion of the online activities are not for marks or compulsory, however your engagement with the online platform will be monitored should you need additional support.

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New Approach to Professional Practice,

The modules are for self study and you may complete the at your leisure.

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The prescribed textbook for this module and this course is:



New Approach to Professional Practice,

A Bhengu, B ; Armstrong, C ; Geyer, N

View Activities and Resources

BigBlueButton: 1 Pages: 3 Files: 3 Chat: 1

Professional Practice Live session

Am I in the right profession?

Using the link to the poll, list the word that best describes how you feel about becoming a professional nurse.



Image source: http://www.lawfulrebel.com/thinking-important

A nurse's own account of nursing

Read the following scenario. It is a true account of events experienced by a professional nurse/nurse educator.

Highlight the issues that concern you and then participate in the online forum discussion

A nurse's account

Please post the issues that concern you about the account you have just read.

Letter of response to family

After reading the "nurse's own account of nursing" you are to assume the role of the nursing management of this hospital and draft a letter of response to the family of the patient described in this account.

Post your letter and then review the letter of the peer assigned to you

Reflective Thinking Exercise

Answer the following questions regarding your personal experiences as a student becoming a professional nurse

A looming disaster

A looming disaster?

Professional Practice PBL Scenario

Folder: 1 File: 1
Progress: 0 / 2

Comprehensive Nursing: Care of the High Care Patient - Sepsis

This module focuses on the care of the patient in high care with specific focus on the condition Sepsis. This module will allow you to integrate your clinical knowledge from first to fourth year and apply the principles you have learnt to deliver high quality nursing care to a patient with a serious or deteriorating condition.

View Activities and Resources

Lessons: 4 File: 1 Pages: 3 Forum: 1
Progress: 0 / 8

Immunology Review

Before you continue with this module it is very important that you revise your knowledge on the body's immune system. This lesson will take you through the fundamentals needed for you to grasp the concepts to follow.



Image source:

Pathophysiology Sepsis

Work through the content and questions to consolidate your understanding of the pathophysiology of Sepsis and SIRS, this will help you understand the management of the disease and rationale behind your nursing interventions



Image source:

PBL - Care of the High Care Patient - Sepsis

This PBL is designed to facilitate learning about care of the High Care Patient with specific focus Sepsis

For this PBL problem, you will be required to:

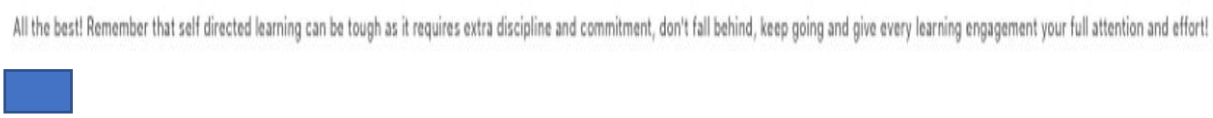
- Engage in the introductory activities
- Read the PBL scenario and follow the PBL process:

1. Read the scenario
2. Highlight or underline key concepts

The course review found, through high levels of pedagogic reasoning, there was an introduction, start-up page, tasks, conversation forums, theory of work, risk assessments and forum chats. While many other courses focused on the provision of resources, Participant 17's course included verbal and communicative feedback that aligned to Freire's (1978) notion of dialogism and communication (refer to Section 2.3.3.). Fully evident pedagogic reasoning manifested in the course since Participant 17 imparted qualities of hope and critical thinking as depicted in Figures 6.18 and 6.19.

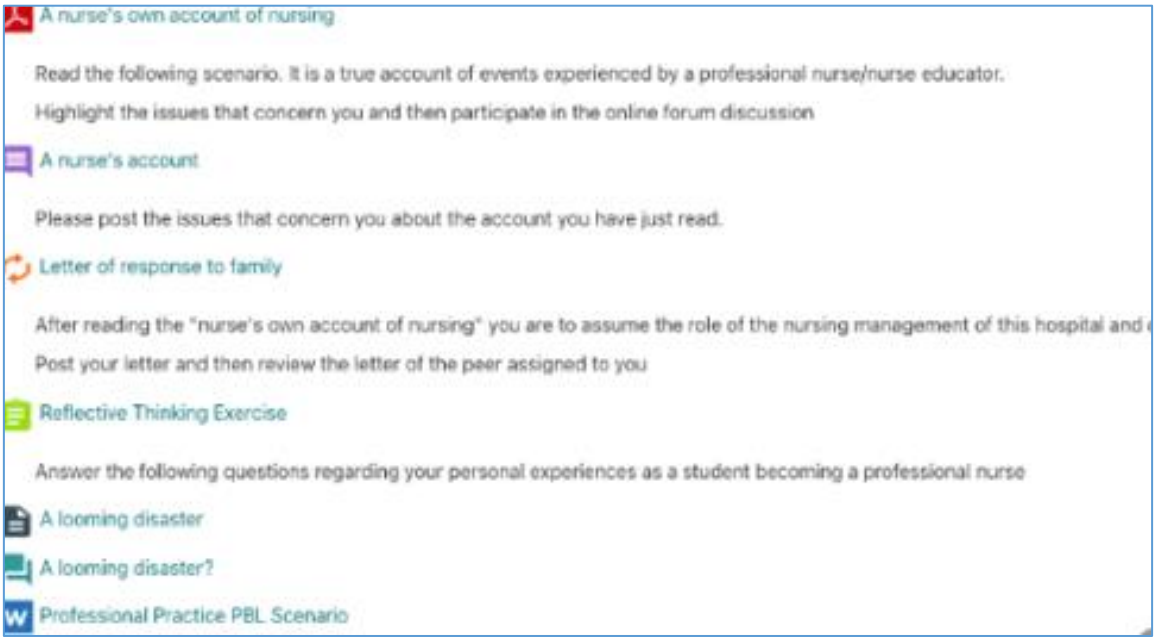
- Hope

Figure 6.18 *Snapshot of course page illuminating 'hope'*



- Critical Thinking

Figure 6.19 *Snapshot of a course page illuminating 'critical thinking'*



Collectively, the evidence in Figures 6.18 and 6.19 indicates that some academics underwent morphogenesis in their L&T practices. This occurred through elaboration and modelling of CDP practices in the online space amidst the complexity of transitioning learning and teaching practices to an online modality.

6.4.2 Constraints to CDP practices

Figure 6.20 *Constraints visualising structure, culture and agency*

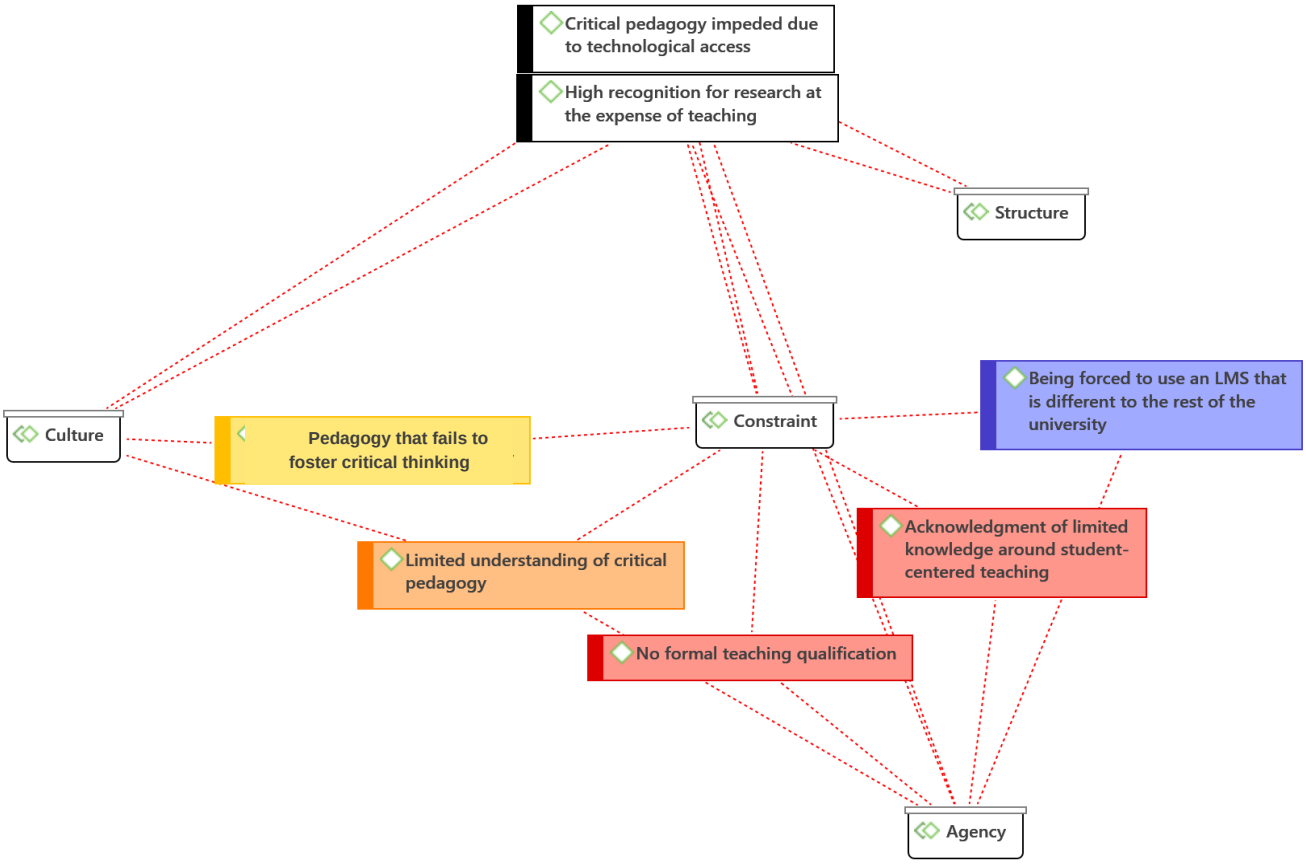
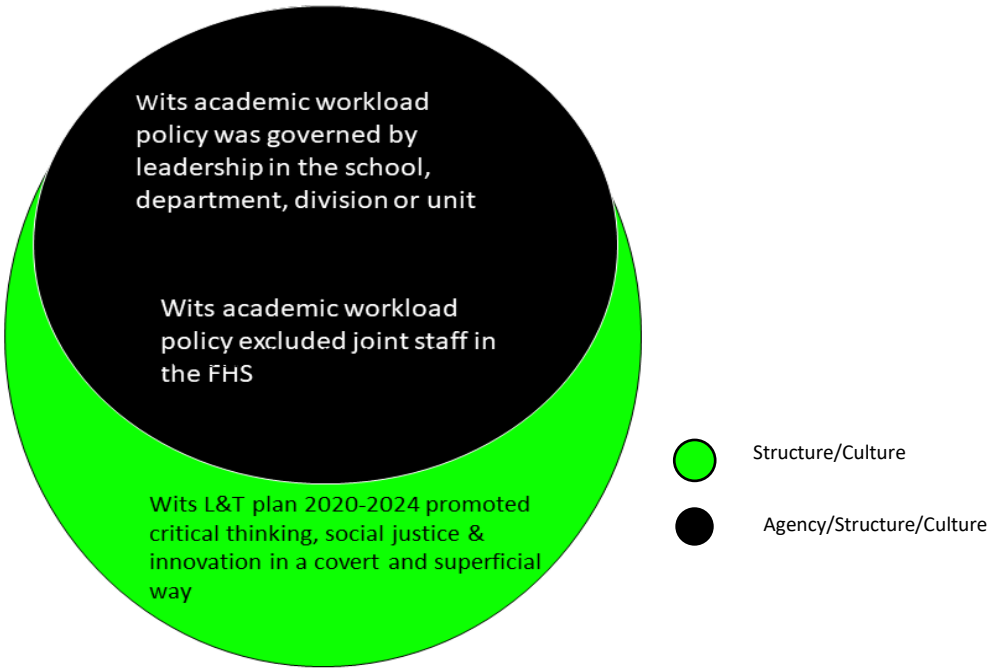


Figure 6.21 *Visualisation of document study constraints*



Being forced to use an LMS that was different from the one used by the rest of the university was *a structural constraint* that impeded agency.

> The plug-ins on the standardised LMS is not available for us and ICT prioritises the university LMS for support. (Participant 21).

> Us not moving to Canvas and having to go by with what the school goes by, is problematic. One example is Gradesope – and I did the training last year and I loved to use – but it's not integrated into Moodle yet. If I go to training at CLTD they teach on Canvas and I don't know its functionalities, so I lose out. (Participant 19)

If academics wanted to attend CPL courses that were facilitated on uLwazi, they were reluctant as they were familiar with the functional and non-functional aspects of a specific LMS. Academics were accustomed to teaching in a culture whereby delivering content that utilised low data was viewed as a form of critical pedagogic practice. Making allowances for accessibility principles was one aspect of critical practice that still required strategies and interaction between the facilitator and students and between students as well.

> I try to upload online content that all students can access by giving a lower data option. (Participant 14)

> My teaching style is just not giving the content, it's about engaging in discussion to get them to think critically. (Participant 18)

Perhaps much focus was on content delivery because the LMS supported the content of courses while it reduced the time involved in the planning and facilitation of the course. Since pre-existing practice was already a part of a normalised culture, it was a *constraint* for the enactment of critical pedagogic practice.

> For me, critical pedagogy practice is looking at how I am critically analysing and getting the concepts across to my students and analysis of teaching to your lesson structure. (Participant 14)

> I think my understanding is based on andragogy, the principles of adult-based education and principles and my teaching is learner-focused. (Participant 15)

The interviews highlighted that participants had a limited understanding of critical pedagogic practice and most participants continued with content-driven practices and minimal reflection. The snapshot from a course shown in Figure 6.22 illustrates this and is explained after the illustration.

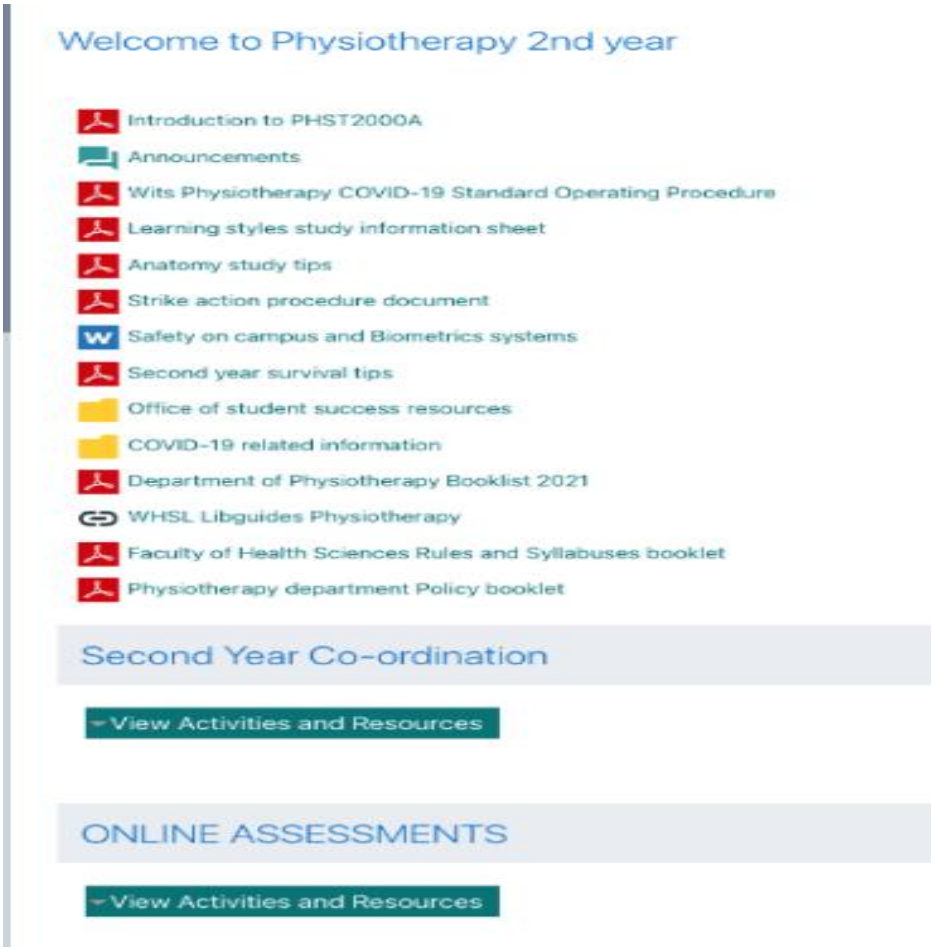
Figure 6.22 *Snapshot of a page of the course demonstrating content delivery and insufficient pedagogical reasoning*

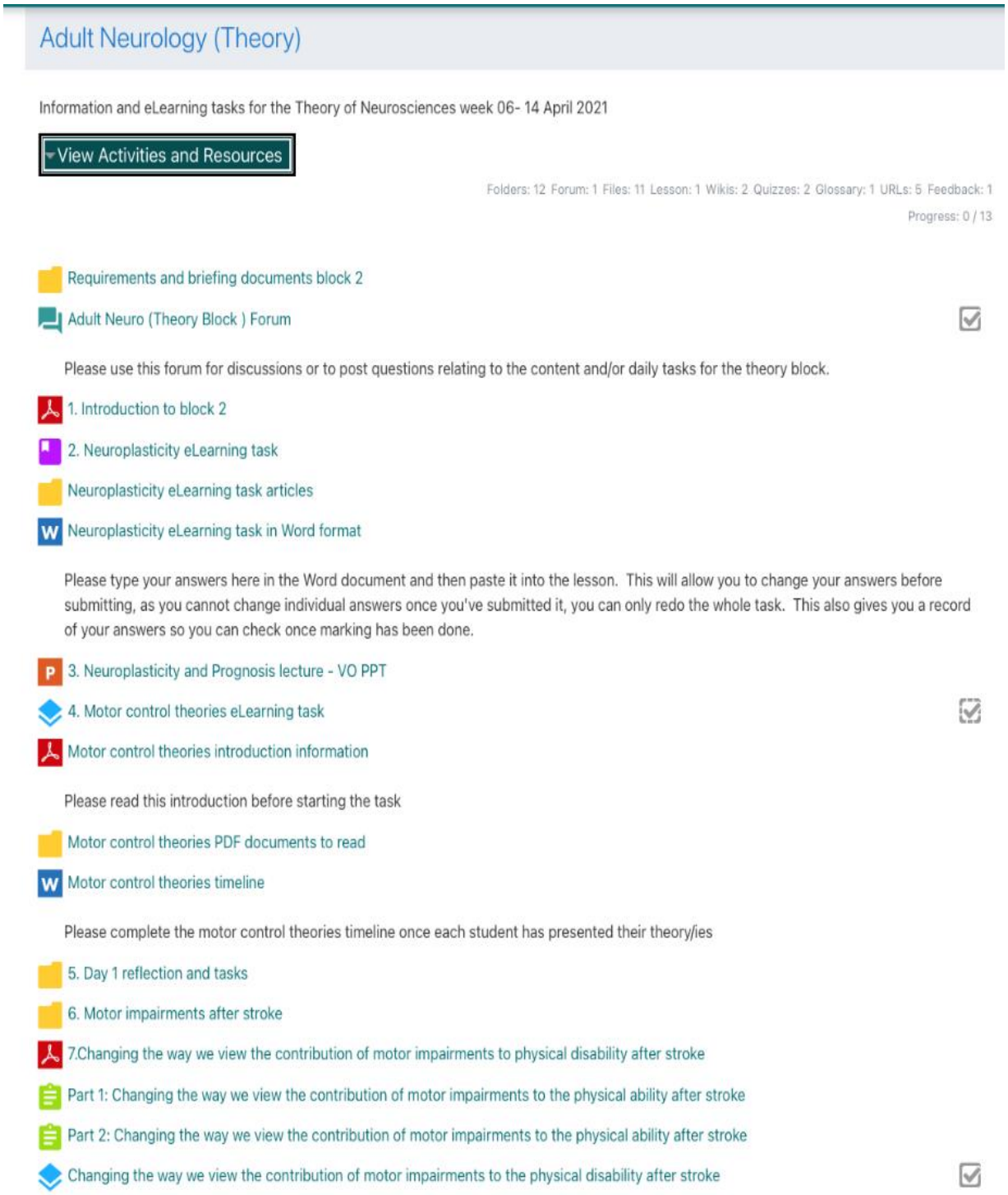


As shown in Figure 6.22, there was a resource repository with no evidence of student-centred L&T practices. Apart from access to tests and downloadable files, students were not engaged since there was no facility for asking questions. However, there were links to external videos. There was only one feedback after a simulation activity. It could be that while the course demonstrated links to a digital pedagogy, the enactment could be outside of the digital through blended learning.

Figure 6.23 (a combination of two pages in snapshots) illustrates the content-delivery culture that continued to prevail at the SoTS. These practices included adding videos, PowerPoints, and PDF documents that were evident of content-driven didactic teaching (as stated in some interviews) due to insufficient knowledge and creativity in the online space. This was an *agential constraint* to both digital competence and CDP practices since academics had access to a myriad of digital and pedagogical support and advice from the CHSE, CLTD and eZone.

Figure 6.23 *Snapshot of pages of two courses demonstrating content-driven practices*





Some participants acknowledged that they possessed little expertise and knowledge of student-centred pedagogies.

> I don't know about student-centred teaching…really. No, I'm being serious! And it's difficult in online, you know. I need more training. (Participant 18)

> Hah, very good question. I'm not aware if I have an answer as I came in with no training on pedagogy and I am used to being the teacher now. (Participant 20)

The implication was that academics needed professional development that focused on building their competence in L&T and their specialist areas. They claimed that CDP practices were impeded due to technological limitations that constrained students' access to online learning. Thus, they could not fully enact CDP practices as they had to be cognisant of the limitations of certain structures, like shortened videos, communication on different platforms and not on a single one. This *constrained* communication, practice, and their options for mediating content.

> I need to consider that all students won't have equal access and conducive spaces. This negatively influenced me a lot. (Participant 16)

> There's students who have limited resources and don't have the opportunity to access full Stream/YouTube videos. This impacted me being critical about teaching in the online space. (Participant 19)

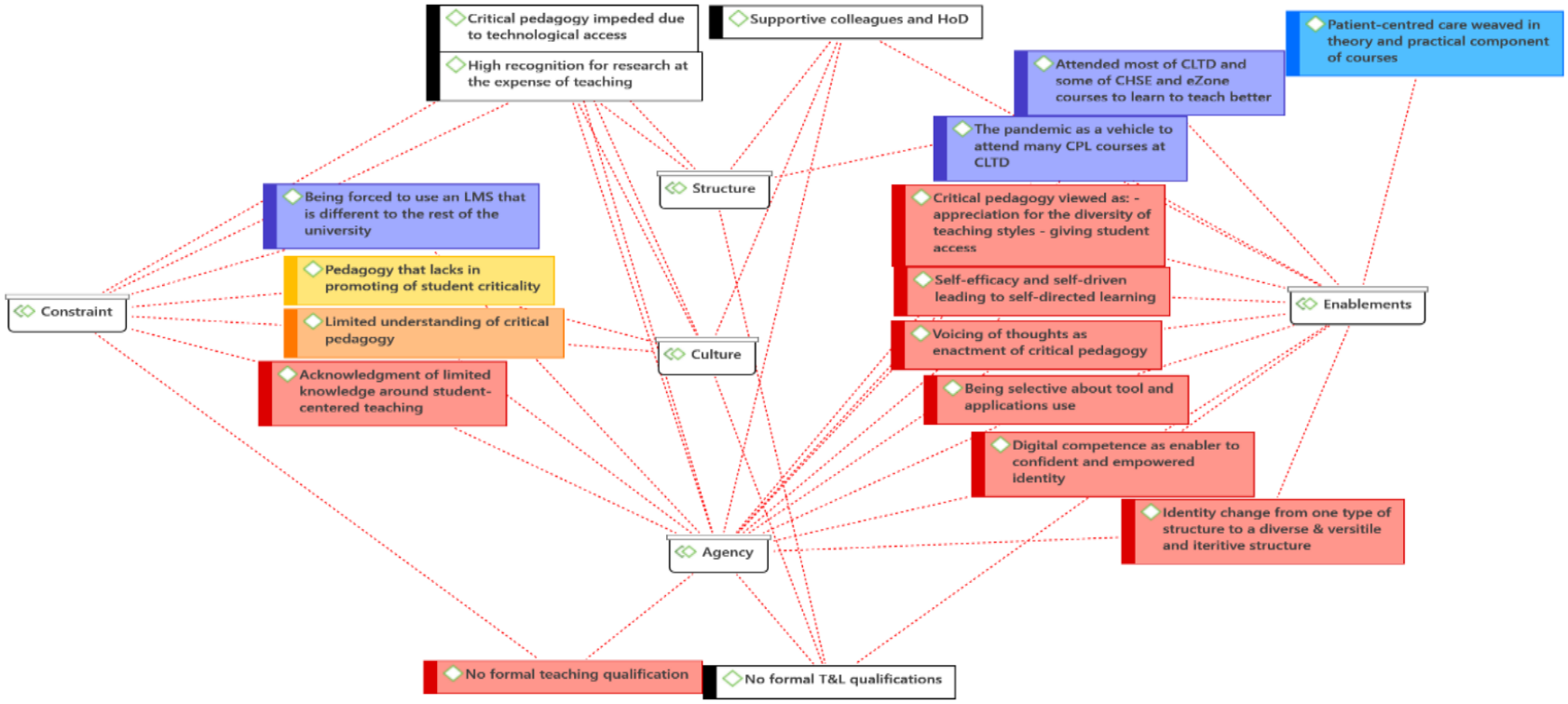
Accessibility was a key highlight because as a structure, especially during the ERT phase, it was a need but had limitations and these limitations manifested as cultural practices which, in turn, affected academic agency and the lived experiences of the students. All of the participants expressed the view that there was higher recognition for research at the expense of teaching practices.

> Covid has shown everybody up as there are many staff members who are much older and don't see the need to change their courses. And they're so much focused on their research. And they don't want to go back and make changes. (Participant 21)

Due to the university being strongly focused on research, practices and culture around learning and teaching was *constrained* which, in turn, constrained lecturers' agency with regard to L&T.

6.4.3 Co-occurrences and summation of enablements and constraints

Figure 6.24 *Co- occurrences between enablements and constraints*



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The construct of possessing formal teaching qualifications was the one co-occurrence between the enablements and constraints in this period. While possession of a formal teaching qualification enabled critical pedagogic practice due to possessing pedagogic content knowledge that would positively affect pedagogic practice, not having one also served as an enablement as it highlighted to academics that they needed to engage in CPL to develop their pedagogic expertise. The constraint set in when most academics at the SoTS acknowledged that they possessed limited knowledge on L&T which was compounded by possessing a professional qualification and no formal teaching qualification that would raise awareness and confidence in CP practices. An alternative was that a signature pedagogy was being enacted while some academics attempted to enact CDP practices after being socialised through the first in-depth interview in 2020.

6.5 Summation of chapter

This chapter illuminated that if leadership supported initiatives and projects from inception, then those initiatives could inform sustainable ways of L&T.

During the T1-T2 period, the management of the SoTS supported DT because of the increasing number of students. Since then, the HoS and HoD (although there have been changes in management) focussed on collaborative decision-making to benefit staff and students in light of a digital reality. Subsequently, what emerged is that there are leaders who were and are concerned with what was pragmatic and this occurred as a result of leaders who possessed transformative foresight.

Another aspect that emerged was passion and resilience amidst the notion that an attempt to integrate edtech into L&T would fail at an institution that traditionally employed the face-to-face modality for L&T practices. The influence of the use of technology by internal structures (eZone) capacitated academics to begin thinking about employing edtech as an enabler for critical pedagogic practices. At the same time, the sustained use of Moodle at the SoTS augmented teaching practices in a consistent manner since it enabled continued practices (even if it was employed as a content repository) without the need for transitioning to another LMS. However, it also exhibited limited ways of adapting to new ways of doing with transitioned mind-sets.

The #FeesmustFall protest in the T2-T3 period brought about a new consciousness among some academics that other approaches to learning and teaching were needed when the traditional approach was disrupted. The research-intensive culture of the university was found to have a strong influence on the identity, autonomy, and agency of academics collectively in the SoTS. Academics felt that they were being ‘tracked’ through their research outputs and so, to be recognised, they needed to have a strong online identity for research purposes. If research outputs were high, they enjoyed greater autonomy (more focus on research than on teaching). If their research output was low, they had limited identity which also affected their autonomy and agency around the L&T versus research narrative. The most notable finding was that acquiring an ‘all-ready’ internal support level enabled academics to reflect on their understanding of what L&T, assessing, evaluating and student – facilitator relationships were all about in both the online and face-to-face modalities. The following chapter presents the analysis and discussion of the data.

Chapter 7 Academics knowledge of CDP and how it shaped pedagogic practices

7.1 Introduction

This chapter discusses the research findings that investigated critical digital pedagogic (CDP) practices in health science (HS) education in one university. The findings will be relevant for South African universities and beyond. The research problem centred on academics, conceptualised as agents, who focus more on the visible, like distributing content and being teacher centred. When edtech was integrated into learning and teaching (L&T), the focus was on the technology instead of student-centred digital pedagogies. Subsequently, academics digital competence and critical digital pedagogic knowledge and skills remained in question. This research focused on academics' digital competence, pedagogic practice, agency, identity and the institutional culture around integrating edtech into L&T in the South African context. Data analysis employed key theoretical concepts from the work of Bhaskar (1978), Archer (1998), Freire (1970) and Shulman (1987). The dimensions of structure, culture and agency identified in critical realism (CR) and social realism (SR) terms were employed to strengthen the theoretical perspective.

As a critical realist, I am interested in academics knowledge of CDP and how they enact it in practice. To acquaint and guide the analysis and discussion I focused on crucial elements of the discourse which emerged from a critical reading of the data. This chapter focuses on working across data and significant wider aspects that emerged in relation to CDP practices, tucked in the deeper and concealed levels of the 'real' where intense generative mechanisms were lodged as operational devices. Hence, a balance between epistemology and ontology was required, and within ontology to manoeuvre from events to the mechanisms that cause them.

A brief overall response to the research questions is first presented which is then followed by analysis through sense-making. Two broad themes emerged: the complexity of the global-local higher education environment and the complexity of the academic disposition in relation to CDP practices. For ease of reference, Table 7.1 was inserted as a list of common acronyms employed in this chapter.

Table 7.1 *List of acronyms commonly employed in Chapter 7*

CEP	Culturally emergent property	DT	Digital transformation	PEP	Personal emergent property
CDP	Critical digital pedagogy	ERT	Emergency remote teaching	SEP	Structurally emergent property
CHSE	Centre for health science education	FHS	Faculty of health sciences	SoCM	School of Clinical Medicine
CLTD	Centre for learning teaching and development	HE	Higher education	SoHS	School of oral Health Sciences
CP	Critical pedagogy	HS	Health science	SoTS	School of Therapeutic Sciences
CPL	Continuous professional learning	L&T	Learning and teaching	SR	Social realism/realist
CR	Critical realism	LMS	Learner management system		
DHET	Department of higher education and training	M/M	Morphogenetic/morphostatic		

7.2 Overall response to the research question that frame the process of meaning-making

While participants' knowledge of CDP was limited, they were found to enact CDP practices implicitly, and operated at a basic level of digital competency. During the T1-T2 period, digital transformation (DT) occurred in silos since the management[17] of some schools began thinking about it in response to massification. Concomitantly, leadership provided partial structures mainly to advance DT. It appeared that leadership did not understand the conceptualisation of CDP, nor did they address it explicitly in their policies and strategies. My view is that HS educators employ a completely different concept of critical practice to what this research investigated as their notion of critical pedagogic practice involved teaching students to heal and save lives. Various elements shaped academics' digital competence like, leadership, management, and early adopters. While management was an enabler at one school, it was a constraint at another school. The early adopters doubled as mentors and academic champions due to their passion, privilege, self-efficacy and exercise of agency. In alignment, CR theory posited that agents have properties and powers to reflect individually or as a collective on social circumstances thereby transforming them. Leadership was still of the view that enabling structures would improve digital competence over time, which implied that leadership focused on shaping the tools and the system of tools rather than L&T practices. Multiple factors influenced academics' CDP knowledge and practices, such as the contract with DoH, limited/no understanding of critical pedagogic practice, being unseated from face-to-face L&T practices, edtech being seen as valueless, feeling forced to use edtech and how they exercised academic agency. Academics' online identities manifested in different ways due to prior concerns that manifested into projects and practices of understanding the self. In this way, as agents, they possessed personal emergent properties (PEPs) that allowed them to mediate the conditions of structurally emergent properties (SEPs) and culturally emergent properties (CEPs) which are unpacked in more detail in section 7.3. Insufficient publishing due to a teaching focus meant a limited identity in both online and face-to-face spaces, thereby impeding their agency. Archer (1995) argues that structural and cultural elaboration is guided by agency but subsequently becomes elaborated as well, implying a double morphogenesis (while agency elaborates structures and cultures, in the same process it, itself becomes elaborated).

7.3 Visualisation of categories with dominant and axial codes

While a more detailed description of how coding and categorising were used in this study is provided in Section 3.8, this section serves as a reminder in the data trail of categories with dominant and axial codes. A complete list of codes is provided in Appendix K. Figure 7.1 illustrates how enabling connections can exist between SEPs, CEPs and PEPs. Figure 7.1 also highlights the merging of cultural and agential factors and structural and agential factors. These connections were viewed as factors acting as enablements and constraints and were visualised in the diagrams presented in Chapters Four, Five and Six.

[17] In this study, management refers to the heads of schools, units, centres and divisions, while leadership refers to the executive leaders of the university, like the VC, DVC and deans.

Figure 7.1 *Illustration of the enabling connections that may exist between SEP, CEP and PEP*



Dominant codes emerged from narrower codes that were found to overlap. Some dominant codes served as both an enablement and a constraint to the enactment of CDP practices. Further to this, to model the patterns of CDP practices that underpin the pedagogic practices of academics, the enablements and constraints were consolidated, as shown in Figure 7.2, highlighting the instances in which a dominant code acted as both an enablement and constraint. In doing so, the codes demonstrated the nature of SEPs, CEPs and PEPs that allowed the data to highlight the nature of structures in relation to CDP practice.

Figure 7.2 *An illustration of co-occurrences and connections that may take place between SEPs, CEPs and PEPs*



7.4 Analysis of structure, culture and agency through sense-making that lead to the broad themes

The co-occurrence category explained in Section 7.3 surfaced some contradictions. Code patterns were considered in the enablement and constraints categories and contradictions emerged organically as follows:

- The appointment of joint staff provided advantages in terms of clinical training but at the cost of pre-clinical teaching, as these staff had weaker pedagogical knowledge.
- Policies and strategies expected compliance but to transition, a culture of attaining CDP knowledge and practice required more than policies and strategies.
- The university had an excellent reputation globally, nationally and locally, but the interviews and course reviews suggest that L&T practices, including CDP practices, were insufficiently evaluated or reviewed iteratively to make changes to shortfalls.
- Research appeared to be prioritised by the institution at the expense of L&T, as academics were offered promotions based on their research output at the empirical level.

- All participants identified as discipline experts at the empirical level, but the pedagogic content knowledge (PCK) associated with L&T within the discipline was limited in the course and course site.

Subsequently, the contradictions were woven into the discussions in Sections 7.5.1 and 7.5.2

The focus of CR studies is not on the stratified level of events when investigating phenomena to illuminate mechanisms triggered by the workings of objects that produced the events, through emergence. Therefore, the methodological aim, in this research, was to examine how the events that were observed (limited and/or no CDP practices) could be explained through theoretical modelling of its structures and generative mechanisms. The outcome of a mechanism being contextual due to a dependence on other mechanisms were considered at all times. Hence, the analysis focused on *four crucial steps* as follows.

7.4.1 Step one: Tracking events and practices (2007-2022)

The data analysis approach in *step one* moved from the empirical (surveys, interviews, course reviews and document analysis) to the real and under-laboured generative mechanisms. This meant that the analysis started at the level of events and practices, as depicted in Table 7.2.

Table 7.2 *Key events in the case studies*

An explication of events: trackable events and practices			
Period	**Chapter Four The FHS**	**Chapter Five The SOCM and SoOHS**	**Chapter Six The SoTS**
T1-T2	1.Management began thinking about integrating edtech into learning and teaching practices but with no focus on CDP practices (as evidenced in the *Final 2007 Report of the LMS Feasibility Study, the eLearning strategy and Tactics 2009, Teaching and Learning Plan 2010 – 2014)*	1. No CDP practices and limited intent of DT found, even though a GEMP platform in alignment to an Australian university was sought.	1. Some move to DT due to massification and a strategic leadership that acknowledged agency. This translated to a move toward integrating edtech into learning and teaching but no CDP practice.
T2-T3	1.Establishment and limited implementation of digital policies, strategies and structures that focused mainly on DT of the university. 2. Even though university management experienced the #FeesMustFall protests, their intention was to keep the university aligned to the global digital landscape.	1. Unaware of digital policies and structures that encouraged blended learning and teaching practices. 2. #FeesMustFall student protests were a catalyst for thinking of other ways to engage in learning and teaching.	1. Some awareness of digital policies and structures that encouraged blended learning and teaching practices. 2. #FeesMustFall student protests were a catalyst for thinking of other ways to engage in learning and teaching.
T3-T4	1. The Covid-19 Pandemic enforced online learning and teaching with edtech. 2. The implementation of a new LMS.	1. The Covid-19 Pandemic enforced online learning and teaching practices that surfaced a multiplicity of identities. 2. The adoption of a new LMS.	1. The Covid-19 Pandemic enforced online learning and teaching that surfaced a multiplicity of identities. 2.Continued to use Moodle as their LMS.

As shown in Table 7.2, the events in each of the periods of the morphogenetic/morphostatic (MM) cycle (Archer, 1995) correspond to observed institutional outcomes which require the development of explanations. Through the analysis of data from the interviews and documents, certain key events were found to have served as catalysts which had consequences for academics' digital competencies and CDP practices. Table 7.2 demonstrates that in the T1-T2 period, even though university management was beginning to think about the use of edtech in learning and teaching, the SoTS embarked on a DT project, while the SoCM and SoOHS continued on the path of traditional pedagogy. In the T2-T3 period, the university leadership took a more vigorous approach to digitally transform the university by investing in various structures such as policies, strategies, and spaces. The stated aim was to keep up with global trends through integrating edtech in education. However, in the SoCM, the SoOHS and the SoTS, the #FeesMustFall protest served as a catalyst for academics to reflect on employing alternative platforms to distribute content to students; since most participants did not consider CDP practices in this period. According to a CR perspective, structures take on social forms as they can enable or constrain the agent to act in specific settings. It appeared that leadership did not consider the social nature of structures and instead viewed them as tangibles to the academic project (the relationship between agency and structure is further explicated in the discussion in Section 7.5).

In the T3-T4 period, the global pandemic forced the use of edtech in L&T; academics scrambled to move their courses and their presence to online platforms for emergency remote teaching (ERT). At the same time, the university introduced a new LMS called Canvas but conceptualised as uLwazi within Wits. While the rest of the university transitioned to uLwazi, the SoTS continued to use Moodle as their LMS. Amidst these crucial events that were observed, there was no evidence in the findings (obtained from data from the survey, interviews and course reviews) that academics enacted CDP practices since they possessed limited CDP knowledge, with the exception of a few academics who attended CPL courses and implicitly enacted CDP. These academics reported feeling privileged to work alongside the CLTD and its service providers (through the UCDG) to design and develop courses while improving their pedagogical knowledge for the online modality.

7.4.2 Step two: Identifying human and social factors

The crucial events in step one led to an analysis of the key material and social components in *step two* that work in an interrelated manner and form emergent causal powers (Archer, 1995) within the academic project. From a social standpoint, the key factors in this study included the academics, the students, the university (within the broader HE system), pedagogical practices, and the construct of critical digital pedagogic practice. Data demonstrated that although edtech was available and more stable in the T2-T3 period, it was not employed with digital fluency or mastery [18] for CDP practices, except by those academics who had developed CDP practices through their engagement with the CLTD and eZone.

[18] Levels of digital capabilities can be viewed as a continuum: digital literacy refers to an understanding of how to use edtech tools; digital fluency includes the ability to create new content with these tools; digital mastery includes the ability to create new learning and teaching interactions which reflect the interconnectedness of content areas and make use of a variety of strategies and assessment tools to design and develop learning experiences to reach all students. The mastery level is experienced as 'second nature' by the individual.

7.4.3 Step three: Identification of possible mechanisms that explain outcomes

In *step three* and in alignment to addressing the main research question through framing the question into a theoretical assumption; it was important to understand the nature of social structures and associated mechanisms that impacted academics' knowledge of CDP practices. This was crucial, because the aim was to induce explanations of how and why certain events had occurred which would lead to explaining which mechanisms may have produced the different knowledge outcomes.

In tracing the trajectory, during the T1-T2 period, academics entered the L&T space with limited or no CDP knowledge, experience or induction. As a South African university, Wits was in the process of building its technical capacity but had not yet addressed the need for CDP practices. This caused the formation of cultural norms into didactic practices which were the norm in the institutional culture and were difficult to migrate to online platforms, particularly because research outputs were given far greater attention than the development of academics' pedagogic expertise. Environmental factors, like the #FeesMustFall protests and the Covid-19 pandemic, forced the institution to fast-track the use of edtech for online and blended L&T, which exposed the inadequacy of academics' CDP expertise and digital competence. The implication was that past conditions (T1-T2 period) in the university's structural and cultural elements, constrained academic agency. Archer (1995) posits that the interaction of agents is conditioned by the dual effects of structure and culture. Through time, these interactions establish new conditionings for further cycles of morphostasis or morphogenesis.

The environmental factors mentioned in the former also highlighted that past conditions needed to be addressed. However, during the T1-T2 and T2-T3 periods, only technical abilities were addressed, while CDP enactment was not a focus. In the T3-T4 period, the data indicated that after placing more emphasis on supporting academics to develop their digital capabilities, there was no concerted effort to develop their CDP expertise, as the university was transitioning into a phase of acknowledging and creating structures to inform or increase this knowledge base. This was associated with an increase in academic agency and a slight change in culture, which is discussed in Section 7.5.

The findings revealed that CDP practices were not enacted due to structural, cultural and agential elements during the period of this study. As much as the focus was on how academics exercised agency in enacting CDP practices, it was not enacted from T1 to T3 since the leadership of the university foregrounded DT and student success while pedagogy remained in the background. Subsequently, in the T3-T4 period, the last stage of the MM cycle revealed that the macro environment changes caused academics to reflect on CDP practice due to access and equity challenges. In the latter period, my view is that CDP was being spoken of due to individual agency and cultural change. Furthermore, the pandemic forced the use of edtech, which raised awareness of academics' digital capabilities. Hence, a number of possible generative mechanisms within the social structures (such as knowledge dynamics of the discipline, global environment and 4IR, Covid-19, #FeesMustFall, DT, the research-intensive university and massification) triggered HS educators since the resulting need for CDP practices revealed a gap in their pedagogic knowledge, especially in the T3-T4 period. Table 7.3 highlights the possible mechanisms that activated the dominant code in the two categories (enablements and constraints). Chapter four is colour coded in blue, chapter five in peach and chapter six in lime.

Table 7.3 Possible mechanisms that produced emergence of enablements and constraints to CDP practices

Period	Category Enablement to CDP Dominant code	Possible mechanisms that generated emergence (1st and 2nd order emergents)[19]	Category Constraint to CDP Dominant code	Possible mechanisms that generated emergence (1st and 2nd order emergents)
T1-T2	Joint staff appointments	*Knowledge dynamics of the discipline *The clinical experience of joint staff was viewed as a need by government and HE to infuse HS students with practice skills	Joint staff appointments	*Joint staff possessed limited pedagogic knowledge and entered HE with a specific cultural conditioning
T2-T3	Leadership's focus on DT through implementation of various structures	Global environment and digital reality, #FeesMustFall	Academics' resistance to edtech	Culture of face-to-face learning and teaching
			Management's focus on DT	Management's perception that technology is a 'technical fix' for the problems experienced in HE
T3-T4	Leadership provides further structures to advance DT	Pandemic	Leadership had limited focus on CDP practices due to focus on advancing DT	Pandemic Limited pedagogical understanding
T1-T2	Documents	Global environment		
T2-T3	Leadership and support	Advancing digital transformation	Leadership and trust	Competing mandates
	CPL structures	Advancing digital transformation	Insufficient policy awareness	Ineffective communication channels
	Joint staff's identity and values	Memorandum of Agreement (MoA)	Joint staff culture on CDP practice and edtech in learning and teaching	Memorandum of Agreement (MoA) Competing mandates No value placed on pedagogic practice
			Academics acknowledgement of no understanding of CDP practice	Pedagogic knowledge base
			CPL structures	MoA and competing mandate

[19] 1st order emergents refer to examples like social structures, roles and positions, while 2nd order emergents arise from the complementarities and incomplementarities that arise due to 1st order emergent, like the MoA, policies, conditions of service and responsibilities. Together, they present various situational logics that influence the action of agents.

T3-T4	CPL structures reinforcing CDP practice	Pandemic	Leadership and trust	Competing mandates
	Self-formed CoPs	Pandemic and pedagogical knowledge base		
T1-T2	Leadership and strategic direction	Digital transformation	No pedagogical knowledge or focus on CDP	Insufficient structural elements and focus on pedagogical value
	Actions of early adopter leading to cultural conditioning in SoTS	Massification		
T2-T3	Engaged leadership	Digital transformation and massification	Didactic content teaching	Face-to-face culture
	#FeesmustFall	environmental	No CDP knowledge	Limited policy implementation
	Mentorship model	eZone and early adopter	Insufficient policy communication	leadership
	Identity	eZone and early adopter	Limited online identity	Face-to-face culture and research-intensive university
T3-T4	Academic thinking on technological access	Emergency remote teaching due to pandemic	Insufficient CP practice enactment	Face-to-face culture of learning and teaching
	Online identity change	Emergency remote teaching due to pandemic	More focus on research than on learning and teaching	Research-intensive university

7.4.4 Step four: Corroboration through reasoning

Figure 7.3 depicts *step 4* and the process of abstraction leading to the emergence of broad themes. Since step 4 was a lengthy process, the table was placed in Appendix I and a snapshot of a part of the table is presented as Figure 7.3. Step 4 lays out the conditions that led to emergence in step 3. Focused codes that emerged out of the data, relating to the sub-questions were used as a point of departure for inductive reasoning. Thereafter, counter induction/alternative perspectives were employed as a way of looking at the underlying (below surface) hidden meanings which CR theory focuses on. One example was that it could be that university leadership generally focused on structures; CR theory explicates that, when structures are investigated, there should be a focus on the social power of those structures. It is this aspect that was missing in the approach taken by leadership.

Figure 7.3 *A snapshot of Appendix I, depicting step 4 that lead to the abstraction of the higher-level main themes*

Sub-questions	**Mainstream data findings**	**Examples of evidence**	**Examples of inductive reasoning**	**Counter/alternative perspective** (what are the hidden things that these findings are trying to reveal? What or whose agendas?)	**Sub-themes**	**Abstracted to a higher-level main theme**
1.*The pedagogical practices and the levels of digital competence of academics*	**T1-T2** and **T2-T3**: Academics engaged in a lecture-based content delivery pedagogy with no alignment to critical pedagogies. Similarly joint academics did the same and their clinical teaching practices were stronger than their pre-clinical teaching. The LMS was used as a content repository. They operated at a basic level of digital competency. **T3-T4**: Academics improved slightly in their digital competence due to ERT, but CDP practices were not enacted except for those that were privileged to work with the CLTD through projects	**T1-T2 and T2-T3**: *"critical pedagogy is the way we deliver content and with online it's about making it flexible for them due to our practical component which becomes a balancing act"* *"I don't know what critical pedagogy is but its how I think about delivering a lesson with content"* *"I use Google drive with my students, upload sections, assessments. I just did not use Sakai and WhatsApp. My thinking was that I needed to send content and receive feedback or share resources on internal medicine"* **T3-T4**: *"I have the privilege to work with a big team, service provider and the CLTD. It has to do with my personality as I think about my decisions on using certain technologies over others. My online pedagogic competence increased due to my confidence"*	**T1-T2 and T2-T3:** *Academics in this study engaged in a didactic, content delivery pedagogy through the LMS, therefore most academics in the FHS tend to engage in a similar practice **T3-T4:** A macro environment phenomenon foregrounded the use of edtech while CDP practices remained in the background.	**T1-T2 and T2-T3**: *Pedagogical knowledge and practices were not highly valued. * Tick-box exercise conception **T3-T4**: Focusing on a pedagogic priority that was not transformative while keeping the old ways of churning out graduates with content knowledge.	*Pedagogical practice *Pedagogical values *Pedagogical beliefs and intentionality *Epistemic communities *Reflexivity	The academic disposition in relation to CDP practices
2. *Reasons for academics functioning*	**T1-T2**: Insufficient resources and academics were comfortable with f2f L&T practices, no edtech	**T1-T2**: *"My students and I were used to f2f sessions"* *"I prefer contact teaching as I feel safe"*	**T1-T2**: disengaged leadership	*Academic agency was weak in the uptake of edtech	*MoA *HE environment	The complexity of the global-local HE environment in relation to CDP practices

The results demonstrated that many HS academics viewed pedagogy as a practice of transmission of content, informed by a technological and graduate stance instead of an emancipatory interest that underpinned CDP practices. While all participants acknowledged the conceptualisation of CDP, they did not appear to share the same meaning as they did not understand the practice due to having a different understanding of pedagogy or limited knowledge of CDP. The focus on content delivery was catalysed by faculty policies or CPL that was not vigorously backed by the faculty to enhance the pedagogical knowledge of joint academics. Another reason could be that there was a prevailing culture of how teaching was enacted in health science education. However, even if this was the case, the academic as agent possessed autonomy to mediate structures and culture within their institutional context.

My assumption was that CDP is a phenomenon in the world, especially in the Global North[20], which I found missing in the case studies. As much as I believe that CDP practices should be enacted in higher education, it is apparent that it is not a common or emergent practice as I saw only a few indications of CDP practice being enacted implicitly by participants. Firstly, participants who had formed close relationships with mentors at the CLTD during their CPL were found to draw on the CDP practices they had been exposed to in their own learning and teaching practice. Secondly, some participants began to infuse some aspects of CDP practices into their L&T after having been exposed to CDP principles during the interviews in the T2-T3 period. On the whole, however, CDP practices were enacted in a limited way.

Through a process of reasoning and counter-reasoning, a correlation between social and cultural structures (through social interaction and agent action) became apparent. This occurred due to the agents' concerns that led to the conceptualisation of projects and actioned through practice. Figure 7.4 demonstrated that the analysis centred on CR principles that dealt with the constitution of social structures and culture. Since CR allows for an analytical separation of the various domains to understand the interactions of relations, the analysis led to the location of the academic by an identification of social structures as, firstly, beliefs, ideas and values that underpinned pedagogy in the context of HS education. Secondly, it highlighted aspects of HS education that constrained the academic. Thirdly, the academic's role, resources, and relationships within the context of the HE environment were highlighted.

To visualise how agency mediated the enablements and constraints of structure and culture, as expressed in Figure 7.4, I looked at how the objective features of HS education influenced HS academics (agents) to reproduce or elaborate their pedagogy through their actions. I examined how objective social conditioning was mediated by agents' subjective reflexivity. Through analysis of the data, a mediatory mechanism came to light: the internal conversations (reflexive and reflective practices) that were expressed as agents' responses to social conditioning, their patterns of social actions and their contribution to social reproduction or elaboration. From the analysis, *two broad themes* emerged which the agent was forced to reason with through reflexive and reflective practice due to the cultural context of the structure of HS education.

The *first broad theme* relates to the complexity of the global-local HE environment in relation to CDP practices. The global landscape of developed countries through edtech integration has forced HE into a world of transitioning and ambiguity shaped by an international knowledge economy beyond the control of HE institutions

[20] These are countries, located mainly in the northern hemisphere, that are historically referred to as "the West" because of their apparent resources, technology, and international dominance

in developing countries. This is because HE, through collaboration among international universities, cannot be detached from one another due to rankings, marketisation, massification and economic progress. On the other hand, because critical pedagogic practice possesses both ontological and epistemological attributes, the focus should also be on L&T practices where the goal of education and social mission should be combined, instead of focusing exclusively on delivering existing knowledge that becomes a repeated process and an uncontested complete truth (Freire, 1970).

There are arrangements and practices in HE pedagogy that pose many challenges to the academic for critical pedagogic praxis and the ways of doing and being. Since education is an inter-disciplinary social science, it involves academics, students, the institution, community, unions and government who all have a stake in the learning and teaching context. In addition to these stakeholders, in the context of CDP practices there are also the socio-structural and cultural constructs of edtech, the curriculum, CPL programmes and pedagogic beliefs, among others, that matter to the academic project. These constructs, in relation to structure and culture, are non-deterministic as they either enable or constrain events at the empirical level. The foregrounded structural and cultural components that the agent had to deal with included the complexity of DT on its own and from a CR perspective in relation to epistemology and ontology; the global influence on a pedagogy for graduateness in relation to CDP practices. Together, this praxis influenced the academic role due to the ongoing need for deliberate action around critical and reflexive practice that has a social justice orientation.

The challenge around the academic role placed the agent in a disposition that highlighted the relationship between agency and structure, since academic action (reflexive and reflective practice) was shaped by agency and the impact of the enabling and constraining forces of socio-structural and cultural constructs.

Collectively, it is this thinking that gives rise to the *second broad theme*: the complexity of the academic disposition in relation to CDP practices. The academic disposition aligned to positions and tendencies in relation to the specific way agents think, feel, act, and understand. The foregrounded structural and cultural constructs that the agent had to deal with included values, beliefs and intentionality, the research-intensive context, attending CPL specifically on L&T practices and disciplinary practice, and exercising their personal powers.

Figure 7.4 *The interrelatedness of structural, cultural and agential emergent constructs and their influence on reflexive and reflective practices*

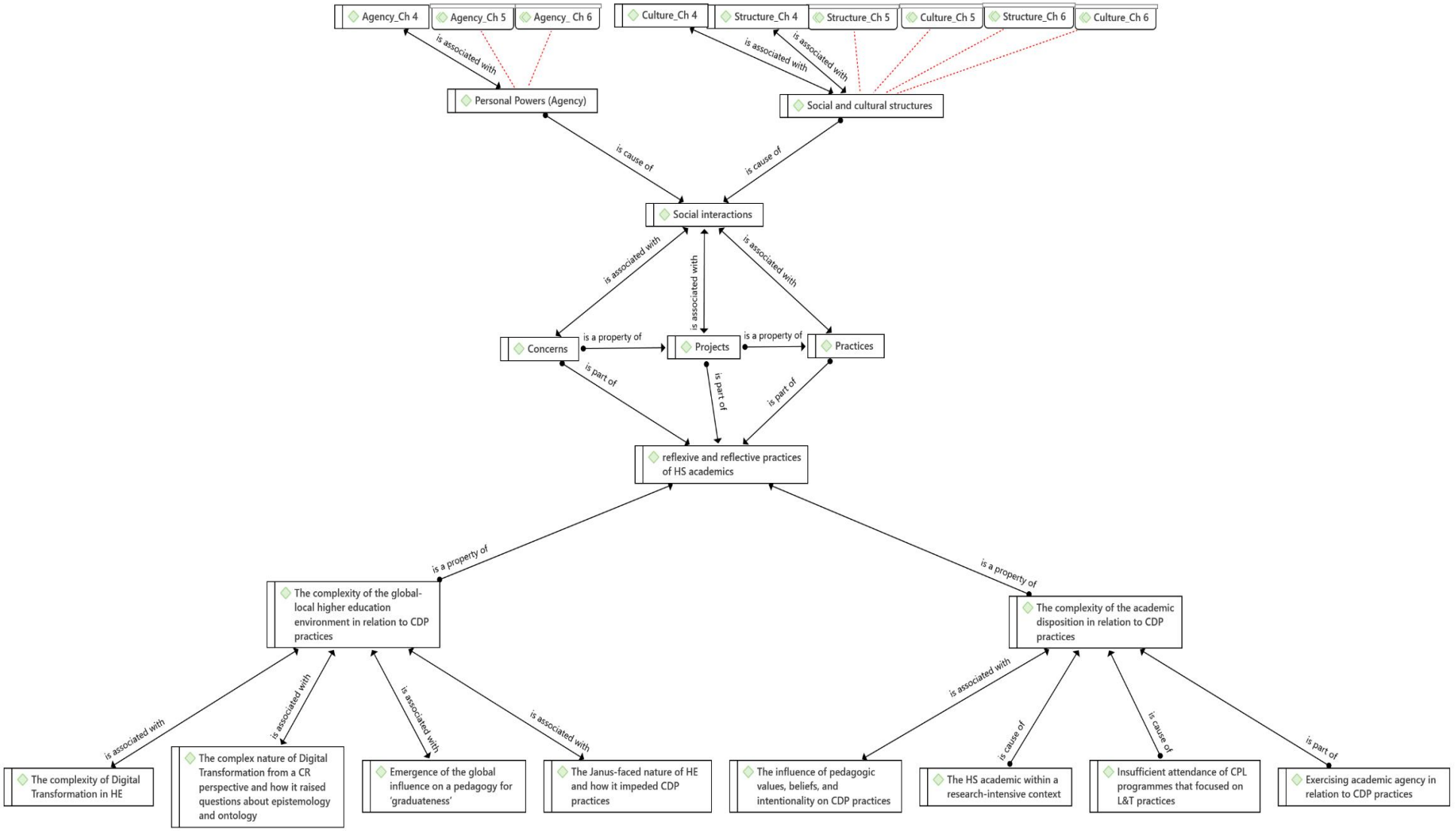


Figure 7.4 illustrates how reflexive deliberation was found to mediate the enablements and constraints generated by the internal and external contextual conditions impinging on the pedagogic practice of health science academics. It fostered the ability of agents to align their concerns and collectively extended their agency towards a common purpose (their disciplinary knowledge) through signature pedagogies, and not critical pedagogies. This related to how contextual (structural and cultural, and agential) conditions influenced their practice. Signature pedagogies are discussed in section 7.5 which also explains the two broad themes analytically in relation to how academics' digital competence and knowledge of CDP shaped their practices.

7.5 Thematic analysis

This section provides a deep discussion of the two broad themes that emerged from the analysis to address the primary research question of how academics' digital competence and knowledge of CDP practices shaped their pedagogy. Much of this discussion deals with the complex nature of L&T and what it means to engage in critical practice when edtech is integrated. As the findings had demonstrated that academics in the FHS were not enacting CDP practices consistently or across the board. In early 2022, I invited five participants from the faculty to investigate this further.

I found that one of the primary reason that academics were enacting CDP practices in limited ways related to confusion around what blended learning meant in the context of the FHS, as no clear strategy had been put forward by the faculty or university. Furthermore, various schools in the FHS were managed by managers who were not educationalists and did not understand the academic project. A third, and important, reason, was that it appeared that HS academics were imbued with a specific 'way of being' through traditional procedural knowledge, by virtue of the culture in which HS education was taught and structured, and how those dynamics allowed them to reflect on decisions that foregrounded patient-centeredness while L&T, specifically CDP knowledge and practices, was in the background. This manifested in the classroom through a signature pedagogy (a concept introduced by Shulman, 2005). Through a signature pedagogy, students were socialised to think and act in the same ways as the experts for their future practice since it was crucial to teach how to heal and save lives which highlighted a specific conceptualisation of critical practice.

CR theory argues that there should be a balance between epistemological and ontological aspects of knowledge. This is because intransitive aspects of knowledge do not refer to events that are experienced but remain the causal mechanisms that generate events (Bhaskar, 1978). In relation to the main research question in this study, both concepts deserve attention. The main research question is, firstly, ontological, because it was the state of academics' knowledge that was operative. Secondly, this implies the way that a structure of their mind operated to produce and possess an epistemological property. As a critical realist, my view is that academics attained knowledge because there was an underlying ontological property that was operative. Academics possessed limited CDP knowledge which was an epistemological property due to an underlying ontological state since their knowledge structures culturally conditioned their pedagogical practice.

In relation to CDP practice and CR theory, a major aspect of the theory is the transitive (changing) and intransitive (relatively enduring). The findings (that can be generalised to any academic in their disciplines) demonstrated that in the T1-T2 period, CDP was a non-existent event at Wits, while in the T2- T3 period a handful of

participants were enacting CDP practices implicitly. According to CR theory, the enactment of CDP practices aligns with the intransitive nature of the world, since the world continues irrespective of what occurs in HE (Bhaskar, 1978). Concomitantly, Archer's (1995) social realism reminds us of analytical dualism and the importance of separating the patterns that emerged for sense-making. This provided a way to examine structure, culture and agency independent from one another before they began to act on each other to offer explanations as to how they impinged on one another. The two broad themes, *the complexity of the global-local higher education environment in relation to CDP practices* and *the complexity of the academic disposition in relation to CDP practices* are discussed, focusing on the relationship between structure and culture with academic agency.

7.5.1 The complexity of the global-local higher education environment in relation to CDP practices

My view is that developing countries are generally aware of the risks of being left behind in the use of technology, and South African universities have prioritised keeping up with global trends in HE. However, as they focus on developing the tools and structures needed for blended learning, university leadership should not forget who their academics were and what they were supposed to acquire to advance CDP practice in a university undergoing digital transformation. This pattern of 'keeping up' is one of the reasons that academics possess only a basic level of digital skills, which compromises their pedagogical practices and limits the development of their identities in the online space. A major pressure in the effort to 'keep up' is the need to achieve and hold rankings and research outputs as an institution. In the context of the health sciences, this has resulted in academics being pulled in different directions. On the one hand, staff with joint appointments (Wits/DoH) are mandated to focus on service delivery over research and teaching. Full-time staff, however, are expected to focus on producing life-changing medical research. In both cases, L&T seems to be given lesser priority than other imperatives. This has impeded the agency of academics and constrained the development of their capacity to enact CDP practices in various ways, as discussed in Section 7.4. CR theory focuses on achieving a balance between epistemological and ontological aspects in relation to the academic and their practice.

(a) The Janus-faced nature of HE and how it impeded CDP knowledge and practice

The Janus-faced nature of HE was one of the structural reasons for academics' low levels of digital competence. While, on the one side, institutions are under pressure to produce research to keep up with global trends, on the one side, there are urgent access, equity and equality issues that need to be given priority. This acted as a constraint to the development of academics' digital competence in this study, since greater emphasis was placed on digital transformation of structures while limited attention was given to the development of their CDP practices. In the effort to digitally transform HE environments, leadership thus needs to 'look both ways', to address both the environment needs and the pedagogic needs of the academics within the institution. This limitation implied that in as much as reflexive and reflective practices may be sufficiently understood in HE environments, their practice by leaders and the constituents remains limited.

In terms of the influences on academics' pedagogical practices, the T1-T2 period identified generative powers of structures that existed previously and emerged from previous MM cycles which moulded the situations academics experienced at the time of edtech integration. Archer (1995, p. 172) states that these conditions are viewed "as shaping but not determining the different choices that academics make" in alignment to their pedagogical practices. This period was characterised by insufficient resources (even though the Teaching Development Grant

was introduced by the DHET and served as an enablement), limited support for the integration of edtech, a lack of an established induction process for joint academics, and a training mentality manifested in the CPL processes implemented by the CLTD. All these aspects served as constraints; the biggest constraint being the competing mandate for joint academics, who struggled to balance service delivery demands at the hospital with teaching and research demands at the university. In discussing these pre-existing systemic conditions, a particular perspective emerges on how culture and structures impinge on academics and their students in the higher education system. Archer's (1995, p. 201) view is that the results of past pre-existing structural and cultural conditions mould the social environment since "past actions are in the form of current situations" that academics experience as "involuntaristically situated beings". This implies that the structures and cultures that were inherited by academics in this study were the situations that they were forced to deal with.

The global-local HE environment was, and continues to be, fraught with complexities. Globalisation, as a structure, has come about through an integrated knowledge economy made possible by a global knowledge network catalysed by technology. This is a reality that was beyond the control of the academics in this study although it could be that internationalisation (a mode whereby academics work globally, promote global networks and align to the HE ranking standards through research) became a strategic approach of universities to respond to globalisation. Hence, internationalisation was a contributing factor in the decision to align and sustain the integration of edtech at the university that led to thinking of DT as a whole. While internationalisation served as an enablement to the research-intensive university because it enhanced research capacity, it also acted as a constraint and contradiction. This is because, while it promoted socio-economic development in the Global South, it also perpetuated domination of the Global North over the Global South.

This pattern of 'keeping-up' continued in the T2-T3 period of this study since the adoption of technology was undertaken in a more calculated way by the executive leadership of the university 'to keep up with the global landscape'. This stance was evident when leadership began to develop structures to advance DT but gave no attention to the development of academics' CDP knowledge and practices. It appeared that leadership prioritised strategies that boosted the position of the university but did not necessarily support the academic project. My argument is that the integrity and quality of any output (especially in HE) is dependent on alignment of internal beliefs and external actions through exercising agency while keeping the future in mind. It is this quality that is crucial for balanced leadership, as it points to reflexive and reflective practices through progressive thinking. I think that if such practices are absent, leadership will seldom challenge their own assumptions and actions.

According to leadership, integrating edtech into L&T facilitated asynchronous access to students, thus enabling their participation in online or blended learning, which was a key strategy for remaining competitive in the global HE space. This gave rise to the emerging Janus-faced nature of HE in the digital knowledge economy. While this view is aligned with transformation, access, public and private good, the socio-cultural context of a developing country is different from that of a developed country. My assumption from a cultural stance is that managing a gradual change across space and time requires balancing a knowledge-based economy with the anticipated risk of an extended exercise of power and ways in which internationalisation aligns to an African identity. This continues to be a challenge for HE in the Global South and collectively, it influenced academics digital competence and knowledge of CDP.

(b) Emergence of global influence on a pedagogy for 'graduateness'

The relationship of academics' pedagogical practices to internationalisation and other changes in the HE landscape in South Africa highlights the complexity of social equity and redress and as economic development and quality. This meant that economic development valued labour that was highly skilled. It is this thinking that emerged from the data when participants were asked about what they believed a student should have achieved by the end of their programme. In terms of their pedagogic practices, all the participants aligned to the notion of preparing students to be competent doctors, dentists and therapists. It may be that critical consciousness is viewed by some (and not others) as a key competence that must be embedded in professional competence, rather than that critically conscious citizenship is a HE intuitional goal. This thinking also influenced policy and L&T decisions at the university, where the emphasis was on skills development and preparing students to be competent graduates. However, the Learning and Teaching Plan 2014-2019 states: "Wits aims to produce professionals and members of civil society with a balanced set of attributes". This covert statement demonstrated the university's intention of preparing citizens concomitant to graduates which, according to the findings, does not necessarily happen in practice.

The occluded aspect that emerged from this investigation was that knowledge was commodified, underpinned by the integration of edtech into L&T, which gave rise to the knowledge economy. Along with this, it emerged that leadership put forward a view that access to and quality of L&T would be problem-free and improved due to the integration of edtech. In a way, this assumption surfaced a discourse about the relationship between technology and the changing nature of HE. It appeared that the socio-structural nature of edtech was omitted from the transformative nature of HE, while the pedagogic practice of academics was totally forgotten. In this way, CDP knowledge and who the academic was, did not appear in the DT agenda of HE.

In relation to CR theory, emergence related to the social formations and changes being examined on how agency mediated the emergent properties of structure and culture. DT, as a transformed structure, was a material resource that generated causal powers. Second-order structurally emergent properties (SEPs) were the consequences of the relationship between structures and culture that provide the agent with guidance about some courses of action that they can take, like presenting a situational logic. Archer (1995) suggests that the four second-order SEPs arise from two crucial narratives. The first refers to the necessary relationships between SEPs; the second is that these relationships are either complementary or contradictory. In this study, and in alignment to theory and the reasons that academics were at a specific level of digital competence, the DT of the African university was a necessary complementarity. This created a situational logic of opportunism because there were gains to be explored through the opportunity provided for sustainable development of the institution as a whole. However, these actions were dependent on the cultural emergent properties (CEPs) and personal emergent properties (PEPs) of its academics.

(c) The complex nature of digital transformation from a critical realist perspective and questions it raises about epistemology and ontology

From the findings demonstrated in Chapters Four, Five and Six, it was evident that DT was difficult to achieve considering the various structures and culture with the academic in the middle. Transformation during the T1-T2 and T2-T3 periods brought about adjustment in various ways but leaders and practitioners in the HE environment needed to manage the resulting complexity, given that the change was not just technical but was deliberately produced by agents through their own actions. Hence, institutions spent a lot of time thinking about technology

adoption when they should have been thinking about transitioning the conscious behaviour of agents as it was, in fact, deliberate human action that enabled the uptake of edtech. From a CR perspective, investigating causality translated into understanding the underlying causes that operated at different levels, as shown in Table 7.2.

Critical pedagogic practice brings in an alternative view of pedagogy and access to knowledge norms that may not be compatible with the status quo in HE. Perhaps the instrumentalisation of the university towards free-market ends ultimately deprived the majority of powerful knowledge. Academics in HS education, for example, are inducted into L&T practices and clinical protocols without knowing how and why these protocols came about. This echoes the finding that the university, as a site of L&T, has undergone vocalisation where social injustices go beyond professional practice. The vocalisations become a constraint to academics who challenge deep systemic and historical causal realities that remain beyond professional practice. The implication is that they do not challenge what they are not hermeneutically equipped to deal with. Leadership at universities operate within a framework of global ideologies and structures with business principles and ideas informing the institutionalised logic. According to this logic, a return on investment is viewed as the ultimate goal and this does not support a focus on emancipatory knowledge, hence the consequences on academics CDP knowledge. In SR terms, this environment is perpetrated by the structure and not the agent. The CDP knowledge of the constrained academics functioning within this institutional logic is not valued, which leads to vocalisation going unchallenged. Subsequently, globalisation as a social structure shapes pedagogy in a supposedly unconstrained way, which plays a role in perpetuating power, which in turn leads to social injustices in L&T practices. As a result, the cause of pedagogic reform is neglected because causality is exerted by social structures on social interactions (Archer, 1995).

A determinant of change, both nationally and globally, was the simplistic view of the leadership in HE that introducing edtech into L&T practices would be a straightforward way to enable the massification of HE. In the context of this study, the management at the SoTS viewed the DT project as a means to deal with the increasing enrolment numbers; the increase in numbers began in the T1-T2 period and continued into the T2-T3 period. While this thinking may have been an enablement to edtech integration at the university, it was by no means an enablement to CDP knowledge and practices since the focus was on training academics in the technical and administrative skills for using technology in teaching. Not much thought was given to the pedagogical practices of academics, let alone critical practices. This gave rise to a culture that manifested in the cultural system of the university leading to a specific culture of pedagogic practice that focused on lecture-based content delivery pedagogy with no alignment to critical pedagogies. After a while, the FHS decided to engage in problem-based learning (PBL), where student knowledge was constructed by probing possibilities that imitate real life. Even though the faculty supported this approach, the use of edtech in L&T continued to be limited to content delivery via an online repository, for the most part. An alternate view was that academics misinterpreted the varying levels of the cognitive domain in L&T since delivering content versus critical approaches that generate students critical analysis skills were not considered. The approach of delivering content to students appears contradictory since delivering content translated into knowledge being fixed and pre-planned, while the action of educating students was centred on a notion of knowledge being co-created. Delivering content is viewed as a way of ‘passively conforming’ that is rejected in CDP approaches because it constrains the development of the student’s critical thinking capacity in favour of traditional practices.

In relation to CR theory, the complexity of DT within the context of HE and L&T practices has fixated on the technical aspect of transformation while limited or no attention has been given to figuring out ‘how’ and ‘what’

DT meant for the academic and student in the L&T process. This meant looking at the positions of agents in the transformation process and how they interacted causally among and within the greater context of structures in which they operated. Framing this complexity with the lens of critical realism opened a way to explore contingent causality, because it enabled beliefs to be understood within the larger context of structures.

(d) The complexity of digital transformation in higher education

The structures of L&T environments are complex. Universities have established ways, or processes, aligned to cultural norms, protocols and hierarchies that shape the experience of academics. In this study, the document analysis highlighted the issue that the prevailing global ranking systems for higher education institution assigns limited importance to the role of universities in the Global South as knowledge producers. It appears that HE institutions in the Global South are bound by competition through the integration of edtech into L&T, which forced a response to innovation as one way of demonstrating success. Once more, CDP knowledge and practice did not feature at the top of the list. Broadly, an enduring concern remains through conditions of rapid social change and the role that universities play in reproducing social order. Stemming from the Global North, the culture of academics, for social democratic reasons, has focused on sustaining control over the curriculum and pedagogy. This culture, it appears, has been perpetuated across HE institutions beyond the Global North, as evidenced by the teacher-centred and content-centred pedagogic practices academics use without an awareness that they are doing so. The findings confirm that all the participants in this study enacted content-driven, lecture-based pedagogies, for the most part. The role of an academic involves more than knowing content, planning and lecturing. Pedagogic attitudes, reflective and reflexive habits, as well as modes of conduct, convey the particular disposition of an academic as they interact with students. This broad theme is discussed in Section 7.5.2.

7.5.2 The complexity of the academic disposition in relation to CDP knowledge and practice

The academic disposition refers to the habit of an academic of acting in a specific way that, over time, forms patterns of action (Borko, Liston, & Whitcomb, 2007). In this research, the academic disposition refers to the hidden values that influence academics in their enactment of CDP practices and, in their professional growth, in relation to the social structures within the higher education environment. Academics' dispositions are steered by their beliefs and attitudes in relation to pedagogic values of caring, fairness, honesty, responsibility, and critical pedagogic practice. In HE, academics as agents are pivotal to the pedagogic project' similarly their dispositions impinge on the way they teach since these dispositions operate as non-conscious principles that guide pedagogic practices. According to Freire (1998a, 2004), institutional and structural forces condition agents, but are not determined by them since, if agents remain conscious of such conditioning, they can transcend it. Considering that Freire viewed agents as 'unfinished', this implies a continuous search for deep understanding of the self and for social and professional transformation. CDP practices require awareness and interrogation of the self which leads to the self-awareness to recognise and adjust self-perceptions in relation to others (Freire, 1970). This also implies being open to learn from others through dialogic (communicative) and dialectic (considering both sides of the story through being reflexive and reflective) practice.

In this study, academics' digital competence and knowledge of CDP practices were conditioned by the social and cultural systems that existed in their context during the T1-T2 period (2007 and 2012). Chapters Four, Five and Six presented these systems as characterised by insufficient resources and support for the integration of edtech

Additionally, the standing Memorandum of Agreement (MoA) between the DoH and the university regarding the appointment of joint staff with no defining policy in place that scoped the necessary pedagogic practices of joint academics, had an impact. The deeper meanings of these dispositions are discussed in this section.

Due to the social and cultural conditioning they receive, academics enter the HE space with pre-existing assumptions about what it means to teach students through knowledge dissemination. The assumption is that if academics are not effectively prepared for pedagogic practices, it translates to challenging L&T experiences for students whose lives will be fraught with abnormal levels of insecurity, uncertainty and anxiety, which goes against the principle of CDP practice.

For this analysis, I term this emotional and social disposition of the academic a 'shifting state of pedagogic values, beliefs and intentionality' which is the emotional and social level of comfort with which academics confront the realities of L&T practices. As the academic enters the HE space, an initial level of teaching is experienced, which undergoes constant flux as they navigate practices and culture. This fluxation means that pedagogic beliefs and intentionality are not static and that conditions in HE such as structures, relationships, access to CPL support programmes, or support and encouragement from peers and managers, constantly influence academics' beliefs and intentionality. It appears that academics are in a state of flux and deliberating how they could navigate the social structures amidst the constraints and how they shift culture to make things happen. This particular statement relates to how academics locate themselves in the different spaces they find themselves in. The academic disposition, as a causal explanation, brings their ontology and epistemology to bear on their pedagogical realities, which relates to CDP practices in the HE space.

In the T2-T3 period, academics' digital competence and knowledge of CDP practices were shaped at the socio-cultural level. They also mediated their pedagogical practices through their PEPs. The findings indicated key factors that did not create conditions that were conducive to the ideals of CDP practice. In this temporal context, and in relation to the enablements and constraints to CDP practices, the survey findings indicated that academics possessed a basic level of digital competency. Academics did not engage as much in CPL programmes that focused on L&T practices. In a research-intensive context, academic identity was closely linked to research outputs, which also determined autonomy and agency because more publications meant changes to the academic identity and agency within the unit, department and school.

Using the lens of CR theory (Archer, 1995), a form of elaboration was observed during the T3-T4 period as academics were forced to integrate edtech into their learning and teaching practices due to the Covid-19 pandemic. It appeared that academics mediated their pedagogical practices by exercising their PEPs. In an attempt to achieve favourable learning and teaching outcomes, some academics transitioned to become primary agents, while others became corporate agents – albeit in silos. While the pandemic was life-threatening and thus not a positive phenomenon, it did cause academics to reflect deeply about many aspects of their lives and realities, including their agency, position, and power and how they engaged in pedagogic practices; these reflections triggered action. The pandemic may have paralysed some academics while enabling others through reflective and reflexive processes.

The survey indicated that, within the scope to which edtech was employed, there was little evidence that academics were enacting CDP practices. Through the interviews, it appeared that the construct of critical pedagogic practice was new to many of the participants; CDP practices were thus largely outside of their field of

experience. Even though all of the participants had been in academia for over three years, they demonstrated little or no knowledge of critical pedagogic practice: many of them were unable to distinguish between pedagogy, critical pedagogic practice, critical thinking and conscientisation.

Based on the data, the following dispositions were identified as part of the deeper engagement with the themes that emerged in this study.

(a) The influence of pedagogic beliefs and intentionality on CDP knowledge and practice

Being an academic is complex since academics need to prioritise between L&T, research, and academic citizenship. Academics enter the context of HS education as disciplinary experts with limited pedagogical knowledge. They come in with their own specific set of concerns regarding self, reality (ontology) and the academic project which inform their relationship with knowledge (epistemology) and the world of academia. As an academic and agent, irrespective of whether they are new to academia or not, they may reproduce traditional values if they are not conscientised as to how knowledge, more so CDP knowledge, is produced, structured, and engaged with.

Through the lens of CR theory (Archer 1995), the social world can be understood to be framed by the relationships of agents (through their actions in the world) and by structural constraints and enablements. In this study, agency has been examined as emergent in its own right and the relationship between the agent and environment is crucial. In relation to the agent, pedagogic beliefs and intentionality represent one way that structural factors arising from the social and cultural context impinge on the agent's actions (Archer, 2003). The academic as a social being and agent possesses personal properties and powers which they draw from. Against the background of the complexities present in the HE environment, the focus is on how the agency of academics as pedagogues, managers and researchers valorised a particular kind of approach to knowing and how some kinds of knowledge are produced over other kinds of knowledge.

In merging knowledge production and social justice, CR theory provides an account of pedagogy over a period which also allowed for an account of change. In other words, what has changed and not changed, and why? Social realism (SR) provided this study with a way of exploring emergence, experiences and events in the social world of the university. In considering the relationship between the parts and the people, an alternative view of SR becomes possible: that agents are created by society and may not act freely as they wish to due to the strictures of social structures and culture. In the T1-T2 period, academics viewed the enactment of pedagogy as a didactic process through a normalised culture. However, the interplay between the parts and the people were each accorded distinct properties and powers at the real level. This implied that the possible mechanisms in Table 7.3 in relation to the parts can be viewed as SEPs, CEPs and PEPs. My acknowledgment that structure, culture and agency each have properties and powers is crucial to the construct of emergence and the interplay of the powers and properties that allow events at the actual and observations and experiences at the empirical to emerge. Between all these layers is the role of agency and the reflexive processes of the agent. While SEPs and CEPs impinge on academics and their situations in the form of enablements and constraints, their activation depends on either individual or collective mediation of agency (Archer, 1995).

Participants who were a part of the leadership and management of the university reported that, during the T2-T3 period, a perception of the ethos and role of the contact university academic persisted. This persistence was shaped

by socio-cultural interactions, even though academics were encouraged to actively collaborate in the blended learning and teaching space with a few of their courses. Most academics were of the view that their role was to facilitate learning and teaching in the traditional mode and not through blended learning practices. I found that there was not much focus on digital pedagogic practices in the T1-T2 and T2-T3 period, but there was strong focus in the T3-T4 period, that signified an elaboration (change). Additionally, policy and strategy documents also focused on the DT of the university and failed to address the pedagogical practices of its academics.

These findings led me to the conclusion that knowledge of CDP and its practice were not valued in the earlier periods. CR may possess emergent properties due to agency and can emerge or surpass a threshold further than which individual causal powers can be exercised independent of the agency that established them. Hence, even though social structures exist independent of agency, the generative powers "are at the mercy of two open systems: the world and its contingencies and human agency's reflexive acuity, creativity and capacity for commitment" (Archer, 2003, p. 7). Social structures impinge on agency in the form of enablements and constraints to the agent's ability to act; however, concomitantly, "agency cannot be deduced from the causal powers of society and its structures" (Archer, 2000, p. 68). This meant that if agents are critical pedagogues, they will attempt to reshape structures that conflict with their ideologies. This was not the case in this study since agents did not enact critical pedagogic practices when they were encouraged to integrate edtech into learning and teaching in the T2-T3 period; nor did they enact CDP practices when they were forced to engage with edtech in the T3-T4 period. However, their digital competencies were marginally elaborated, according to the morphogenetic/morphostatic (MM) cycle, as they had no choice but to use edtech to ensure that learning and teaching happened in the T3-T4 period. A marginal elaboration implied "limited expansion" (Archer, 2003, p. 148) since there were small shifts in agents' digital competencies. The aim of these small *shifts* was to form projects and practices when there were concerns, also viewed as a '*modus vivendi'* (refer to Section 2.4.3). Even so, to transform their digital competencies, many participants sought out some form of mentorship, whether through small, siloed groups or by imposing themselves upon peers for assistance. In line with Archer (2003, 2012), this implied a move to corporate agency for the mentees while the mentors transitioned to being social actors. It appeared that academic work involved much complexity, more so within a research-intensive context.

(b) The academic within a research-intensive context

The research-intensive context significantly influenced participants' enactment of CDP practices and knowledge and was dependent on the activation of academic agency. If CDP practices were not valued in this study, then there had to be something else that was valued. The interviews revealed that due to the narrative of the research-intensive context, all participants except for executive leadership (who believed that policies gave equal priority to pedagogy), believed that research was valued by leadership more highly than L&T. Research cannot operate on its own, however; it has to be based on informing pedagogic practice. However, the perception of academics was that research alone was valued by the institution. The academic project is, however, a triad, comprising L&T, research and academic citizenship. That is, perhaps, where the misinterpretation has led to the skewed practice of being influenced by the views of others around research, since reality operated at a different level. From an academic perspective, the focus on research meant that academics had to engage in reflection and not allow themselves to be influenced by the pressure to publish at the expense of learning and teaching. A critical pedagogue deconstructs typical world views about teaching and research, which requires a reflexive stance. It was possible that the notion of research being valued above learning and teaching was a cultural constraint

generated by the research-intensive university's discursive and covert construct of the acceptable practice (the unwritten rules) of research being highly prized.

CR theory explained that agency leads to structural and cultural elaboration and itself becomes elaborated in the process, as a double morphogenesis (Archer, 1995). During the T2-T3 period, structure and culture were mediated by academics through inner subjective dialogues with the self, translating to agential reflexivity becoming the mediator between the objective SEPs and CEPs and the agent's social action. In this study, specifically around the value of research over teaching, participants continued to believe that if their research outputs were low due to a teaching focus this would limit their identity, irrespective of the teaching modality, which consequently impeded their agency. Concomitantly, their identity manifested in different ways due to prior projects and their understanding of the self.

During the first step into academia, the academic's sense of self is crucial since it establishes the academic as a primary agent capable of concerns aligned to learning and teaching and research processes at the empirical, actual, and real levels. To become a reflexive social agent, the sense of self is important because it prevents the agent from being cloistered in a social identity that could trap them in the various constructions of what being an academic in a research-intensive context means (Archer, 2003). For academics who enter HE as disciplinary experts, engaging the personal identity and social identity in academia is crucial to how they establish boundaries between the self and the impinging 'other' within the higher education context. Academics can be coaxed to align to existing uncritical positions if they do not establish this engagement which could lead to cultural morphostasis or reproduction which does not serve CDP practices well. The online identity of most of the participants in this study was related to how they viewed and utilised edtech.

Generally, academic identity can shift from didactic practitioner to interactive facilitator in the online space. In this study, most participants alluded to holding multiple identities at various times. They may have held a Master's research degree but have had little preparation for their teaching roles. Additionally, CPL may be inadequate to develop academics' competence for L&T in HE since pedagogic practices must be adapted to the subject matter for specific contexts. This aspect leads to the narrative of not being professionalised as teachers which was both an enabler and constraint in the ways HE academics are viewed and view themselves, since they possessed tacit knowledge around what being an academic meant. It appears that they are discursively constructed as first specialists and then academics in a transitional stage, making them concomitantly robust yet vulnerable with knowledge in their specific areas. This conceptualisation is an identity in itself; therefore, academics in HS have difficulty in transitioning the conceptual and contextual shifts in pedagogics practice. The additional requirement of engaging in the online space adds another level of complexity to their identity. As a result, academics in health science need to constantly re-establish their identities through a process of socialisation in line with learning and teaching practices and what their role entails. However, it is still significant that much of the academic identity is dependent on how much an academic publishes which is within the online space and can either enable or constrain their agency.

(c) Inadequate participation in CPL programmes that focus on pedagogic practice

The analysis demonstrated that insufficient grounding and pedagogic content knowledge meant that academics did not possess a firm pedagogic foundation on which to build. One way to strengthen pedagogic practices was

for academics to attend CPL programmes at faculty offices or the CLTD. There is a reliance on CPL programmes to ensure the success of the academic project since CPL programmes were designed to promote and model social justice initiatives through the enactment of CDP practices within the context of SA. The academic disposition encompasses actions and beliefs; this implies that, in light of the university's vision of keeping abreast of global trends, academics engaging in research-informed practices should innovate effectively in their use of edtech in their L&T practice to stay on a par with academics internationally.

The document analysis revealed that during the T1-T2 and early T2-T3 periods, the CLTD did not cope with its dual mandate of supporting both academic and support staff, which negatively influenced its operating model. During the same periods, CPL programmes, in particular, those programmes that involved the use of edtech or pedagogic practices were very poorly attended; this changed in the T3-T4 period when the Covid-19 pandemic forced the integration of edtech.

By isolating structurally emergent properties (SEPs) and culturally emergent properties (CEPs), it was possible to analyse how they shaped the actions of academics and how those actions maintained or elaborated academics' initial beliefs. As agents, they followed a trajectory beginning with their concerns. Since academics were not forced (but were encouraged) to integrate edtech into learning and teaching during the T1-T2 and T2-T3 periods, they experienced no pressure to attend CPL programmes to augment their skills for blended learning purposes or knowledge of CDP. However, during the T3-T4 period, the conditions brought about by the Covid-19 pandemic triggered a concern about their skills, and it became imperative to address these. This resulted in elaborating a project to address these concerns, which took the form of enrolling in CPL programmes to build their digital pedagogic expertise.

Addressing this concern thus implied a set of accepted practices. According to Archer (2003, p. 6) "An individual's sense of self comes from what really matters to them, what they choose to invest in. Individuals can exercise free will, however there are "degrees of freedom" that are constrained by the social structure". On the one hand, the actions taken by academics in the T3-T4 period implied that they valued pedagogy only when forced to, since the pandemic was the trigger and generative mechanism. On the other hand, it was possible that the strategies that were expected of academics to attain their goals did not effectively support their growth. Perhaps the higher education system was operating on a flawed assumption about how health science academics learn and the factors that motivated them in the given context.

A search for alternate views on academics' reasons for attending or not attending CPL programmes implied acknowledging that the nature of the academic project appears to be changing. The alternative view is that, as a CPL support structure in the T1-T2 and early T2-T3 period, the CLTD did not address the professional development needs of academics effectively, nor did it tailor its support to assist academics with navigating the tension between their roles as researchers and lecturers. The findings revealed that the research agenda dominated and received more funding, while L&T appeared to be given less value by the institution. In the late T2-T3 period, the programmes that the CLTD put into play to enhance the scholarly academic into a connected role proved vital since it incorporated the academic 'self', ontology and 'being'. Programmes were created to allow academics to exercise and intersect their agency to self-direct their professional development. This was evidenced in the interview responses, where many participants stated that the CLTD became a support structure for them in their journey toward critical practice and digital competence because the actions of some CLTD staff prompted academics to augment their CDP knowledge and practice.

(d) Exercising academic agency in relation to CDP knowledge and practices

The concept of academic agency is continuously achieved under distinct situations and is woven throughout this thematic analysis through the interplay of contextual elements like structure, resources and culture, and the different qualities that academics brought to the circumstances. Agents may realise their agency in different ways at different times and spaces (Archer, 2000). Academic agency can change because it is dependent on the conditions, encounters and events in agents' lives (Archer, 2000). Academic agency in HE is a crucial construct that enables responsiveness and explanatory power for responses, especially in digitally transformed environments.

Across the three periods in this study, participants could be seen to fall into two groups on the basis of their responses. The first, and smaller, group through some foresight, constituted the early adopters in terms of the integration of edtech into pedagogic practices. These academics took it upon themselves, exercising high levels of agency while intersecting it with digital agency, to engage with the use of edtech in teaching, whether out of personal or professional interest. This group, characterised by a willingness to innovate, became mentors to their peers who sought them out to better understand the use of edtech in L&T. The second, and larger, group of participants were the academics who resisted the integration of edtech into L&T, to some extent, but worked with what the system placed forward, accordingly, hoping to get 'back to normal'. Between the two groups, the early adopters were the 'actors' who followed trajectories that started with their 'concerns' or reflexive goods that they placed much emphasis on. Over time, their concerns elaborated into a 'project' that eventually solidified as established practices.

These actors, although few in number, stood out in chapters five and six because of their sense of self and investment in what really mattered to them. Participants six and twelve, as early adopters, were seen to act as academic champions due to the high levels of agency they had maintained amidst various challenges. Participant twenty-two, from the T1-T2 period, appeared to be determined to integrate edtech into her practice; she succeeded in doing so by securing funding to establish her project. According to Archer (2003, p. 6), even though free will is exercised by agents, there are "degrees of freedom that are constrained by social structure". However, when this specific participant was questioned regarding the constraints she had experienced, she stated that she had found no constraints inhibiting her L&T practices which did not include CDP practices. An alternate view may be that, while contextualised agency enabled this participant to respond to opportunities and challenges triggered by the context, this was not done with a critical awareness that enabled relevant engagement with systemic features, like the lived experiences of students. Instead, they defaulted to the signature pedagogy; of which Shulman (2005) speaks; that was dominant in their field.

Mentoring came about as early adopters were asked to assist their colleagues with learning how to integrate edtech into L&T practices. Mentoring, as a construct, was found at least six times in the case studies which relayed some hidden aspect or unwritten rule about the complexity of being joint staff with a competing mandate while also exercising agency. Mentorship stood out in relation to pedagogic beliefs and values as it could mean that joint academics, although aware of their own trajectories as students, experienced challenge in aligning creativity to shape their pedagogical practices resulting in traditional rather than creative pedagogic practices. This served as a constraint to their development of CDP practices. While mentorship served as an enablement to the mentees, it was also a constraint to the mentor since it took up time that the mentor would have spent with students, hence reducing the amount of time they themselves spent integrating edtech into learning and teaching.

The concept of mentoring in relation to academic agency has a deeper significance in this study as it mediated a certain path for some agents (Participants six, twelve and twenty-two) who attempted to establish agency within their contexts (refer to Section 2.4.3 for a visualisation of the academic life path). Participants six and eleven forged closer relationships with corporate agents from the CLTD and faculty who supported them in shaping their CDP practices. Both Participants six and eleven were invited to seminars, meetings and conferences to present the concerns that they achieved while enacting CDP practices in L&T.

In relation to the main research question around CDP knowledge and practice, an alternate view in HS education could be that students were being educated to become competent doctors, dentists and therapists because a signature pedagogy was being enacted. This implied a disciplinary learning and teaching practice that was understood by students due to its uniqueness, like bedside teaching. This could be a valid pedagogical practice considering that many participants viewed critical pedagogic practice as teaching to heal or save a life, which surfaced a different conceptualisation of critical practice. Employing a completely agentic view of what it means to engage in critical pedagogic practice implies that the other half of the picture; which is learning to participate in and engage within the dominant discourses, practices and structures of society, is lost. Freire (2000) emphasised the two sides of the story that need to be kept in balance through the concept 'dialectic'. This implied that when HS academics conceptualised critical pedagogic practice as teaching to heal or save lives, they were in fact socialising students into the dominant practices of society, which is the other side of the dialectic within the HS education context. In as much as I agree that this is a valid position within context, it does not align to CDP knowledge and practice.

7.6 Revisiting the literature review: dealing with complexity and the notion of critical practice

The search for literature occurred at the inception of this study and the theoretical analytical framework primarily focused on critical realism (Bhaskar, 1978) and social realism (Archer, 1995). The literature demonstrated that globally, and particularly in the Global North; CDP practices and thinking along those lines were being enhanced and maintained (Skerrett, 2017) even during the process of DT. However, the case studies in this research demonstrated that DT was a complex process as visualised in the data sets demonstrating why it was difficult to achieve.

Leaders and practitioners in the HE environment are dealing with increasing complexity. The literature addresses complexity by recognising that most African countries are conscious of the opportunities and the risks of remaining behind in pursuit of DT (Hanna, 2020). As demonstrated in this study, the Janus-faced nature of HE impedes CDP practices in African HE systems because of the digital divide that results in an imbalance in universal access, equity, and equality that limits L&T practices (Zeleza & Okanda, 2021). Africa ranked lowest on technology use and blended L&T practices (Zeleza & Okanda, 2021:09). In terms of digital competence, the literature aligns to the basic digital capability findings in this study. Universities in the Global South use DT as an indicator of success as they compete globally. This tendency, steeped in digital determinism, adds to the view that technology is socio-structurally constructed, further illuminating that technologies were "far from being neutral devices necessitating social change and are always shaped" (Clegg, 2011, p.176).

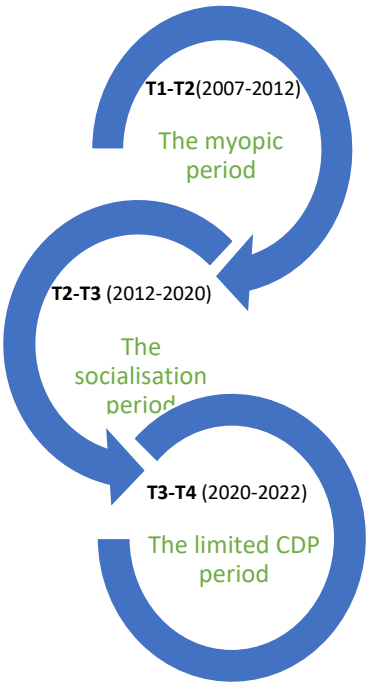
Park (2011, p. 179) is of the view that academic identity in the online space generally transitions from "a didactic purveyor of information to an interactive instructor". This was not found to be true in this study, where the addition of critical engagement to L&T in the online space would have added another level of complexity to the academic identity regardless of academics' levels of digital capabilities. This implied that academics need to constantly re-establish their identities through a process of socialisation (Becher & Trowler, 2001; Clegg, 2008; Henkel, 2000; Trowler & Knight, 2000 in Behari-Leak, 2015) into L&T practices within context and what their role entailed. However, the identity and role of academics in this study were found to be focused on what critical practice meant for them. Since being responsible for the enactment of CDP practices, while signature pedagogies were at play, was not a simple approach due to the social complexity and priority of pedagogic practices within the context. Participants' pedagogic actions were the result of their reflexive deliberations on disciplinary knowledge, pedagogic knowledge and ontological location regarding the complex interplay of structures in their context around pedagogy within the discipline.

The CR framework, in viewing the world as complex, is not just a truth, but also an understanding that reality is systemic and complex. This is what informed social complexity in this study as complexity is a real, incomplete, property of the world. Therefore, the critical realist lens assisted this study in dealing with social complexity by ensuring that structure, culture and agency remained analytically distinct yet separable to allow investigation of the roles that they played in the transformation of each one over time. The data and analysis took me to a simple place in the sense that it was difficult to deal with complex change in the same way that simple change is handled which was not contemplated at the beginning of this study. Given that the kind of change was not just technical, it was human behavioural change and much of the thinking in HE institutions focussed on technology adoption when it needed to focus on transitioning human behaviour, thinking, being and acting to enable the integration of edtech for CDP practices. If complexity theory was employed in concert with the critical realist framework, perhaps a bigger or different outcome would have been achieved from the onset in the analysis and discussion.

7.7 Characterisation of the research periods and chapter summation

While I did not characterise the three periods (T1-T2, T2-T3 and T3-T4) during the study, having concluded the analysis and discussion of the three periods, I now have a broad understanding of their relationship to each other, which enables them to be characterised.

Figure 7.5 *Characterisation of the three periods of this study*



Therefore, as depicted in Figure 7.5, the first period of the institution's history (2007-2012) that was studied is characterised as the 'myopic period', because limited thinking about the future of digitisation prevented academics from grasping the potential of digital reality. The second period (2013 - 2020) is characterised as the 'socialisation period', where academics slowly began to adopt some blended L&T practices, albeit with resistance. The third period (2020-2022) is characterised as the 'limited CDP period' because of academics' growing understanding and learning around the digital reality that had been accelerated by the global Covid-19 pandemic, which had forced a more widespread uptake of digital pedagogies.

This chapter has covered the two broad themes, namely, the complexity of the global-local higher education environment in relation to CDP practices and the complexity of the academic disposition in relation to CDP practices that emerged from the data collected in this study. The theories of critical realism and social realism were employed to understand how health science academics' digital competence and knowledge of CDP practices shaped their pedagogical practice. These theories enabled an examination of the interplay between structure, culture and agency and the way they shaped one another over the duration of this research. Academics, as agents, mediated the structural and cultural enablements and constraints they encountered and selected pedagogic practices to enact within the health science context. The findings suggest that unless health science academics reflexively mediate their beliefs, abilities and subjective knowledge with reference to the objective conditions within which they operate, it will be difficult for them to enact CDP practices. The following, and concluding chapter explains the theoretical and practical implications of this study, summarises how the research questions were addressed, how trustworthiness was achieved and discusses the contribution made by this study to research by presenting a set of propositions.

Chapter 8 Theorising CDP, scholarly contribution, and conclusion

8.1 Introduction

The intention of this research was to develop an understanding of the practice of critical digital pedagogy (CDP) at universities using multiple case studies from health sciences (HS) education. The research investigated how academics' digital competence and knowledge of CDP shaped their pedagogical practice. The study found that academic agency (through reflexive and reflective practice) is a generative mechanism within university structures and cultures. Therefore, CDP cannot be viewed merely as a set of best practices or tools. To enact CDP, academic agency needs to be intersected with digital agency while considering transformative foresight. The term 'foresight' aligns with progressive thinking on all strata even though the scope of this study focused only on CDP practices. I view 'transformative foresight' as a knowledge-creation approach and conceptualise it as not only relating to the future but, rather, how thinking about the future can enhance CDP knowledge and practice. This concluding chapter focuses on what was learned in this study and the theoretical connections that were made that lead to the theorising of two crucial propositions which represent my scholarly contribution:

- Proposition 1: Due to digital transformation, higher education systems need to be critically reframed
- Proposition 2: As an essential element of this critical reframing of HE, transformative foresight needs to be advanced

The chapter concludes with a discussion of the implications for policy and practice, methodological issues around trustworthiness that focus on reliability and validity, and important implications for my research practice and future research arising from this study. To address the main research question, critical realism (CR) and social realism (SR) were employed as the study's theoretical analytical framework for studying the phenomenon over three distinct periods (T1-T2, T2-T3 and T3-T4) in the institution's history and characterised in section 7.7. Rich data produced at the studies' deep (real) level addressed each of the sub-questions that served the main research question. For ease of reference, Table 8.1 provides a list of the acronyms used in this chapter.

Table 8.1 *List of acronyms employed in Chapter 8*

BL	Blended learning	CPL	Continuous professional learning	HS	Health science
CDP	Critical digital pedagogy	CR	Critical realism	L&T	Learning and teaching
CP	Critical pedagogy	FHS	Faculty of Health Science	SR	Social realism
ERT	Emergency remote teaching				

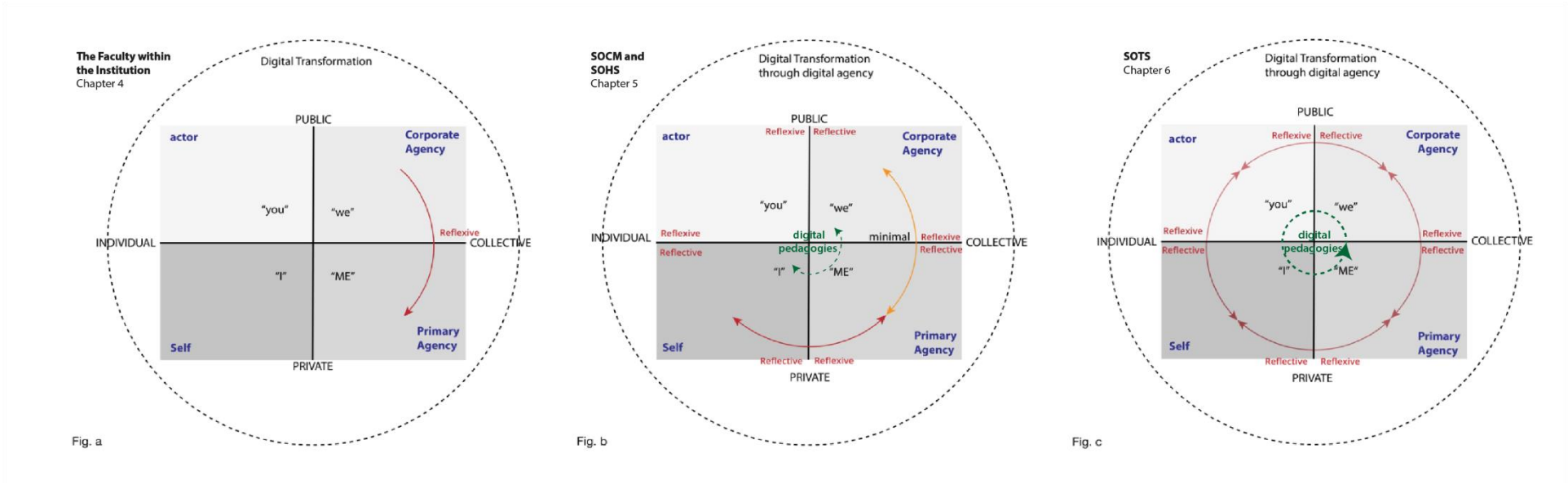
8.2 What was learned about CDP?

Values and beliefs linked to the reflexive and reflective practices of participants appeared as the 'golden thread' woven through the study (refer to Figure 7.4 for more detail). Addressing the main research question, the form

of agential mediation to which participants were exposed (depicted in Figure 8.1) explained why some participants in the same social structures and culture enacted CDP practices, while others did not. Participants mediated the structural and cultural enablements of CP through their disciplinary knowledge and academic agency. The same was true of structural and cultural constraints. To enact CDP practice, participants needed to connect the digital reality to knowledge work and epistemic practice. In the process, academic agency and digital agency[21] would intersect. This intersection does not translate to accepting digital reality as a predestination. Instead, it implies a complex environment that requires synergy and transformative foresight to engage in a digital knowledge economy. As a generative mechanism, the academic agency was one dimension that enabled academics to adapt to a specific situation. Intersecting digital agency with academic agency allowed academics to be more adaptive to complex environments. Through this intersection, agency became more complex, while also more robust to engage with digital reality.

[21] Academic agency focuses on identifying one's own values, beliefs, and belief in one's ability, while discerning a course of action for various L&T situations. Digital agency focuses on the ability to maintain competence, confidence, and accountability in the digital space, by adapting and discerning what would be useful for CDP practice.

Figure 8.1 *The stages through which participants' agency developed during the period of digital transformation*



a) Participants focused mainly on the **digital transformation of structures** and not on academic, or digital, agency.

b) Most participants remained **primary agents,** except for a few who intersected academic agency with digital agency and transitioned to become corporate agents.

c) Participants transitioned to **corporate agency** (due to the influence of an early adopter) and became **social actors** as a result of being socialised during earlier periods through the efforts of an early adopter.

Participants' agency was found to develop during the period of digital transformation in the different institutional groupings as follows (as shown in Figure 8.1):

The faculty within the institution (Figure 8.1a): The university, as a system, focused more on digital transformation and less on the participants' academic life course since the focus was mainly on primary agency[22] and not on CDP practice. The implication was limited reflective practice by university leadership on how digital transformation affected structures and culture around CDP practice. As a result, the arrow in the diagram points in only one direction.

The SoCM/SoOHS (Figure 8.1b): Most participants remained primary agents; there were only a few exceptions. This was because their academic agency was mediated on a continuum from 'self' to 'primary agent' (shaped by structural and cultural emergent properties ingrained in social contexts) to 'corporate agent' during the socialisation period. The few academics who transitioned to 'corporate agency' (standing as a collective in articulating shared interests) took accountability for their L&T practice in the limited CDP period due to CPL and the short recess in early 2022. The purpose was to contemplate whether the FHS would engage in face-to-face, online, or blended L&T practice. However, a transformed culture was not created except for those few networks. Therefore, the arrow terminated at 'corporate agency', since most participants were joint academics. The journey from 'self' to 'corporate agent' meant that the participant was in continuous circulation as they moved through life in morphogenetic (transformation) or morphostatic (reproduction) patterns. The outcome in the limited CDP period was morphogenesis.

The SoTS (Figure 8.1c): Most participants (due to the presence of an early adopter in all three periods) mediated collective digital agency. Through collaboration and communication from the onset, concerns were actioned and realised by engaging in projects which transitioned into practice. The mediation of corporate agency ensured that there was transformation and not a reproduction of L&T practices. However, this transformation did not align with CDP practice but, rather, with a digitally transformed practice except for a few academics at the SoTS.

In summary, then, the dotted lines in Figure 8.1 signify a porous boundary between digital transformation and agency due to the intersection of academic agency and digital agency. The SoTS, specifically, as a subsystem of the faculty within the broader HE system, continued to use a different LMS to that of the university. This was not congruent with the L&T directive of the university. Employing a different LMS (Moodle) to those used by the rest of the university (Sakai and Canvas) resulted in limited ICT support while challenging a centralised, hierarchical system through resilience and future thinking. This action by the SoTS signified that it was possible to challenge obstacles, construct knowledge, and discover alternate pedagogic practices which, also, could be continually challenged.

8.3 Challenging a pre-existing view

By not employing the standardised LMS at the university and continuing to employ the use of Moodle as the preferred LMS, the actions of the SoTS challenged one pre-existing view: that systems have, for centuries, been

[22] **Primary agency** refers to the actions of academics and what they are capable of doing in their personal capacity within a collective of academics sharing the same life chances. **Corporate agency** refers to groups of academics who are aware of their aim and, in an organised manner, articulate it to themselves and others to achieve their goals.

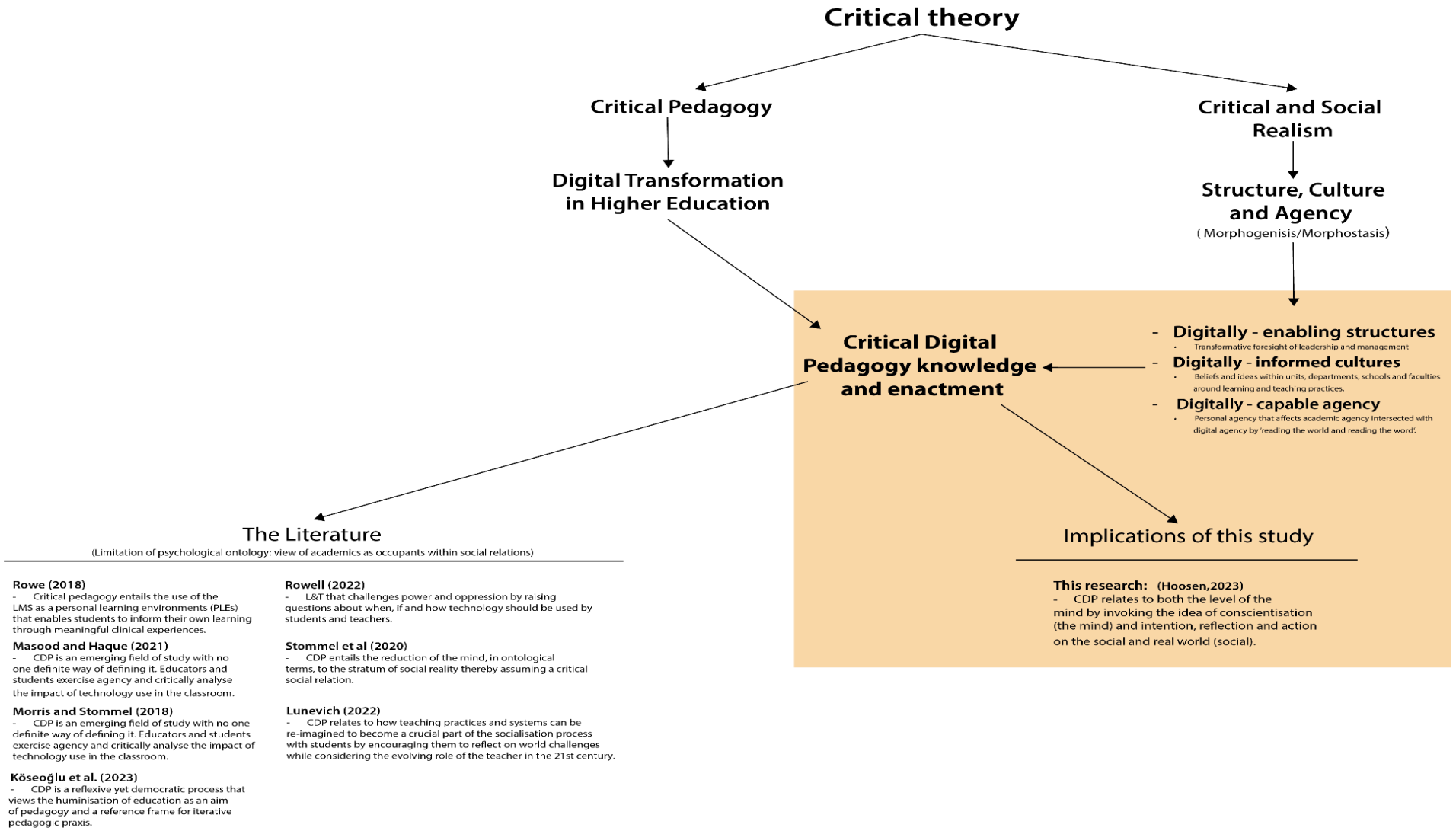
based on centralised, hierarchical power paradigms of information and knowledge management (Cabrera, 2016). Despite the added facilitative pedagogies introduced in recent decades, such as competency-based and problem-based education, the overall modus operandi remains stratified (hierarchically arranged), with the flow of information and practice being unidirectional. In CDP terms, hierarchy, rank, and stratified ordering constitute oppressive systems. This study demonstrated that while CDP knowledge and enactment translated into L&T that focused on community, collaboration, openness to diverse voices, and innovative collaboration across cultural and political boundaries (Stommel et al., 2020); this was only one side of the picture. The new insight and value of this study is that there are two sides to Freire's (1970, 1985) liberation theology that is explained further.

This study signalled that limited CDP knowledge and practice was not only due to epistemology (how academics get to know) but also to ontology (the reality/nature of L&T) and the challenge of dealing with the complexity of digital reality. The two sides related to Freire's liberation theology is that, while one side encapsulates the idea of conscientisation, the other side emphasises the development of critical textual abilities (the theoretical side of reading the world and the word). Stommel et al. (2020) ignore the theoretical side in their account of CDP practices. They dismiss the notion that, historically, education systems in the Global South deprived people of theoretical depth since the majority of the populace did not have access to different forms of knowledge from an early stage (the theoretical part). This new insight is explained in Section 8.4, which focuses on theoretical connections and the crucial dimensions relevant to the enactment of CDP.

8.4 Theoretical connections: crucial dimensions of CDP knowledge and its enactment

CDP is the enactment of CP within a digital context and has implications for social and cognitive aspects. Figure 8.2 is a depiction of how digital transformation is connected to the theory of CP, leading to CDP. Stemming from critical theory, I conceptualised CDP as the embodiment of care through co-creation, collaboration, and access to different forms of knowledge. I located CDP within an adaptive system that provided all stakeholders with the opportunity to liberate themselves from forms of oppression, by creating personal learning networks and educational artefacts. Critical and social realism, as another branch of critical theory, highlighted how academics recognised their situations, identified their interests, and crafted projects due to interests and concerns. This was attained through academics' internal conversations in alignment with their social settings.

Figure 8.2 *An implication for the field of critical digital pedagogy*



Note. authors own

Knowledge of CDP focuses on creating opportunities purposefully: through CDP practice, academics can create opportunities for students to a certain point but have to 'let go' at a point: ultimately, the students decide whether they will or will not engage in the experiences presented to them. As students examine their ideas and discover the deeper questions and problems that reside with them, they can engage through experiences that allow them to share knowledge and shape society while promoting their voices as part of the conversation. The intention is the conscientisation of the existing social setting, with a heightened awareness of the power dynamics between facilitators and participants.

Figure 8.2 also demonstrates that the Morphostatic/Morphogenetic (M/M) framework focussed on how participants reproduced or transformed their life path as academics in HE through available structures, cultures and agency. Morphostasis implies a stable form: where academics reproduce actions through reliance on signature pedagogies from previous cultures and structures. Morphogenesis implies a change in form: where academics transform and elaborate their L&T practices through digital agency, thereby transforming them into CDP practices. This framework was useful in explaining how and why transformation occurred or was reproduced in L&T practices. The framework remains useful when making sense of knowledge in a digital reality. Hence, *three crucial dimensions of CDP knowledge and enactment* were made visible through this study's data and theoretical analytical framework, namely digitally-enabling structures, digitally-informed cultures and digitally-capable agency.

Dimension one is the *digitally-enabling structures of CDP knowledge and enactment* which means that, as academics focus on developing mindsets for practising in a digital knowledge economy, university leadership and management are important structures that organise relationships in the HE context. Hence, leadership should not forget who the academics are and what they were supposed to acquire to advance CDP practice in a university undergoing digital transformation. Even though universities possess working solutions, digitising HE is incremental, and it is difficult to achieve total digital transformation because the university follows separate routes. While leadership follows the edtech solutions route, like providing the LMS, digital spaces and systems, the academics within the system use structures 'as is' without reframing how these structures function in their pedagogic practice; which is usually by a small group of academics, in a decentralised way. There are bound to be negative consequences because these separate routes remain fragmented. The challenge is that working in silos hinders epistemic innovation of new knowledge forms (like CDP knowledge) because it resembles established cultures of pedagogic practice. One approach to augment CDP knowledge and enactment would be to employ foresight (by aligning all HE structures top-down and bottom-up) in managing the consequences of edtech in a digitally transformed institution. This move would incorporate all facets of the HE system implying a re-framing of the system.

While the digital transformation of HE broadly encompasses infrastructural and other changes, it also aligns with behavioural change. This leads to dimension two which is the *digitally-informed cultures of CDP knowledge and enactment* or norms, practices and interactions that are aligned with the use of edtech in L&T. CDP knowledge and enactment are difficult to attain since academics remain culturally conditioned through previous discourse within the disciplines in which they practice. Prior conditioning can be resilient to attaining CDP knowledge and transitioning to CDP practices. Subsequently, prior conditioning affects how academics exercise their personal emergent properties through subscribing to a specific culture. If previous cultures entailed limited discourse around CDP knowledge and practices, then current culture would refute discourse around CDP knowledge and enactment because academics protect personal projects. However, exercising agency activates structure and

culture. So, within the context of digital transformation, augmenting agency through digitally-informed cultures could result in CDP knowledge and practice. Therefore, agency is foregrounded while structure and culture is in the background.

Dimension three is the *digitally-capable agency in CDP knowledge and enactment* which means that to enact CDP, digital agency needs to intersect with academic agency. In this study, their academic agency improved when participants enacted digital agency due to macro-environmental challenges. The power of this intersection is that access to different forms of knowledge provides an impetus for academics to liberate themselves further. Within the context of CDP practice, my argument is that if CP makes space for the digital, then there should be a reciprocal understanding by academics that contemporary challenges will emerge through the integration of the digital in L&T. What matters is how academic agency is augmented to deal with the challenges that digital reality surfaces. Intersecting academic agency with digital agency requires reflexive and reflective practice. The challenge is that, while reflection assists in recognising the need for CDP practice, it is insufficient on its own: embodied action and mindful critique of the world are required. Critical awareness is bi-directional and more than mere reflection, as it requires consistent, sustainable thinking and action in a social and digital L&T reality. Such thinking interrogates academics' interest in social justice and equity while considering digital transformation in L&T. The crucial aspect of the alignment of agency to CDP practice is the academic's ability to discern, through a digital agency, the tools and applications that empower students in their learning. While edtech can be liberating, it can also be disempowering as tools that 'command and control'. Through the mission of the university, the introduction of edtech could thus unfold in ways that uplift or challenge L&T practices.

These three dimensions, on their own, provide a singular notion of L&T as compartmentalised in HE when in fact they mutually reinforce each other in different ways. In this study, the common factor between them is digital transformation within the context of L&T practices.

Freire (1970, 1985) highlighted two aspects of critical pedagogy theory. As depicted in Figure 8.2, on the one hand, the literature reveals the enabling, empowering and democratic forms of pedagogy that open up the dimension of conscientisation at the level of the individual becoming aware of their social conditions and acting in their interests to transform these conditions. On the other hand, there is another dimension to conscientisation that engages the narratives of classical literature around 'reading the world' and 'reading the word' (Freire, 1985) and their interaction. 'Reading the word' manifests in formal education, while 'reading the world' highlights the transformative nature of thinking based on a cognitive dimension of curiosity about occurrences in the world. Freire (1970, 1985) encapsulates both these dimensions which I ascribed to but found limited in the literature by Rowe (2018), Morris and Stommel (2018a), Stommel et al. (2020), Masood and Haque (2021), Lunevich (2022), Rowell (2022) and Köseoğlu et al. (2023) who employ the former dimension. Seemingly, there is emphasis on social transformation but limited emphasis on the cognitive transformation of the individual. Therefore, my view is that the concept of 'critical', in the literature, relates mainly to the level of social relations. Due to the outcomes of this research, I believe that there is a socio-cultural stratum and a psychological cognitive stratum. Both these strata need to be considered as mechanisms that interact with each other to produce the outcomes of CDP practice within a digital reality.

Figure 8.2 also depicts the lead authors who have conceptualised and contextualised the challenges of critical pedagogy in a digital reality (Morris & Stommel, 2018a) and highlight the notion of CDP as an urgent matter for teachers in a Global North context. Their interpretation of 'critical' is different from what Freire (1970; 1985)

ascribed. My view is that the concept of CDP in the Global North is a sanitised (filtered) version of Freire's (1970; 1985) liberation theology. Freire (1970; 1985) adopted a neo-Marxist rhetoric aligned to the radical social dimension of critical pedagogy by intersecting it with the pedagogic transformation of the mind as a critical entity. Freire (1970; 1985) suggested that transforming the mind required a critical understanding of radical texts. For Freire, those radical texts emerge from Marxism and through the liberation theology of the radical Catholicism of South America (in the Global South).

However, Morris and Stommel (2018a) provide a perspective for an audience in the Global North, through an implicit dismissal of the critical Marxist dimension that Freire (1970; 1985) ascribed to. Even though Morris and Stommel (2018a) offer an account of the socio-cultural, their view is limited as they work at a surface level and the notion of CDP that they offer is truncated (half of the picture). Their notion of CDP dismisses the historical identity of Global South education systems that deprived the populace of theoretical depth since a majority of the population did not have access to different forms of knowledge at an early stage.

If CP was a systematic understanding of the classical forms of discourse that dominated society and the dialectic (looking both ways), then L&T practices should be facilitated similarly by looking at both dimensions of CP and not a singular but a unified and pluralistic (collective) vision that permeates the HE system. The implication of a digital reality is that individuals and institutions are limited in their capacity to respond proactively to external change and internal complexity. Therefore, the HE system needs a critical reframing through transformative foresight where all parts within the system work together.

Figure 8.2 shows that there are a few concepts in the field of CDP practice. This study provides an opportunity to nurture criticality as an intellectual pursuit and a social practice in an emerging field within a bounded HE system. Similarly, Alexander et al. (2022) agree that being critically conscious of a determined reality transforms the action, by which individuals become conscious of the digital and social reality. While focusing on mindfulness and digital reality, I believe that technology is changing the nature and capability of the mind in the 21st century. Through innovation, the digital knowledge economy will transform education due to the ability to mentally communicate since the mind is a collection of thoughts made possible by the brain through reflection (Kaku, 2015). This study contributes to the field of CDP by highlighting the need for foresight through an evolutionary mind-set within a HE system.

The small, iterative instances of morphogenesis emerged through a deep study of the CDP practice in a faculty. The findings are not only relevant to the faculty but also are generalisable to the university as an interconnected system in a constant state of flux. Hence, enacting CDP practices heightened the need not only for social and cognitive change, but also the need to adapt or modify the HE system to accommodate new ways of achieving its core purpose of preparing students for the future.

The findings of this research illuminate the need to nurture a critical reframing of HE systems through the transformative foresight of individuals within the system. This requires reframing the traditional stratified (layered) HE model from a unidirectional flow of information to a multi-directional, interdisciplinary approach. In as much as knowledge of CDP and its enactment requires mindfulness, such mindfulness requires sustainability within a system. Reframing, in my view, considers alternate perspectives like considering the nuanced understandings of academic disciplines within which the HE system functions amidst internal and external challenges. I am of the view that certain dimensions of the HE system remain valid like the various departments and units that support the academic project, while others (leadership, management and academic disciplines

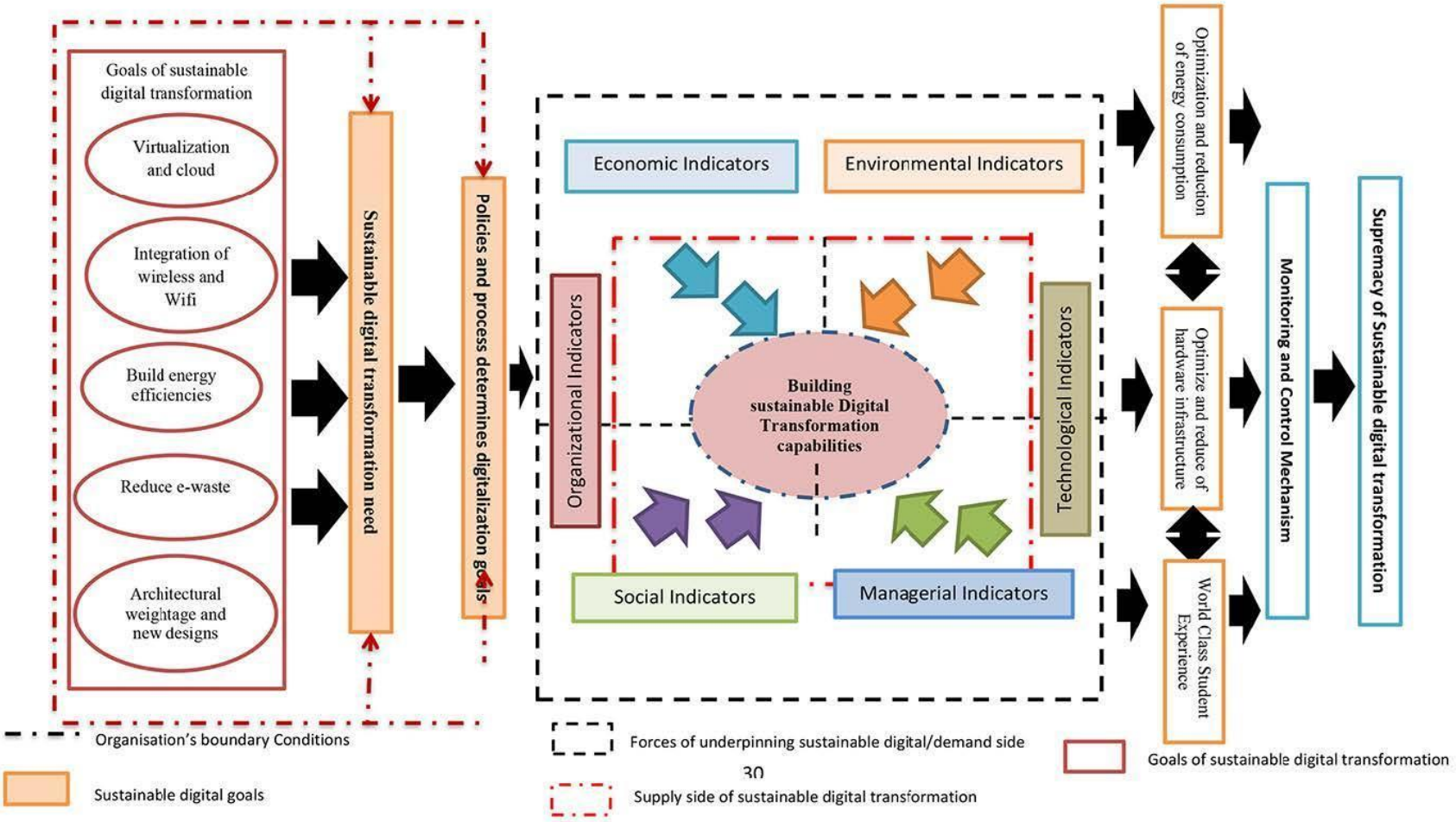
affected by how knowledge penetrates through the system) require transformation; thus, ‘reframing’ and not total ‘change’ is needed. Hence how knowledge is valued for its own sake and of the utilisation of academic thinking in questioning challenging aspects in relation to the HE system and its problems appear not to be part of the cultural system embedded in the HE system.

Accepting new information and forms of knowledge that challenge set ways disrupts the status quo. Change can be difficult to achieve and sustain due to external and internal pressures. The implication is that disruption of beliefs and habits, and the need to take risks, may not be enthusiastically embraced within a layered system, even though there may be a growing, and sometimes powerful, recognition of the need for reframing the HE system. Recognising the complexity of enacting digital transformation in HE systems, the next section engages the importance of transformative foresight in the reframing of critical HE systems as significant to this study.

8.4.1 Theorising CDP and scholarly contribution

As I write this concluding chapter through the lens of a critical pedagogue, I am reminded that the insights that are discussed in Section 8.4 were not directly related to the initial dimensions of this study as set out in the problem, purpose, research questions, and analytical framework. As depicted in Figure 8.4, dominant discourses focus on physical (structural) changes in the HE system through prioritising sustainable digital transformation processes (Mohamed Hashim, Tlemsani, & Matthews, 2022) and less on how digital transformation affects CDP practice. The limited focus on CDP aligns with Chapter 4 and Figure 8.1a of this study, where leadership in the faculty and university focused more on digital transformation (structures) and less on who was affected (agency). The HE model in Figure 8.3 provides insight into how variables in the system are linked to digital integration. This figure (Mohamed Hashim et al., 2022) attempts to reframe HE in the digital era but neglects to consider CDP.

Figure 8.3 *A theoretically sustainable higher education digital transformation model*

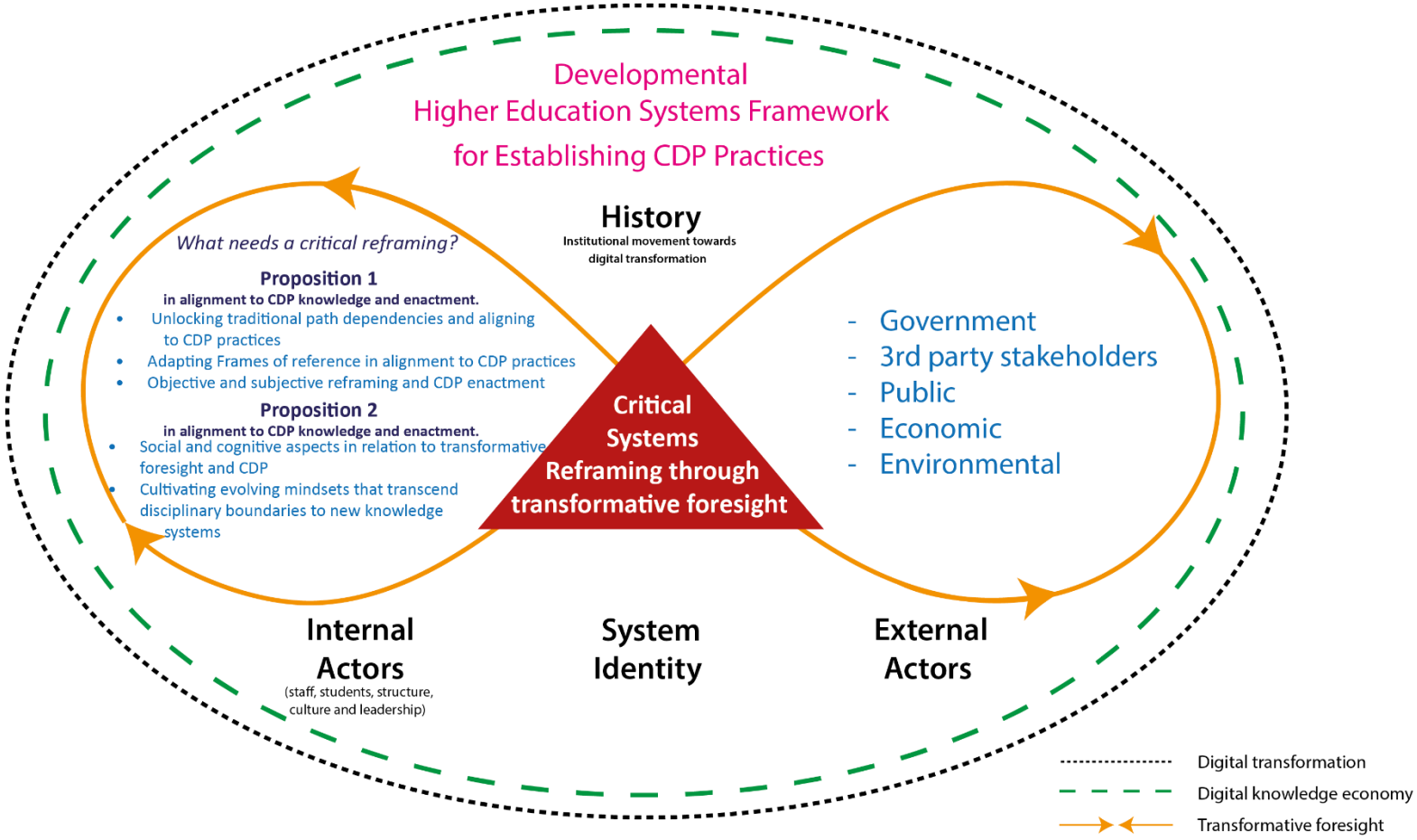


Note. Adapted from Mohamed Hashim et al. (2022)

Figure 8.3 also demonstrates that sustaining HE systems digitally is more of a corporatisation trend that foregrounds digital infrastructure as systemic economic, environmental, and managerial indicators. Furthermore, social indicators occupy a small segment, leading to optimised structures for improved student experiences. While this approach is partially valid, pedagogic practices and the cognitive dimension remain in the background. Within structural complexity, this study's contribution to CDP practice is crucial because L&T practices need to be more inclusive in response to diverse students and the demands of facilitating the L&T of diverse knowledge systems through digital reality. From a CDP perspective, social and the cognitive needs to be addressed as a part of digital transformation in HE and not conceptualised as an externality. This study has demonstrated that to attain a critical reframing at the systems level, and for transformative L&T practices to occur, HE leadership needs to create a shared vision and not one designed in the singular as depicted in Figure 8.4. This shared vision must align with how edtech can best meet the needs of academics and students alike by developing a plan that translates the system's collective vision into action and does not only focus on the process of digital transformation (as in Figure 8.3).

These insights relate to a deeper understanding that academics function in a layered system because the institution is accountable to stakeholders both within its system (students, staff, and structures) and outside of the system (government, educational stakeholders, and the broader public). Hence, the HE system requires a rerouting from the traditional path, as depicted in the framework in Figure 8.4 that this study has contributed. Figure 8.4 also presents a counterpoint, indeed a counter argument to Mohamed Hashim et al. (2022), as it includes critical digital pedagogy at the heart of the framing.

Figure 8.4 *An illustration of the critical reframing of the higher education system, with a specific focus on CDP practices through transformative foresight*



Note. authors own

Figure 8.4 illuminates (through the yellow infinity arrows encased within the dotted lines in green and black) that this layered system is undergoing seismic changes and requires reframing due to internal and external pressures. Subsequently, all other areas within this system need to undergo a critical reframing. I am of the view that L&T is affected the most. This study acknowledges that critical reframing has importance for other layers within the HE system, but these layers fall outside the scope of the study.

The use of the theoretical analytical framework in this research went beyond seeking a surface-level understanding of why academics do not enact CDP. Academics can be transformative individuals because they integrate scholarly reflection and practice in L&T. Those academics who view themselves as transformative intellectuals are recognised through their subscription to CP but struggle to combine beliefs into practice within the current system. The reasons found for the disparity between values and practice were that academics resisted the political and ideological nature of the HE system. It follows that this is related to how they navigate the hierarchy within sub-systems (as argued by Cabrera,2016) and the notion of centralised and hierarchical power paradigms of information and knowledge management. Such notions infiltrate university sub-systems and affect L&T cultures, pedagogic practice, academic agency, and identity. Furthermore, in this study, the push from the external environment toward edtech (in the socialisation period) manifested as the need for digital competence and digital agency which arose in the L&T sub-system. However, this pressure to engage with edtech was only taken seriously in the limited CDP period, when engagement with edtech was enforced in the system.

Even so, being forced to function alongside an inevitable digital reality brought about small incremental changes manifesting in CDP practice. In terms of addressing the main research question, this investigation of CDP as one dimension of the L&T paradigm thus made visible that, within a layered HE system, reform or change requires synergy between its 'parts' and its 'people', because small iterative steps are taken which cumulatively result in bigger changes. In theorising CDP practices within a system, a transformation of L&T practices to attain bigger systemic changes requires critical reframing where its 'people' possess transformative foresight within that layered system (represented in Figure 8.5 by the red triangle). Drawing on the findings, analysis, and discussion of this research, and against the backdrop of the disruptive nature of digital transformation, I put forward two propositions as part of my scholarly contribution (as shown within the internal band in Figure 8.4).

Proposition 1: Critical reframing of higher education systems due to digital transformation

In actualising CDP practice, the layered HE system needs to undergo critical reframing while considering the liberating potential of edtech for those who are most disadvantaged.

As they operate within a context that is growing increasing complex, HE systems are expected to navigate demands that may appear contradictory. The literature review demonstrated that, on the one hand, demands align with the commodification and marketisation of education that has come about through the influence of neoliberal movements (Figure 8.5 external segment). On the other hand, there is a demand for equity, social justice, and inclusion to redress injustices. Within this wider context, academics at all levels in the system deal with complex student needs, constraints, and the enablements offered by digital transformation to support learning in complex times. My understanding is that it is not only the issues facing education that are complex, but that the higher education system, itself, remains complex. HE systems co-exist with other systems (e.g., political, economic) due to their layered nature. These systems can either reproduce inequalities within a wider system or contribute to transformation socially and cognitively. Since CDP practice is a social and cognitive enactment, to facilitate

transformation HE leaders and academics need to act similarly. Such action must account for the extent to which the HE system is locked into a path of dependency shaped by colonial origins, structures, and cultures that need critical reframing.

(a) Unlocking traditional path dependencies and aligning to CDP practices

A systemic capacity of the university to function in a digital knowledge economy has not been developed and no transparent solution exists in terms of the path in which the HE system should respond. My view is that the university, as a type of institution, may eventually disappear, because the form that it has taken and the protocols by which it has operated for such a long time are being superseded by new forms. At no other time has the need to align the university's core purpose to social and macro environment challenges beyond the institution been greater. The potential of HE cannot be properly realised if the core purpose of HE is narrowly defined (Boyer, 1990). While research is a necessity, a renewed commitment to L&T is also crucial in alignment with a digital knowledge economy. HE can no longer continue on the existing practice path based on historical preference and past conditions, where previous pedagogic practices prevail because of limited transformative foresight (which is discussed in Proposition 2). According to (Mladenovici et al., 2022, p. 256), this path involved "academics' conceptions about the subject matter being central to their preferences concerning the adoption of a content-focused or a learning-focused approach to teaching…at a surface level that is undesirable because it involves unreflective studying practices". This study has shown that CDP practices cannot be enacted in a vacuum, outside of the pursuit of social justice ideals, since it is not an esoteric process of transforming the university as depicted in Figure 8.4. It is, rather, a collective process of transformation that happens at different layers simultaneously. This study adds to the discourse on CDP by accounting for, and remediating, the HE system that historically deprived students of theoretical depth. Critically reframing the HE system around CDP values requires collective rethinking and action to transform HE practices, and through critical digital framing contribute to the digital knowledge economy. This study also implies that it is not enough to address the symptoms of concurrent problems: root causes need to be addressed in or to engage in critical systems reframing. Such reframing will address not only the epistemological aspects of HE context, but also the political and ontological aspects.

(b) Adapting frames of reference in alignment to CDP practices

My notion of 'critically reframing' the HE system adds to Mezirow's (2000) 'reference frames', which are structures through which assumptions filter our impressions of making sense and ways in which experiences are interpreted through critical L&T. Each frame consists of two dimensions. Firstly, habits of mind are needed; these are "broad, generalized, orienting predispositions that act as a filter for interpreting the meaning of experience" (Mezirow, 2000, p. 17). These habits are expressed as points of view (the second dimension) that align to "sets of immediate specific expectations, beliefs, feelings, attitudes, and judgments [which] tacitly direct and shape a specific interpretation and…suggest a line of action that we tend to follow automatically unless brought into critical reflection" (Mezirow, 2000, p.18). This study is a stark reminder that habits of mind expressed as points of view can be disrupted when one is forced to critically reflect on the core purpose of HE to prepare students as critically conscientised citizens and graduates. According to Mezirow (2000), transformations manifest through objective or subjective reframing over time. This study conceptualises critical HE systems reframing as small iterative steps that lead to bigger, impactful changes over time.

(c) Objective and subjective reframing and CDP enactment

Critical reframing of the layered HE system begins with how the 'self' views the world and the 'self' differently. Similarly, objective reframing aligns with critical reflection on the assumptions of peers. Subjective reframing is conceptualised as critically reflecting on self-assumptions. What emerged in this study was that, for critical reframing to occur, deep tacit assumptions need to be exposed, expressed, analysed, and readdressed. Critical reframing, in this study, involved different levels of transformation, and each instance resulted in small changes through small reflexive and reflective practices and being socialised in future thinking. This future thinking leads to proposition two.

Proposition 2: Advancing transformative foresight as an essential element in the critical reframing of HE systems

Transformative foresight is required to critically reframe the HE system, which has implications for how a layered HE system relates to its external dimensions within the context of its intertwined internal dimension

Proposition two arises as a result of the change trajectories experienced by faculties in the university through each of the periods of this study and the intransitive[23] reality elaborated through an abstract and concrete approach. These changes were the result of innovation that was determined and implemented due to tensions between an envisioned future and the gravity of the past. The implication is that transformative foresight was engaged in by a constellation of agents within the system. This proposition points to how the location of the university is framed as a contested site due to digital transformation. While transformation involves change; this proposition does not propose total change, but reframing. Due to the political nature of reframing HE systems, these systems are subject to contestation, which adds to the complexity of CDP practices within them.

The trajectories that were identified in the data collected from the cases were viewed by juxtaposing how the external layer (digital transformation) mediated the institutional support frame of a university, which has contextual implications for the institutional reframing of its core purpose: knowledge co-creation through L&T practices. The core purpose of HE leads to preparing students for the future. Not knowing the future is a recurring theme in HE, as the aim is to prepare students for a future that does not exist nor is fully understood. Transformative foresight engages education stakeholders in exploring new ways of building capacity for the critical reframing of the HE system. However, there has been discourse around the theorisation of 'foresight' because some authors believe that there is a limited coherent theoretical base (Hideg, 2007; Marien, 2010; Mermet, Fuller, & van der Helm, 2009). This study contributes to this theoretical base by adding the cognitive domain to the social domain of CDP practice and transformative foresight when critically reframing the HE system.

Without a clear understanding of its future direction, the university is in danger of becoming an institution in 'ruins', which implies that new ways are required to inhabit the university. Efforts to redirect knowledge-production plans effectively should be grounded in a transparent understanding of universities' current institutional reality within the context of a digital knowledge economy. According to Mladenovici et al. (2022, p. 256), "academics should have advanced knowledge regarding the initiation and the guidance of students' learning

[23] Intransitive refers to the domain that exists irrespective of whether we are aware of them or not.

processes". This study established that an evolving mind-set concerning transformative foresight is required for advanced knowledge around how students learn best when edtech is integrated.

(a) Social and cognitive aspects concerning transformative foresight and CDP

Being future-ready appears to be a survival strategy in a digital knowledge economy. Therefore, most studies on foresight focus on developing a toolset, or online step-by-step tools, that are readily available (Jackson, 2013). In this study, readily available toolsets did not lead to CDP practice; it was found that cultural transformation needed to be considered as well. Within the context of CDP practices and cultural transformation, engaging in reflexive and reflective practices account for both the social and cognitive (pedagogic reasoning) alluding to some form of foresight being enacted simultaneously. According to Inayatullah and Sweeney (2021), social and cognitive elements emerge in the future thinking space. This research demonstrated that among participants in the same social structures and culture, some enacted CDP practices and others did not. The implication was that those who enacted CDP practices took their agency to different levels, displaying their ability to create and maintain coherent and functional forward thinking while employing those insights that arose in useful ways within their L&T practices. Perhaps the mind looks for patterns to transform into possibilities. While foresight identifies narratives for the future, critical reframing provides a framework to exercise agency in those futures, implying that a future-thinking mind-set lays the foundation to move beyond disciplinary boundaries to new knowledge systems.

(b) Cultivating evolutionary mind-sets that transcend disciplinary boundaries to new knowledge systems

In HE contexts, transformative foresight signifies an evolutionary mind-set that assesses the role of knowledge in the course of digital transformation. Attaining such a mind-set translates to moving on a continuum from a fixed mind-set to a growth mind-set, leading to an evolutionary mind-set. The evolutionary mind explores assumptions, notions, and methods to focus on new ways of attaining outcomes. Garuba (2015) suggests that certain concepts are used to frame the mind. Following Garuba's notion, Lotz-Sisitka et al. (2015) put forward the concept of 'resilience' in absorbing disruptions to transcend boundaries. This study followed a trajectory of periods and demonstrated the self-preserving property of the HE system that continues to prevail but requires reframing due to certain inherent dimensions that do not align with CDP practices while embracing the digital reality. In this regard, Hadorn et al. (2008, p. 25) argue that "… issues need to be understood and engaged via transdisciplinary perspectives across multiple areas in the system involving multiple actors". However, this study found that mono-disciplinary activities remain dominant in the form of signature pedagogies. Actors within the broader HE system need to learn how to traverse disciplinary boundaries, extend epistemological fields and transcend mono-cultural paths, thereby producing new ways of 'doing and being' within new systems that are socially just. The implication is that disciplinarity can be suspended through a willingness to progress beyond disciplines to co-create knowledge and transition the system. This study established that radical innovations in L&T practices emerged through a few academics acting as corporate agents. These academics intersected academic and digital agency by advancing their pedagogic knowledge to create L&T configurations that aligned with digital pedagogies. Their actions, engaged through an evolutionary mind-set, created windows of opportunity for transitioning pedagogic practices. As a collective, they embodied transformative foresight to critically reframe their sub-system within the broader HE system. One way of cultivating an evolutionary mind-set is being mindful that all knowledge cannot be known, but new knowledge can be attained.

8.5 Practice implications

While digital agency, achieved through the social and cognitive transformation of academics has become a key component of academic agency, it means something for practice since it is what academics need to consider when they enact CDP in practice. I am of the view that, through new knowledge, much depends on the academics' self-efficacy, resilience, and ability to augment academic agency with a digital agency. I wondered how it could be that engaging in CP was a challenge because HS academics teach to heal and save lives demonstrating patient-centred and not student-centered teaching. This implied that L&T practices were constantly revived through an existing reproductive culture. This was true not only in the FHS, but in the other faculties, as well.

My argument is that, in the health science environment, L&T is not patient-centred but, through co-creating while considering the lived experience of students, it becomes learning-centred for both the student and the facilitator of learning. Signature pedagogies, in my view, do not emerge from 'nothing' since they require innovation and foresight as well. In this study, it appeared that academics did not recognise that a signature pedagogy arose as a result of innovation. This lack of insight signified that academics undermined their potential to think about alternate L&T practices, like CP practice, when integrating edtech. Edtech would have no value if academics could not explore how to translate the current into the future. I believe that structure and culture eroded academic agency since, within structures, it was the academic who made choices founded on the justifications that they considered relevant.

A balanced view of agency does not assume an individualistic notion based on autonomy and reciprocal responses to the environment. Instead, it points to academics (individually and collectively) exercising their agency to employ their personal abilities to think and act about the future of the HE system (digital realities) where courses of action arise. The changing dynamics around knowledge creation and sharing are at the core of what is steering HE. In as much as digital transformation requires this refocus, it is not only due to the digital reality but, rather, that this reality is beginning to place existing knowledge processes in flux. And what is done with knowledge determines the form of HE systems needed. Academics looking at L&T practices with the old lens reproduce them, rather than elaborating or transforming. How they choose to transform agency through foresight amidst an unknown future with complexity thus remains crucial.

8.6 Policy implications

The study's contribution to policy focuses on stakeholder arrangements that need to be transformed through the drafting of new internal policies, as the Memorandum of Agreement (MoA), a second-order emergent, offered little to transform the conditions for the recruitment of joint staff (professional staff who are jointly appointed on academic conditions of service by the university and national departments). Moreover, joint staff function in both academia and service delivery contexts and are crucial in both contexts. An investment in policy, as an effective structure that recognises the varying positions of disciplinary experts, would benefit both the country (as a foundation for shared responsibilities especially to marginalised communities) and its HE institutions (as a mechanism to spell out the specific conditions of service and accountability challenges). However, the existence of a policy should not be confused with compliance to it, which depends not only on the prevailing culture but also on reflexivity forms. Academics support policy if it aligns with their concerns and interests. Balancing

between two competing mandates is a concern because governing the amount of time professionals in public service devote to service delivery and university L&T duties remain complex and unresolved. This study demonstrated this complexity and tension; therefore, a clear guiding policy for joint academics could provide useful direction.

8.7 Significance of this study

This study is significant for several reasons. Through its focus on CDP knowledge and practice, the research highlights that oppressive forces like neo-liberalism and capitalism interfere with the HE system hence, L&T in contradictory ways. It is this pragmatic contribution that this study makes, in terms of critical viewpoints and alternative perspectives from the deep levels of the HE system and integrating edtech in L&T practices. This study contributes to the literature by showing how CR and SR lenses shed light on academics' CDP knowledge and practices through reflexive and reflective practices on L&T matters. The study also reveals links between CP practices and edtech at various levels (empirical, actual and real) and provides a deep analysis of these. Of significance, is that this research, through CR/SR methodology, analytical dualism (theoretical separation) and a stratified ontology (looking at various layers within the HE system) firstly focused on the parts individually and the people individually, even though they do not act separately and then placed them together. This move was to understand each one's distinct properties and their interplay. Doing so brought about emergence from the deep real levels of the HE system to the empirical level. Coupled with the intersection of academic agency and digital agency, I argued that an augmented agency is conditioned. This conditioning means that some academics accord themselves powers (knowledge) through their internal conversations and visions on alternate L&T practices while others align with the ongoing vision of leadership within the HE system. This study serves as a reminder that because HE systems operate broadly at the surface level, L&T practices at deeper levels are affected by decisions made at surface levels.

8.8 How trustworthiness was achieved: Reliability, validity, and methodology

A layered ontology is a crucial aspect of CR and SR aligned methodologies. In this study, the aim of the methodology was not to examine regularities at the events level but to reveal (emergence) thereby providing an account of the mechanisms that create events. In using the emergence, interplay, and outcome approach (M/M) through analytical dualism, the methodological distinctness between the explanatory potential and ontological robustness of the CR and SR framework was upheld. Patton (2002) asserts, that in qualitative studies, credibility is dependent on the researcher's effort and skill as the 'research instrument', and on the richness of data that is augmented by the triangulation of instruments. In this study, by identifying mechanisms (without a deterministic stance), regularities were also identified, which added to the study's credibility.

Additionally, the Atlas.ti qualitative data analysis software programme assisted in illustrating links between data sources through a network diagram, as was shown in Figure 7.4. Hence, data linking to categories demonstrated a logical connection to a specific category providing multifaceted rigour drawn from different data sources. Employing multiple qualitative methods (interviews over a period, surveys, course reviews, and document analysis) guaranteed a triangulated approach to the study that could be transferred and generalised to other settings

(see Hoosen, 2022). The need for dependability, and to account for changing contexts within which the research occurred, rested on the researcher. Dependability was accounted for when the reader was sensitised to this study's T3-T4 period (2020 to 2022) due to the global pandemic and the need for pedagogic practices to move fully online. The research described how the pandemic affected the research approach.

Chapter 1 described the conceptualisation of this study through a sketch of the context, the theoretical analytical framework, and the design and methodology. I explicitly identified my biases as an educational developer, lecturer, and researcher. In this way, the reader can establish the location of this research and the motivation behind it. I focused on understanding how HS academics' digital competence and knowledge of critical digital pedagogies shaped their practice. To ensure validity and reliability, in Chapter 2, I provided the theoretical underpinning and assumptions that located this study in the broader literature around pedagogical perspectives within the HE landscape specifically, located in an FHS. I raised arguments that established the credibility of the research findings, and I demonstrated how the theoretical lens employed with the CR methodological framework intersected and enhanced this study's logic.

Chapter 3 presented my strategy to collect data to address the research sub-questions and the main question: *how academics' digital competence and knowledge of critical digital pedagogies shaped pedagogical practice*? The use of multiple research instruments further strengthened the validity and credibility of this research. I also received feedback from the eLearning Africa conference, in late 2019, on the MPRA, where I presented a poster to enhance the confirmability of the course review process. This feedback added to the study's validity. An explicit data collection and analysis procedure, which included inductive and counter-inductive reasoning processes, was engaged in and the processes were laid out in detail in chapter three. These processes aligned with transparency as "the reader can understand and is informed of the processes by which the interpretation made is reached" (Martin, 2018, p. 248). These processes were discussed further in Chapter 7, where I provided the reader with continuity and visualisations of the data analysis (employing Atlas.ti for rigorous data analysis) to make the process explicit. Chapters 4, 5 and 6 presented the data, which were validated by participants. Chapter 7 provided an analytical discussion of the findings around implications for policy, practice, and research which were explicated in this chapter.

8.9 My research practice

During this research, I focused on separating my role as a practitioner from my role as a researcher, due to their intersections with each other and my assumptions about what CDP practice entails. This affected my positioning as a critical pedagogue (being student-centred and, through co-creation, becoming learning-centred) which required reflexive and reflective practice, which aligns with Guba & Lincoln (1994) on critically reflecting as a researcher. I began the study with a specific understanding of CDP practice as co-creating and accounting for the lived experiences of students in L&T practices. I soon realised that my understanding was inadequate because the context and priorities of the HS discipline held moral value since the focus was on teaching to heal and save lives. The arrival of the Covid-19 pandemic in 2020 (during part of the period of this study), reflected the importance and immediacy of HS education to society, in terms of healing and saving lives, which highlighted the moral aspect of teaching as an HS educator. I embarked on securing research and practice funding through the University Capacity Development Grant (UCDG) Project to further my aim to enact CDP practice across the various faculties

of the university. I intended to remind academics of the ontological (digital reality) aspects that require CDP as one way of a balanced approach to L&T. I am at a point where my PhD study has allowed me to further my philosophy on CDP practice.

8.10 Theoretical insights and future research

The research on CDP practices in the Global south is limited, and the application and implementation of CDP remains open to academic interpretation. While this openness implies freedom to enact critical conscientisation, it also implies that little guidance for future practice exists. New insights that that this study proposes contributes to understanding the complexity of pedagogic practice within the HE system. No singular theory can explain such a complex field. Originality in this study, based on Cryer's (2006) criteria were found in my attempt at:

- Working across fields (innovation, knowledge of digital transformation with the field of pedagogy in HE L&T).
- Exploring the unexpected as in pedagogic knowledge and its links to disciplinary knowledge, knowledge of digital transformation in L&T practices and how signature pedagogies can embody CDP practices within the context of a developing digital knowledge economy. This led to the notion of critical systems reframing through transformative foresight.
- Originality as ‘potential publishing’ of HE systems reframing through transformative foresight
- The data relevant to digital agency and digital transformation and its visualisation in this study were original.
- There has been originality in context and place in alignment to the South African context

In alignment to further research, complexity theory is one recommendation for future research because CT can be used to view theory through a different lens. As pedagogic forms are ideological, further research could consider how ideology can be employed to challenge oppressive structures and bring in a change in L&T practices. One consideration with CDP practice is that it may be radical; therefore, academics need to be cautious about exposing students to practices that could undermine the effectiveness of L&T. Problematising the risks that may arise with CDP practice could lay the foundation for valuable research.

Research could also investigate the transformation of students’ perspectives as a result of CDP practices through a longitudinal study. Employing the SR approach makes it possible to examine agency (people) and structure and culture (parts) separately to explore their roles in the agents transitioning over a period of time. Since the 'people' and the 'parts' also engage in communicative reflexivity, further research could focus on distinct sets of structural, cultural, and agential dynamics in a digitally transformed L&T environment. Also, on the topic of reflexive practice, research is needed to look at ways that could improve and sustain reflexive practice, especially in a transitional field. Another possible research direction could be on how academics, through signature pedagogies, engage in CDP practice while handling the challenge of sustaining a community of inquiry in L&T practice. To this end, Agherdien and Petersen (2016) contend that a Cultural Historical Activity Theory (CHAT) lens is ideal to facilitate the identification of tensions or challenges, which in turn facilitates transformation of being (identity) and practices (culture of doing).

From a realist methodological standpoint, while the methodology remains open to common research methods, there was insufficient guidance about particular methodological considerations. This refers specifically to in-depth interviews as a preferred way of collecting data while addressing ontological and epistemological nuances. As an emergent concern, the scope is provided for further research on realist inquiry methodology. Finally, upon the inception of this study, there was not much research on CDP in the African context, however, as recent as January 2023, there is a start of some research around CDP and indigenous knowledges in the Global South (Köseoğlu et al., 2023). Further research on this topic could focus on intersecting indigenous knowledge systems and CDP within the context of epistemic innovation.

8.11 Conclusion

This study is timely for two reasons. First, the macro events of the #FeesMustFall protests in 2015 and second, the Covid-19 pandemic in 2020 illuminated the importance of digital transformation in HE with the reciprocal need for more progressive L&T practices that engage with students' lived experiences (accessibility, equality, and equity).

I chose to undertake this doctoral journey for both personal and professional reasons. I was curious to investigate how the transformative potential of technology and digital transformation could be realised through a pedagogy of care, whereby online L&T functioned as a space of democratic participation in HE. My foray into the field was naïve, as I had assumed CDP practice was widespread. I learned very quickly about the complexity and 'wicked problems' associated with the integration of technology in L&T. Using the lenses of CR and SR philosophy gave me a fresh 'pair of eyes' which enabled my journey as a realist from my ontological stance. SR philosophy and the morphogenetic approach helped me explain (and focus on) why changes happened or not. This allowed me to move beyond the data and explore how and why most academics do not enact CDP practices. SR philosophy also allowed me to characterise the three periods as I viewed their emergence through the research findings.

The summary of findings in Chapter seven demonstrated how the research questions were addressed. The discussion focused on two broad structures. These structures are related to the complexity of the global-local HE environment and the complexity and uneasiness of the academic disposition concerning CDP practices. This research illuminated that agency was not a construct that stood in a silo but rather through intersecting it, underpinned by values and beliefs in a collective.

The CR and SR accounts reinforced the dialectical (two-way) relationship of agency with structure and culture at universities. Structure and culture erode agency when limited shared value systems prevail concerning CDP practice. This study also highlighted that three crucial dimensions of CDP knowledge and enactment emerged, namely digitally-enabling structures, digitally-informed cultures and digitally-capable agency. Academics, as objective and causally effective agents, action their choices based on the culture and their experience within the academic context. Eventually, how they exercise their agency depends on their use of personal emergent powers (PEPs) in alignment with their context (SEPs and CEPs). If CDP practice is highly valued as both a singularity and plurality, then the culture of L&T would embrace a necessary progressiveness where academics (through a digital agency) enact critical practice.

Concomitantly, the study highlighted the complexity of pedagogic practice and the identity of disciplinary specialists as academics in HE contexts. This contextual discontinuity between an idealised past and complex, yet ideological, present means that practice in a HE context is in a continuous state of tension and struggle not just for leadership, management, and social actors, but also for academics, who work at the interface of concerns and context. By examining the actions (through reflexive and reflective practice) of academics and their reasons (external conversations) for these actions, I understood, albeit in a questioning manner, how and why they mediated their contexts or adopted projects and practices to serve themselves and their students better. Academics are imbued with a specific way of 'being' through their disciplinary knowledge by the way that L&T is structured and enacted and how those dynamics allowed them to reflect on decisions about the form of pedagogy that they choose to enact.

My argument is that knowledge and enactment of CDP practice requires quiet moments for academics to spark innovation as was observed in the limited CDP period in this study. Innovation requires creativity and transformative foresight (the mind) because it involves looking at what occurred in the past and trying new approaches to do it better by creating new experiences in the future for students that take their lived experiences into consideration. Hence, critical systems reframing is not only about the social and the cognitive but also how HE systems critically reframe through transformative foresight. The implication is that, within any L&T environment, chaos and order can exist simultaneously. What is crucial is a reorientation that involve deep reflexive and reflective practices that embody the system.

Reflecting on this study and my established L&T practices, I have realised that my ontological perspective mirrored my own education in my discipline. I learned that past established practices could bring about uneasiness and complexity which was found to be a crucial factor in HE academics' digital capabilities and knowledge of critical pedagogy in this study. Academics have allegiance to their disciplines, which shape their identity and agency. The past has unintended consequences for the current and future L&T culture. In as much as critically reframing HE systems results in uncomfortable, complex situations, it can be done with an ethic of care through collaboration. This study demonstrated that, despite past conditions and complex current realities, it is possible to overcome structural and cultural constraints through resilience, innovation, and intersection, by paving paths that invited new ways of thinking.

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Appendix A: Application to conduct research.

2523 Mortdecai Road

Rosebank

Johannesburg

2091

13 November 2019

Head of School

University of Witwatersrand

Schools of Clinical Medicine, Oral Health and Therapeutic Sciences

Parktown

Johannesburg

2195

Dear Professor

Application to conduct research

My name is Nazira Hoosen and I am a lecturer and educational developer at the Centre for Learning, Teaching and Development (CLTD). I am currently completing my PhD at the University of Witwatersrand (Wits) on a part time basis. The thesis is a full requirement toward the completion of the degree.

My proposed research will investigate the pedagogic practice of academics in the Faculty of Health science (FHS) to determine their enactment of critical digital pedagogic (CDP) practice. It will employ a qualitative paradigm and be based on case study methodology. This method of investigation will focus entirely on the participants situated within the case and will holistically consider them as participants, their learning and teaching beliefs at the empirical, actual and real levels of stratification; and the institution in the context of change.

I therefore request permission to conduct this research within the school for the period 2020-2022. In addition, confidentiality of all participants will be maintained at all times. This translates into the research engaging in the use of pseudonyms for all participants. Participants will be given a brief introduction of the study that includes the problem statement, aims and rationale. Participants will be briefed according to the briefing guidelines in the

sensitisation session outline. The briefing guidelines include the purpose, procedures, participation with informed consent, benefits, and matters regarding confidentiality in relation to the study.

The research will be conducted on site, on MS Teams and on the LMS. The research instruments would include the completion of a survey, interviews and review of their practice on associated educational technologies, (at a time suitable to each participant) and an analysis of the relevant documents (course maps and content packs) pertaining only to the above subject matter.

Your co-operation in granting permission for this research could help in improving pedagogic practice at the university. The benefit of this research to me is two-dimensional. I will firstly learn more of the topic under investigation as well as attain my PhD. Holistically; research findings could help understand L&T practices in the FHS. In addition, it must be noted that the institution will have access to the results and use it to its benefit.

Please give this request due consideration. I look forward to your favourable response.

Sincerely,

Nazira Hoosen

Appendix B: Participant information sheet



1 Jan Smuts Ave

Johannesburg

2000

Good day

My name is Nazira Hoosen, and I am a PhD candidate in the Learning Information Networking Knowledge (LINK) Centre within the School of Literature, Language and Media (SLLM) at the University of the Witwatersrand in Johannesburg. As part of my studies, I have to undertake research, and I am investigating the practice of academics in higher education to determine their enactment of critical digital pedagogic (CDP) practice. The aim of this research is to develop an understanding of how HS academics digital competence and knowledge of CDP practices shaped their pedagogy.

As part of this research, I would like to invite you to participate in two interviews over two years, each spanning sixty minutes, complete a digital questionnaire in Lyme Survey for thirty minutes and allow me to review your practice on at least one course and course related information on Wits-e, that you would choose. With your permission, I would also like to audio record the interviews using a small handheld digital device.

You will not receive any direct benefits from participating in this research, and there are no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question if you do not want to. The interview, digital questionnaire and course review notes will be completely confidential. However, anonymity cannot be guaranteed during data collection because the participants may know each other. The information you provide to me will be held securely and not disclosed to anyone else. I will use a pseudonym (false name) to represent your participation in my thesis. If you experience any distress or discomfort at any point in this process, we will stop the interview or resume another time.

If you have any questions during or afterwards about this research, feel free to contact me or my supervisors on the details listed below. This study will be written up as a thesis which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email Shaun.Schoeman@wits.ac.za

Yours sincerely,

Nazira Hoosen

Researcher name, email, phone number

Nazira Hoosen, nazira.hoosen@wits.a.c.za, (011) 717 1488

Supervisor/s name, email, phone number

Lucienne Abrahams, luciennesa@gmail.com, (011) 717 3652

Najma Aghardien, najma.aghardien@wits.ac.za, (011) 717 7380

Appendix C: Informed consent form

Title of project: *A critical review of academic practice and integrated educational technology use at a South African University: the 'real' level*

Name of researcher: Nazira Hoosen

I, ……....., agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. Please circle the relevant options below.

I agree that my participation may not remain anonymous as participants may know each other	YES	NO
I agree that the researcher may use anonymous quotes in her thesis	YES	NO
I agree to participate in an interview that will be audio recorded	YES	NO
I agree to complete an online questionnaire	YES	NO
I agree to the researcher conducting a review on courses that I have selected	YES	NO
I agree to the researcher taking field notes	YES	NO

……
(Signature)

……
(Name of participant)

…… (Date)

Appendix D: Ethics approval

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Hoosen

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H19/11/19**
PROJECT TITLE	A crtitical review of academic practice and integrated educational technology use at a South African University: The 'real' level
INVESTIGATOR(S)	Ms N Hoosen
SCHOOL/DEPARTMENT	Education/
DATE CONSIDERED	15 November 2019
DECISION OF THE COMMITTEE	Approved
EXPIRY DATE	01 December 2022

DATE 02 December 2019 **CHAIRPERSON** (Professor J Knight)

cc: Supervisor : Dr N Agherdien and Dr L Abrahams

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

_____ **Signature**

_____/_____/_____ **Date**

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix E: List of research participants

1.Interview	P1_L
2.Interview	P2_M
3. Interview	P3_M
4. Interview	P4_M
5. Interview	P5_L
6.Questionnaire/interview /course review	P6_SOCM
7.Questionnaire/interview /course review	P7_SOCM
8.Questionnaire/interview /course review	P8_SOCM
9.Questionnaire/interview /course review	P9_SOCM
10.Questionnaire/interview /course review	P10_SOCM
11.Questionnaire/interview /course review	P11_SOHS
12.Questionnaire/interview /course review	P12_SOHS
13.Questionnaire/interview /course review	P13_SOHS
14.Questionnaire/interview /course review	P14_SOTS
15.Questionnaire/interview /course review	P15 SOTS
16.Questionnaire/interview /course review	P16 SOTS
17.Questionnaire/interview /course review	P17 SOTS
18.Questionnaire/interview /course review	P18 SOTS
19.Questionnaire/interview /course review	P19 SOTS
20.Questionnaire/interview /course review	P20 SOTS
21.Questionnaire/interview /course review	P21 SOTS
22.Questionnaire/interview /course review	P22 SOTS

Legend

L	Leadership
M	Management
SOCM	School of Clinical medicine
SOHS	School of Oral Health Sciences
SOTS	School of Therapeutic Sciences

Appendix F: Digital questionnaire

Research topic: A critical review of academic practice and integrated educational technology use at a South African University: the 'real' level

You are invited to complete the attached questionnaire in Lyme Survey, which should not take you longer than 30 minutes. Please be assured that any information you provide in this questionnaire will remain confidential and this information will not be made available to anyone, as per ethics protocol number (H19/11/19). To protect your confidentiality a pseudonym will be used; and no identifying information about you will be recorded in the research findings. Research records will be used for the purpose of this study to write up the thesis and to publish in scholarly journals. Your participation is on a voluntary basis and is greatly appreciated.

Section A

Coded name:
(I will use a pseudonym, so, no need to complete)

Age:

Home language: {1=Afrikaans; 2=English; 3=IsiNdebele; 4=Sepedi, 5=Siswati; 6=Xitsonga; 7=Tshivenda; 8=Setswana; 9=IsiXhosa; 10=IsiZulu; 11=Sesotho; 12=Other}

Disability status: {1=Sight; 2=Hearing; 3=Physical; 4=Multiple, 5=Epilepsy; 6=Other; 7=None}

Other – elaborate:

No. years of working experience at wits university:

Actual category: {1=Professor or Associate; 2=Senior lecturer, 3=Lecturer or Associate; 4=Tutor}

Nature of appointment: {1=Permanent; 2=Temporary; 3=Contract, 4=Joint staff}

Qualification category & type:

10 = PhD/Doctoral Degree or Post-doctoral
09 = Master's Degree
08 = Honours Degree, MBChB, BDS, PG Diploma
07 = Bachelor's Degree, Advanced Diploma
06 = Diploma, Advanced Certificate

No. of years' experience in learning and teaching at Wits university

No. of years' experience in blended or online learning and teaching at Wits university

Indicate if you have attended any continuous professional learning (CPL) programmes that explored the innovative use of educational technologies in L&T at Wits or other places

{1=Yes; 2=No}

if yes, indicate the CPL programmes attended:

Name	Date/year attended	Duration

Indicate what software/technologies other than the LMS you are using

Section B Specific Questions

Participant self-assessment: Digital capability levels[1] and pedagogical practice

Requirements:

This questionnaire will allow you to evaluate and reflect upon your capabilities in key areas of online learning and teaching (L&T) as well as provide a baseline of your combined pedagogical, technical, and administrative skills. The information you provide is used solely for the purpose of this study and is not stored on any server.

- There are twenty questions in this section. Some of these questions have been extracted from various state university' faculty capabilities self-assessment initiative for online L&T. I have adapted them for use at the University of Witwatersrand.
- For each question, please select the response that best represents you.

1. I possess basic skills (creating and managing docs, files, multiple windows) required to find, evaluate, manage and manipulate relevant information and data, for effective learning and teaching, research, or professional purposes.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)
2. I can log into the Learning Management System (LMS), and/or other software, and access, navigate, locate and make changes to critical elements (curriculum, lessons, gradebook, chat rooms) in the class sites.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)
3. I can manage the course roster to set up and manage teams/groups, and add facilitators, L&T assistants, or outside guests with appropriate passwords and rights.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)

[1] Levels of digital capabilities can be viewed as a continuum whereby digital literacy refers to an understanding of how to use educational technology tools at the basic level; digital fluency goes a step further where there is ability is to create new content with these tools at an intermediate level. Digital mastery is the ability to create new learning and teaching interactions, which reflect the interconnectedness of content areas, and makes use of a variety of strategies and assessment tools to design and develop learning experiences to reach all students. The mastery level is second nature to the individual and reflects an advanced level.

- ○ I am comfortable with this (intermediate)
- ○ I am confident at this (advanced)

4. I can set up the class grade book and manage student grades using educational technology, such as set a grading scale, use points/percentages, and submitting final grades.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

5. I continuously monitor and manage student progress by using course statistics or reports to identify students who are not accessing course materials, participating in learning activities, etc., and reach out to encourage engagement.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

6. I use educational technologies to make new innovative resources, to express and develop new approaches to interpreting ideas.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

7. I communicate course expectations, assignments, notifications and feedback to students at least every 4th day, utilising a variety of communication tools available.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

8. I actively and collaboratively participate in the course using announcements, wiki's, discussion forums and chat rooms etc. to respond to student inquiries within 12-24 hours and guide students towards a positive learning outcome.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

9. I provide constructive feedback to students in the online space, on assessments, through facilitation, guidance and directed learning.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

10. I understand the nature of online identity, privacy, and safety. I also take care of myself or others, and of information in the online space, in ways that are ethical and respectful.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

11. I attend to the unique challenges and needs (diversity/inclusivity) of students of L&T where students are separated by time and geographic proximity, and interactions are primarily asynchronous in nature.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

12. I understand how to get the most out of educational technologies and digital resources to support engaged collaborative learning
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

13. I possess knowledge of the technical and practical aspects of those technologies that can be used to support teaching, learning, and research.
   - ○ I am unfamiliar with this
   - ○ I am competent at this (basic)
   - ○ I am comfortable with this (intermediate)
   - ○ I am confident at this (advanced)

14. Even though I design (mapping and scaffolding) my course materials in collaboration with team members, I develop (build) them on my own, within the structure and organisation of the LMS without constantly worrying about what needs to be done next.
    - ○ I am unfamiliar with this
    - ○ I am competent at this (basic)
    - ○ I am comfortable with this (intermediate)
    - ○ I am confident at this (advanced)

15. As needed, I can revise course content and L&T materials on the LMS based on student feedback.
    - ○ I am unfamiliar with this
    - ○ I am competent at this (basic)
    - ○ I am comfortable with this (intermediate)
    - ○ I am confident at this (advanced)

16. My course design approach takes student differences in background, ability, and individual experiences into account and explicitly works to provide opportunities for success that are not impacted by these differences
    - ○ I am unfamiliar with this
    - ○ I am competent at this (basic)
    - ○ I am comfortable with this (intermediate)
    - ○ I am confident at this (advanced)

17. When I design and facilitate my online courses, there is evidence in the design indicating that my focus is on the facilitation and on the students' preparedness for learning and readiness for online learning
    - ○ I am unfamiliar with this
    - ○ I am competent at this (basic)
    - ○ I am comfortable with this (intermediate)
    - ○ I am confident at this (advanced)

18. I encourage students to question and challenge inconsistencies that exist in families, schools, and societies
    - ○ I am unfamiliar with this
    - ○ I am competent at this (basic)
    - ○ I am comfortable with this (intermediate)
    - ○ I am confident at this (advanced)

19. My course design and online facilitation indicates that I always encourage students to think about the way they are being taught and how they, as students, fit into the broader social and cultural context.
    - ○ I am unfamiliar with this
    - ○ I am competent at this (basic)
    - ○ I am comfortable with this (intermediate)
    - ○ I am confident at this (advanced)

20. When I encounter views that are contrary to the dominant narrative in the online space, I present these views to the class alongside the traditional ones. I also ensure that students discuss them and I encourage them to draw their own conclusions.
    - ○ I am unfamiliar with this
    - ○ I am competent at this (basic)
    - ○ I am comfortable with this (intermediate)
    - ○ I am confident at this (advanced)

Appendix G: Interview schedule

Interview schedule for leadership and management

1. What structural conditions (projects, structures, spaces, policies, strategies, and plans) existed between January 2007 and December 2012 for the academic staff at Wits to engage in blended learning and teaching (L&T) practices?
2. In your view, how did the above conditions enable or constrain the academics in their L&T practices?
3. In your opinion, what was the teaching culture from the academic's perspective at Wits during this phase (2007 -2012)?
4. What structural conditions (projects, structures, spaces, policies, strategies, and plans) existed between January 2013 and March 2020 for the academic staff at Wits to engage in blended learning and teaching (L&T) practices?
5. How did the above conditions enable or constrain the academics in their L&T practices?
6. In your opinion, what was the teaching culture from the academic's perspective at Wits during this phase (2013 –March 2020)?
7. Why do you think these conditions created teaching enablement's or constraints for academic staff at Wits?
8. Do all the conditions above apply to the Faculty of Health Sciences (FHS) as well or are there other structures and spaces specific to the FHS (or any schools within it) for blended L&T practices?
9. In your view, as of current and on average, have academic staff at Wits:
    - Transitioned to critical, collaborative and integrated teaching practices in the online space or they
    - Use the LMS as a repository for content or they
    - Are resistant to technology use and remained the same through reproducing the old ways of teaching content

Interview schedule for academics

1. *What are the pedagogical practices and levels of digital competence of academics?*

   What is your understanding of pedagogy?

   What is your understanding of critical pedagogies?

   How does your pedagogic practice center on community and collaboration?

2. *Why do academics possess a specific level of competence, or not, in relation to digital literacy, digital fluency and digital mastery?*

   How would you explain your ability and readiness to use educational technologies in your practice?

3. *What influences academics in their approach when incorporating educational technologies into the L&T methodology?*

   Since 2015 there have been institutional drives at Wits encouraging the use of educational technologies in your learning and teaching.

   a. How has this initiative impacted on your L&T methodology ?

   b. Have these imperatives had an influence on

   - You personally?
   - Within your department?
   - Faculty?

   c. Please explain

   Structure

   What structures are in place prompting you to move some of your courses to the blended learning and teaching modality?

   Mechanisms

   Are there systems in place to support the digital learning and teaching strategy and the learning and teaching plan as formalised by Wits? Please explain.

4. *How does individual agency enhance and support critical pedagogies?*

   Explain how you assert your own voice while remaining open to diverse, international voices including student voice?

   Explain how you support student-centered learning and teaching and what strategies you use to encourage interaction, participation and collaboration?

5. *What is the academic's conceptualisation of identity in the online space?*

   Explain how your identity has developed/transitioned from the time that you have been teaching at Wits in f2f classes?

   Do you believe that as a result of going online in L & T, you may be competing with emerging identities?

   Explain your idea of identity in the online space.

   How do you think that your identity is related to your agency as an academic at Wits?

Appendix H: Course review

Shulmans MPRA is adapted below

Participant: _____

Date: _____ **Time:** _____

Schedule A: Course name:	Not evident	Evident but not fully developed	Fully evident
SHULMAN'S MPRA			
Comprehension			
The outline of the course is clear			
The learning pathways are structured			
Transformation			
• *Preparation*			
There is evidence of student-centered learning (in that students, can conduct research; identify, analyze and interpret the evidence they uncover; draw conclusions; and present their findings)			
Course policies are stated for behavior expectations			
Expectations regarding quality of communication/participation are provided			
facilitator contact information is evident			
There is clear evidence of student learning and producing an outcome (through them documenting in the form of logs of observations, a reflective essay or a completed product or project)			
• *Representation*			
Demonstrated to what standard (gradebook) learning is being assessed			
• *Selection*			
Assessments align with objectives.			

Encourages cooperation among students.			
There is evidence of problem-based learning (PBL) (case-based and simulations)			
Chunking of content of difficult concepts to enable better understanding is evident			
• *Adaptation and tailoring*			
Provided alternative platforms (Whatsapp, Zoom, MS teams, emails) for communication and feedback with students.			
Links to essential institutional services are provided.			
Instruction/facilitation			
Is the course navigable? (is there structure, flow, and ease of access?)			
Provided context and resources and additional resources to students			
Used relevant presentation applications for online L&T modality (video, audio, screen captures, voice-over power points etc)			
Demonstrated concepts in the course that students could remember and collaborate with academic for further clarification			
Provided positive re-enforcement by considering other courses where particular attention to pro-active student success would be helpful			
Demonstrated how learning is being assessed (rubrics and descriptions of how the assessment will be assessed)			
Demonstrated to what standard (gradebook) learning is being assessed			
Evaluation			
Ensured that authentic, "real-world" learning is being assessed			
Emphasises time on task			
Reflection			
Discussion forums are used by students to critically analyse, examine and assess conventional assumptions in the contents of the course			
Communication and activities are used to build community.			

New comprehension			
Technology is used to promote learner engagement/facilitate learning			
There is evidence of facilitating new forms of collaboration and interactive learning (voice-over powerpoints, data visualisations, social communications, micro- lectures)			
There is evidence of a safe space that allows students to discuss challenges experienced in the course while allowing for innovation to take place			
There is evidence of effective forms of learning activities through experience and reflection (internships, research, clinical experiences, simulation activities.)			
Accessibility considerations			
There are alternative texts for images			
There are transcripts for videos			
There are descriptions of videos			
There are different file formats for downloads			
Navigation is intuitive.			
Course has accommodations for disabilities			

Appendix I: Step Four of data analysis: Abstracting to the broad themes.

Sub-questions	Mainstream data findings	Examples of evidence	Examples of inductive reasoning	Counter/alternative perspective (what are the hidden things that these findings are trying to reveal? What or whose agendas?)	Sub-themes	Abstracted to a higher-level main theme
1.*The pedagogical practices and the levels of digital competence of academics*	**T1-T2** and **T2-T3**: Academics engaged in a lecture-based content delivery pedagogy with no alignment to critical pedagogies. Similarly joint academics did the same and their clinical teaching practices were stronger than their pre-clinical teaching. The LMS was used as a content repository. They operated at a basic level of digital competency. **T3-T4**: Academics improved slightly in their digital competence due to ERT, but CDP practices were not enacted except for those that were privileged to work with the CLTD through projects	**T1-T2 and T2-T3**: *"critical pedagogy is the way we deliver content and with online it's about making it flexible for them due to our practical component which becomes a balancing act"* *"I don't know what critical pedagogy is but its how I think about delivering a lesson with content"* *"I use Google drive with my students, upload sections, assessments. I just did not use Sakai and WhatsApp. My thinking was that I needed to send content and receive feedback or share resources on internal medicine"* **T3-T4**: *"I have the privilege to work with a big team, service provider and the CLTD. It has to do with my personality as I think about my decisions on using certain technologies over others. My online pedagogic competence increased due to my confidence"*	**T1-T2 and T2-T3:** *Academics in this study engaged in a didactic, content delivery pedagogy through the LMS, therefore most academics in the FHS tend to engage in a similar practice **T3-T4:** A macro environment phenomenon foregrounded the use of edtech while CDP practices remained in the background.	**T1-T2 and T2-T3**: *Pedagogical knowledge and practices were not highly valued. * Tick-box exercise conception **T3-T4**: Focusing on a pedagogic priority that was not transformative while keeping the old ways of churning out graduates with content knowledge.	*Pedagogical practice *Pedagogical values *Pedagogical beliefs and intentionality *Epistemic communities *Reflexivity	The academic disposition in relation to CDP practices
2. *Reasons for academics functioning*	**T1-T2**: Insufficient resources and academics were comfortable with f2f L&T practices, no edtech	**T1-T2**: *"My students and I were used to f2f sessions"* *"I prefer contact teaching as I feel safe"*	**T1-T2**: disengaged leadership	*Academic agency was weak in the uptake of edtech	*MoA *HE environment	The complexity of the global-local HE environment in relation to CDP practices

at the basic level of competence	support or structures from the leadership of the university **T2-T3**: Insufficient attendance on CPL programmes, resistant to edtech use due to beliefs, limited support from faculty and dept/school leadership, resources aligned to historical allocation **T3-T4**: forced to use edtech and attended CPL programmes to improve online pedagogy.	**T2-T3**: *"F2f gets things going quickly and paper-based processes worked faster, that's how I feel"* *"I had no time, well most of us to attend training"* *"our boss was just not supportive ever, just like faculty"* **T3-T4***:" Well, you know I think its there at the back of my mind, I had no time. During the pandemic I was forced to use it, and it gave us some time like 3 weeks. We work for Gauteng Health, the external partner to the university. The clinic belongs to Gauteng health. Where do we have time for technology"* *"As a group we are forced to attend training as we are struggling now"*	**T2-T3:** Historical resistant cultural beliefs **T3-T4:**ERT forced HS academics to integrate edtech in L&T.	*limited vision for CDP practices *entrenched in traditional ways of L&T *resistant to change due to comfort zone *context of not questioning the doctor, "the God culture". *teaching to save a life and the primary role of the practitioner *different ways of critical practice	*The culture of medical practice	and The academic disposition in relation to CDP practices
3. *Factors influencing pedagogic practices when edtech is integrated and why*	**T1-T2**: Insufficient resources and no induction into pedagogical practices, having content available in absence of pedagogical knowledge **T2-T3**: Management provided partial structures for digital transformation with limited focus on pedagogical practices, Joint staff competing mandate, views of edtech use in L&T, #FeesMustFall, anxiety of online space, comfort of f2f space, beliefs on edtech, no pedagogical knowledge, CLTD and eZone, content on edtech was readily available for catch-up	**T1-T2**: *"Budget cuts are enormous and the Hod cannot be blamed as its about negotiating"* **T2-T3**: "*My lack of pedagogy knowledge in L&T as I need formal training and I need help as it impacts my teaching",* *"The plug ins on the standardised LMS is not available for us and ICT prioritises the university LMS for support"* *"I think when you at school and even in tertiary you underestimate the impact of your teachers. I see that my teachers throughout have had a profound effect on how and what I teach"* *"my colleagues are joint staff. We have capitalised from them due to their clinical experiences. We learn so much from them on clinical practices and evidence-based*	**T1-T2:** There was insufficient thinking about DT and pedagogic practices **T2-T3:** Much focus was placed on DT so it would have been expected that there would be the same focus on pedagogic practice **T3-T4:** with the focus on DT going full steam, there would also much	*Massification was not dominant in this period as it was only the begining *misperception of technology as a 'technical fix' to educational problems, *insufficient understanding by management of the pedagogical environment *Joint academics need a clearer directive of where academia starts and where service delivery meets it	Management and their culture MoA	The complexity of the global-local HE environment in relation to CDP practices and The academic disposition in relation to CDP practices

	T3-T4: being forced to use edtech with limited foundation on pedagogic knowledge and skills	*medicine. Two of the joint staff have also done the PG dip and they learnt from that in terms of their pedagogy. From student feedback, I learnt that joint staff are only good at practice-based work"* *"You want to explain a concept to a student, but you don't know how to put it into words as we are used to show and tell"* *"the service delivery part is strong and when you scheduled for patient care you have to leave everything and engage in service delivery. There are usually staff shortages and those who don't know the work that hinders my progression of my courses as I have to juggle between courses and limits my progression on my course as well"* **T3-T4**: "*Covid-19 forced us to go digital irrespective of whether we knew how to or not"*	push on teaching with edtech.	*A realisation to teach better in the online space due to noticing their insufficient digital competence but no CDP practices *the tools and the ability to use them had transformative L&T impact	Value of pedagogical practices Digital competence	
4.*Academics conception of identity in the online space*	**T1-T2**: f2f L&T identity **T2-T3**: no change in identity **T3-T4**: Various levels of identity change: Deliberate and calculated identity, definitive identity change, limited identity change	**T1-T2**: "*there is no change in my identity", "it's the same"* **T2-T3**: "*No tension or changes as I teach mainly* f2f", "No *engagements in online space therefore no online identity"* **T3-T4:** "*it's about being a subject matter expert and a content expert", "3rd year students have stated that P15 and I structure our courses differently to how other lecturers do*	**T1-T2:**Most academics developed- f2f identityies at this stage	*no development of agency, limited agency *reproducing f2f in the online. Could be worse as they posted the notes in the LMS	Agency	The academic disposition in relation to CDP practices

		as we work closely and asked if we can show other lecturers the same…funny hey as my identity has sort of changed online since then", "identity has changed a lot as I try to include my personality like how I post announcements" *"So yeah my online identity has changed as I was forced to be more online and I was minimal before and now I have to be online. I still prefer the f2f engagement with students. I am more comfortable now and my identity is more certain as I was very pretentious last year"* "My *identity has changed as im now more comfortable with online and my teaching has changed as I have upskilled a lot by attending online webinars and workshops. This has tremendously helped me as I felt the need to change. Im now doing a short course. If we were in the f2f mode I would not have attended so many workshops as the opportunity to attend was created due to the context. I have attended CLTD courses that you and Najma have designed but this has changed my skill".*	**T2-T3:** If there was no change in identity, it meant that most academics were continuing to teach in the f2f class and limited teaching in the BL paradigm **T3-T4:** due to being forced to use edtech, multiple online identities emerged meaning that new ways of teaching were being constructed but was rather difficult to manage. Calculated ientity meant that they planned their way of being in the online space	*an awareness and development of identity *underlying evidence of realisation to the value of online pedagogy *this could go beyond previous remits on pedagogy *reflection of pedagogical practices *Pedagogic practice developed through interaction between academic thinking or attitude and actions in the class and what they see as the outcome of their practice	Start of online pedagogical understanding	
5. *Ways that agency supported CDP*	**T1-T2**: early edtech adopter in Ch 6 with high levels of agency supported digital pedagogy. While digita practicel was downplayed in Ch 5 and agency mediated for a different kind of critical practice.	**T1-T2***: "I don't recall having issues with agency as I'm a go-getter and the HoS saw this and supported me in using Moodle in those early days"* *"research determines my agency and I focus more on teaching than on research which means I have limited identity in f2f and online and limited agency"*	**T1-T2:**action on critical practice took a different meaning in Ch 5 since agency focused on teaching patient-centerdness which was the existing culture in the case study. An early adopter mediated	*Agency empowered by management vision *the vision continued to empower agency with the therapists. The impetus was provided that grew	*structural agency	The complexity of the global-local HE environment in relation to CDP practices and The academic disposition

	T2-T3: minimal publishing due to service delivery mandate (joint staff)/ focus on L&T priority impeded agency **T3-T4**: Academics online identity manifested in different ways due to prior concerns that manifested into projects and practices of understanding the self. In this way as agents, they possessed PEPs that allowed them to mediate the conditions of SEPs and CEPs.	**T2-T3**: *"I find that the dept. has a very strong research focus. You become a professor if you publish a lot but not if your teaching is in order. This is an impeding culture and I hate it. I see professors with very bad teaching, but they are allowed to make decisions for all of us as they hold higher positions only because of their research which impedes our agency. Its just unfair, I mean that the policy for staffing and promotions does not focus on much of our teaching"* **T3-T4: "***Being forced to focus more on publishing than on teaching. This impacts me and I cannot teach properly. The more research outputs we have the more agency we are given. We are tracked on our productivity through research"* *"to be known at Wits, you must have your PhD and get known in the online world, and if your research is higher, you have better agency"*	digital practices in Ch 6 which would have been enacted by most academics in Ch 6. **T2-T3:** if academics published more, they possessed more agency to engage in specific projects due to their concerns. All joint academics experienced challenges with the dual mandate that affected their agency in L&T **T3-T4:** All academics experienced different changes in their online identity due to having different concerns that led to different projects and practices as some chose to not change while others followed early adopters and a few transitioned to being social actors in their own right due to exercise of agency.	*Competing mandate	MoA	in relation to CDP practices

Appendix J: Participant background data from survey T2-T3 and T3-T4

Disability status	No. of yrs. at Wits	Category	Nature of appointment	Qualification	Yrs. Experience in L&T in HE	Yrs. Experience in blended L&T in HE
None	6 to 10 yrs	Lecturer	Permanent	09 = Master's Degree	10	4
Sight	30+ yrs	Professor	Joint Staff	10 = PhD/Doctoral degree	35	3
None	6 to 10 yrs	Lecturer	Joint Staff	09 = Master's Degree	5	3
None	21 to 25 yrs	Professor	Joint Staff	09 = Master's Degree	35	0
None	26 to 30 yrs	Professor	Joint Staff	10 = PhD/Doctoral degree	26	3
None	21 to 25 yrs	Professor	Joint Staff	10 = PhD/Doctoral degree	20	4
None	6 to 10 yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	10	9
None	21 to 25 yrs	Professor	Contract	10 = PhD/Doctoral degree	42	4
None	11 to 15 yrs	Senior Lecturer	Joint Staff	10 = PhD/Doctoral degree	20	4
None	30+ yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	18	4
None	11 to 15 yrs	Professor	Permanent	10 = PhD/Doctoral degree	15	5
None	16 to 20 yrs	Professor	Permanent	10 = PhD/Doctoral degree	20	3
None	11 to 15 yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	30	3
Sight	1 to 5 yrs	Lecturer	Contract	08 = MBChB, BDS, PG Dip	8	2
None	1 to 5 yrs	Lecturer	Contract	10 = PhD/Doctoral degree	10	1

None	1 to 5 yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	3	3
None	1 to 5 yrs	Senior Lecturer	Contract	09 = Master's Degree	3	3
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	1	1
None	11 to 15 yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	11	4
None	1 to 5 yrs	Lecturer	Contract	09 = Master's Degree	4	0
None	6 to 10 yrs	Lecturer	Joint Staff	09 = Master's Degree	8,5	3
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	5	3,5
None	1 to 5 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	5	1
None	6 to 10 yrs	Lecturer	Joint Staff	09 = Master's Degree	9	5
None	1 to 5 yrs	Lecturer	Joint Staff	09 = Master's Degree	5	0
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	10	10
None	6 to 10 yrs	Lecturer	Joint Staff	09 = Master's Degree	8	2
None	1 to 5 yrs	Lecturer	Permanent	08 = MBChB, BDS, PG Dip	6	6
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	4	4
None	1 to 5 yrs	Lecturer	Contract	08 = MBChB, BDS, PG Dip	2	1
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	4	3
None	30+ yrs	Senior Lecturer	Contract	MB BCh, FCOG(SA), FRCOG, DTM&H	32	0,5
None	16 to 20 yrs	Lecturer	Permanent	09 = Master's Degree	10	0
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	1	1
None	1 to 5 yrs	Lecturer	Contract	09 = Master's Degree	5	3

None	6 to 10 yrs	Lecturer	Permanent	09 = Master's Degree	10	2
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	2	2
None	6 to 10 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	20	3

T4

Disability status	No. of yrs. at Wits	Category	Nature of appointment	Qualification	Yrs. Experience in L&T in HE	Yrs. Experience in blended L&T in HE
None	6 to 10 yrs	Lecturer	Permanent	09 = Master's Degree	10	4
None	6 to 10 yrs	Lecturer	Permanent	09 = Master's Degree	5	4
None	6 to 10 yrs	Lecturer	Contract	09 = Master's Degree	9	3
None	11 to 15 yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	11	4
None	16 to 20 yrs	Professor	Permanent	10 = PhD/Doctoral degree	18	2
None	21 to 25 yrs	Professor	Permanent	10 = PhD/Doctoral degree	23	2
None	6 to 10 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	10	5
None	11 to 15 yrs	Professor	Permanent	10 = PhD/Doctoral degree	12	2
None	11 to 15 yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	13	4
None	6 to 10 yrs	Lecturer	Permanent	09 = Master's Degree	7	3
None	11 to 15 yrs	Professor	Permanent	10 = PhD/Doctoral degree	15	5
None	6 to 10 yrs	Lecturer	Permanent	09 = Master's Degree	8	3
None	11 to 15 yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	12	4

None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	5	8
None	1 to 5 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	10	1
None	1 to 5 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	3	3
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	3	3
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	1	1
None	11 to 15 yrs	Senior Lecturer	Permanent	10 = PhD/Doctoral degree	11	5
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	4	0
None	6 to 10 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	8,5	2
None	1 to 5 yrs	Lecturer	Contract	10 = PhD/Doctoral degree	5	3,5
None	1 to 5 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	5	1
None	6 to 10 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	9	5
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	5	0
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	10	5
None	6 to 10 yrs	Lecturer	Permanent	09 = Master's Degree	8	5
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	6	6
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	4	4
None	1 to 5 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	2	1
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	4	3
None	6 to 10 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	9	4
None	6 to 10 yrs	Lecturer	Permanent	08 = MBChB, BDS, PG Dip	10	2

None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	1	1
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	5	4
None	6 to 10 yrs	Lecturer	Permanent	09 = Master's Degree	10	2
None	1 to 5 yrs	Lecturer	Permanent	09 = Master's Degree	2	2
None	6 to 10 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	20	3
Physical	26 to 30 yrs	Professor	Permanent	10 = PhD/Doctoral degree	27	2
None	6 to 10 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	7	3
None	11 to 15 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	13	5
None	6 to 10 yrs	Lecturer	Permanent	10 = PhD/Doctoral degree	8	4
None	26 to 30 yrs	Professor	Permanent	10 = PhD/Doctoral degree	28	3
None	30+ yrs	Professor	Permanent	10 = PhD/Doctoral degree	31	2

Appendix K: List of all codes

Name	Count
A method of teaching content	5
About the absolute essentials of passing content over	2
Academic as a facilitator	3
Access to content	12
Access as an enabler	6
Accessibility	8
Accessibility as a deterrent	2
Accessible content	14
Accountability in teaching for competence	9
Active involvement in teaching	3
Adaptive teaching	3
Agency in teaching methods	10
Allowed open communications	4
Allowing students diverse ways of doing things	12
Allowing students the freedom to choose	4
Allowing students to choose their own groups	5
Allowing students to discuss projects and referring to it as student centered teaching	7
Always double checking myself as I doubt myself in the online space	9
Always liking the traditional way of doing things	8
Always wondering if I was doing the right thing	9
Anxiety and relentless and concerns	6
Application of learned skill	3
Application of Real world case studies	7
Assessment of online teaching	9
Assisting others	3
Autonomy and freedom to experiment on ways to teach	1
Because tech was not a must, was optional we were not keen to use	5
Being forced to use technology	7
Being forced to use technology that allowed open communication between colleagues	8

Being in online space has made me more confident of my potential	4
Being more a didactic teacher	10
Better practice in use tech better	5
Blended learning development	9
Blended learning not fully supported	6
Case based Learning 5	5
Catering for different student engagement 6	6
Change in identity	11
Change in teaching culture	3
Changing the curriculum	2
Choice of teaching methods	7
Choice of tools available 3	3
Clinical teaching focus	6
Clinical patient experience 8	8
CLTD CPD courses as enablement	9
Co-facilitation in mentoring	3
Collaboration among peers	8
Collaboration between academics	6
Collaboration between students	4
Collaboration between students, academics and other stakeholders	6
Collaboration between students and lecturers	2
Collaborations between faculties	1
Comfort in online methods	2
Communication and dialogue in online teaching	6
Community sense	9
Community context	18
Community settings 15	15
Complex ways of teaching	6
Complex teaching methods	6
Complexity of appointments	12
Complexity of using digital technology	8
Compromising with students	2
Constraints of online teaching	14

Context specific communities	2
Conversations only as online dialogue	6
Cool ways to try new ways to teaching	6
Course peer review	2
Covid-19 as an enabler	12
Critical practice of clinical teaching	8
Critical reasoning skills in clinical teaching	5
Critical thinking of students and academic	4
Culture as ways of teaching in health science	16
Culture of department	5
Current relevance in methods	8
Curriculum redesign	3
Deliberate and calculated identity	7
Department cultural change	9
Department encourage value of online	1
Departmental culture as driving forced	2
Departmental hierarchy affects your agency	6
Did not train how to teach	7
Difference in teaching	1
Different inputs	1
Different learning styles	3
Different learning styles of students	5
Different learning styles of students as a problem	5
Different uses of technology in different courses	3
Difficult to establish an online identity	8
Difficult in knowing your students in the online space	4
Digital native	5
Discussion between students	2
Discussions into taking technology as an affordance only	2
Diversity of students	4
Diversity of content	5
Diversity of learning pathways	5
Dumping content	10

Educate and develop	3
Education is political	5
Effective communication	8
Efficacy of self	2
Empathetic teaching and learning	2
Empowering students	3
Encourage self	2
Encouragement from HoD	4
Engaging students through group discussion	2
Enrolling on courses at the CLTD	8
Equity among students	1
Evidence based practice	1
Exaggerated responses from faculty	4
Exercising academic agency in relation to CDP practices	2
Exploration and innovation in teaching	2
Exploration of diverse pedagogies and its implementation	2
Exposure to computers before starting to teach	4
Extended to lived communities	3
Face to face teaching easier and online is difficult to establish an identity	4
Face to Face teaching as clinical enabler	4
Facilitation of discussion	4
Feedback to students	1
Feedback to inform teaching	1
Focused on didactic pedagogies	7
Forced on technology	2
Freedom to act	1
Giving content in online and no need to have discussions so no identity	4
Good online identity due to research allows for more agency at work if not no respect	5
Group discussion as critical pedagogy	2
Hard transition from clinical to online	5
Having more voice to being forced to use technology (double edged sword)	5
Having multiple online identities created to boost personal and academic identity for promotion at work and self promotion	4
Having multiple voices through online identity	2

Having problems with identity in online space due to not knowing the students	2
Having the dept. assistant put the content on the LMS for you	4
Having to assist others to get online	2
Hesitant use of didactic pedagogies	1
Higher titles have more power and agency	4
Hindrances causes discouragement	4
I have no control in online space	1
Identity as doctor	5
Identity as an educator	2
Identity influences how much power you have as an academic	4
Inclusive practices	2
Inclusive teaching approaches	2
Inclusive/complete/comprehensive	2
Increased student efficacy	1
Individualised approaches to teaching	1
Insufficient attendance of CPL programmes that focused on teaching	5
Integrative pedagogy	1
Intentional ways of clinical teaching	3
Interactive learning	1
Isolating to work remotely	4
Keeping relevant with student	2
Knowledge principles	1
Learning methodologies and theories	1
Lack of communication	5
Lack of confidence	6
Lack of dialogue in online space	5
Lack of management support	9
Lack of policy awareness	10
Lack of skills	2
Lack of student engagement in online space	7
Lack of understanding what student centered learning is	8
Learning community	1
Listening and understanding	1

Little resources available	5
LMS hindered progress	4
LMS used a resource deposit	8
LMS used as repository	8
Low self-efficacy	5
Maintain same level of warmth	3
Me being very techie	1
Me wanting to improve myself through my students	2
Method of practice as specialist	7
Method of teaching	12
Methodologies used	5
Minimal communication	1
Minimal communication and info from division	4
Minimal voice	5
More comfortable online as it allows for time to think about the questions asked	1
More visibility in clinical practice	4
Multi-model teaching	1
My age	3
My environment being very inviting and pushing towards blended	5
Negative about technology use	4
Negative approach to technology	6
Negative community practice	3
Negative impact	3
Negative to change	3
New experiences	13
New development on teaching	10
New to technology	9
No assistance by department to go online	5
No collaboration from peers 2	2
No drive or reminders from school or faculty to enrol in CPL	10
No engagement	4
No engagement in blended learning and teaching	6
No ethic of care from faculty except after Covid-19	6

No focus on cultural competence in the school	5
No focus on digital competence in the dept.	4
No influence	1
No influence from faculty	8
No interest by faculty	8
No needs analysis done in our school or dept.	4
No peer reviews to guide us in our teaching	6
No personal impact	2
No push from faculty	8
No support from faculty	8
No time for CPL	10
No time to attend CPL	6
No time to read communications	6
No time to reflect	7
No understanding of online teaching	3
No understanding of CP	10
Not enough support	3
Not enough time	3
Not inclined to using technology	6
Not knowing how to use the LMS	6
Online flexibility	1
Online teaching workload	6
Online helps students to catch up missed work	5
Online makes everything impersonal	2
Online requires more structure in identity and preparedness	2
Online requires more theory	2
Online teaching constraint	7
Online teaching suits my identity as I have more control in this space	1
Only doing what we doing what we comfortable in doing	1
Only use Learning Technologies if forced	6
Openness to diverse voices and viewpoint	2
Org::CLTD	8
Org::eFundanathi	4

Org::FHS	1
Org::Khan academy	1
Org::LinkedIn	9
Org::Orthopaedic	1
Org::SANC	1
Org::the pharmacy council	1
Org::Wits	22
Pandemic forced use of LMS	14
Paradigm shift	3
Past practices	1
Patient-centered care	9
Problem based learning	9
Pedagogy as access to content	19
Pedagogy as bedside teaching	5
Pedagogy as chair-side teaching	3
Pedagogy as clinical teaching	8
Pedagogy as method of teaching	8
Peer review on teaching	6
Placing content on the LMS	7
Plan teaching lessons	4
Portfolio of learning and writing	1
Positive effect	1
Positive community practice	1
Positivity from freedom	2
Practical experience	2
Practice as clinician	5
Practice humility	1
Praxis as balance in pedagogy and methodology	2
Preferring to do things differently	3
Privilege with technology	3
Pro-technology	3
Problem based work	5
Reaction of students in the online space	2

Real world lived experience	2
Real world scenarios	2
Reflective when teaching	2
Reflexive in thinking	1
Relay information	4
Religious motivation leading to self-efficacy	1
Reluctant to change	2
Repository of content	10
Responsive to the needs of the community	6
Review teaching practice	2
Role in community	2
Self – learning for better online teaching	2
Self – directed in online space	2
Self- efficacy to improve online teaching	1
Self-directed learning for online teaching	4
Self-driven and self-doubt in the online space	4
Self -efficacy assists with BETTER technology use	2
Shared content across multiple platforms	1
Shift from old ways of doing in teaching	4
Should have engaged with CPL	5
Simulate clinical practices	9
Skill/experience/ability for online teaching	3
Skilled student in the hospital2	2
Slow implementation due to skill	3
Social accountability in online	2
Social need of the community	3
Starting my career with didactive lectures	1
Starting to think differently and learning new skills	1
Stressful to teach in online	6
Structures that constrain	5
Structured teaching	2
Student centred teaching	2
Student diversity	4

Student feedback	1
Student opinions	2
Student voices allowed to be heard	4
Students and past experiences part and parcel of planning to teach	2
Students collaboration	2
Students ease of using technology	4
Students have limited voices	3
Students showed what they enjoyed and this prompted me to move online	1
Students take responsibility of learning	2
Supplementary methods as critical teaching	2
Taking existing information and adding more	2
Taking over courses from other colleagues who taught online	1
Teaching and learning for improved pedagogy	5
Teaching for critical enablement	3
Teaching philosophy on Pedagogy	9
Teaching students contents that is far from our context	2
Teaching students in the way we were taught	7
Teaching theory on Pedagogy	6
Tech savvy students	3
Technology as forced	10
Technology used as a short-cut	6
Tension as I now have to present myself in a different way with more structure	1
Tension due to not knowing how to express yourself in this space	7
Tension in the online space due to the random quietness	1
The joint academic disposition in health science	8
The CLTD support	15
The complex nature of transforming teaching	9
The complexity of technology change	8
The complexity of the global technology change to the local context	14
The curriculum as a constraint	2
The e-Zone support	7
The fast pace of change with technology	9
The HS joint staff within a research-intensive university	13

The health science lecturers beliefs and intentions	5
The internet as a learning tool for academic work	4
The way you teach in health science is different	14
Theoretical teaching	4
Theories that guide lesson structure in health science	5
Thinking and reasoning on teaching for patient-centeredness	12
Time and workload constraint	7
Too many academics distrust management	6
Training students to do their job right	9
Transformative methods	3
Transformative pedagogies	2
Transition from blended to remote online approaches	5
Transitioning for improvement	2
Uncomfortable identity in online space	6
Uncomfortable to show your face in the online space	5
Understanding place in community	8
Understanding role in community	7
Understanding self before understanding how to teach	8
Understanding tech tools and how it is used in L&T	4
Unfamiliar/different in online teaching	12
Using LMS for feedback and video only	6
Valued but no real influence in pre-clinical teaching	4
Variety in technology	2
Various multiplicity of voices	2
Very old school thinking that worked	3
Watching other colleagues use online for teaching	7
Watching the early adopters	6
Wits academic workload policy allocates workload across development obligations	1
Wits has limited resources	9
Your title affects your agency	7

Appendix L: List of documents progressively analysed

Year	Name of document
2007	DHET Ministerial Statement on the Management and Utilisation of Teaching Development Grants
2007	Final Report of the LMS Feasibility Study
2009	eLearning strategy and Tactics 2009
2009	Renewable MoA between FHS and DoH on the appointment of joint staff as university teachers
2010	University of the Witwatersrand: Teaching and Learning Plan 2010 - 2014.
2011	University of the Witwatersrand: Wits Vision 2022 Strategic Framework.
2012	Triennial Review Report of the Centre for Learning, Teaching and Development (CLTD)
2013	DHET Ministerial Statement on the Management and Utilisation of Teaching Development Grants
2013	DHET White Paper for Post-School Education and Training
2014	University of the Witwatersrand: Teaching Development Grant application 2014-2016

2015	University of the Witwatersrand: Policy on Staff Development
2015	University of the Witwatersrand: Teaching and Learning Plan 2015 - 2019.
2016	Renewable MoA between FHS and DoH on the appointment of joint staff as university teachers
2016	CLTD Strategic Plan 2016
2016	FHS criteria for Appointment and Promotion 2016
2017	CLTD Strategic Plan 2017
2018	DHET: University Capacity Development Plan (UCDP) 2018-2020
2018	University of the Witwatersrand: Guidelines for Curriculum Development
2018	University of the Witwatersrand: Policy on the Evaluation of Teaching and Courses
2018	University of the Witwatersrand: Digital Learning and Teaching Strategy
2018	University of the Witwatersrand: Online Learning and Teaching Policy
2018	DHET & CHE: National Framework for Enhancing Academics as University Teachers
2018	University of the Witwatersrand: Amendment to the Teaching and Learning Plan 2015 - 2019.

2019	University of the Witwatersrand: Framework for CPL of Academics as University Teachers
2020	University of the Witwatersrand: Academic Workload Policy
2020	University of the Witwatersrand: LMS evaluation report
2020	University of the Witwatersrand: Teaching and Learning Plan 2020- 2024.
2020	Council on Higher Education (CHE) Communique': Directive for teaching in 2020- 2021
2021	Council on Higher Education (CHE) Communique'5: Directive for teaching in 2021 with concession extended to 2022