Lecturers' creation of online learning experiences to support the development of 21st century graduate attributes

by

Chantal Shelly Hammer

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Supervisor: Mrs Annèl van Rooyen

Co-supervisor: Professor Ronel Callaghan

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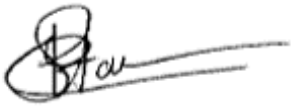
Declaration

I declare that the dissertation, which I hereby submit for the degree Magister Educationis at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.



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Dedication

I dedicate this research to my son, Brady, and to the other children who still have to navigate most of their educational journey. May this research contribute to the educational field in shaping educators towards a more active pedagogical approach so that your learning experiences are engaging and enriching and that you are prepared with the crucial skill sets to be successful within society. May you, one day, be creative problem-solvers to the societal and economic challenges of your time. But more importantly, I hope that your learning journey is one filled with fun and curiosity where you develop a love for learning.

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- Last, but not least, to my son, Brady who had to accommodate my many working hours both in the evenings and over weekends. The sacrifice of spending quality time with you can never be recaptured. But my hope is that the lesson from this is to show you that hard work, perseverance, and a relentless drive to improve the educational experiences of students does make a difference. May you too be able to pursue your dreams one day.

Abstract

Higher education institutions (HEIs) are perceived as producers of qualified graduates with sought-after cognitive and self-efficacy skills. These perceived acquisitions of 21st century graduate attributes are equated with the value of higher education. The 2023 World Economic Report reveals a failure of HEIs in developing graduates with employability competencies. Despite HEIs' commitment to this development, teacher-centric approaches persist. The purpose of this study is to understand how lecturers can support the development of 21st century graduate attributes in the creation of engaging learning experiences. This qualitative study has been conducted with seven lecturers from a HEI who have been purposefully selected for their online activity-based approaches to identify the pedagogical elements that support this skill development. The conceptual framework, an integration of certain constructs from the TPACK model within a revised community of inquiry (CoI) model, frames the investigation in the design elements of teaching presence (TP). In understanding how lecturers support the development of 21st century skills, the study attempts to address the misalignments. Three data collection techniques were used to triangulate the findings. This consisted of two observed synchronous lectures, two semi-structured interviews and collected artefacts from a module of each lecturer. The findings indicate a combination of pedagogical elements that should be considered in supporting the practical implementation of the seven principles of the revised CoI model. A proposed template has been created to guide lecturers in the planning stage of TP. Lastly, it identifies the attitudes and beliefs that shape the pedagogical choices of lecturers.

Key terms: 21st century graduate attributes, online pedagogical practices, design component of teaching presence, skills development, student-centric, online learning experience.

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To whom it may concern

This serves to certify that I have edited the following dissertation:

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The student has also been alerted to instances where additional clarification is required.

Fran Saunders

27 October 2023

List of abbreviations

ATC21S	Assessment and Teaching of 21st Century Skills
CK	Content Knowledge
CoI	Community of Inquiry (Framework
CP	Cognitive Presence
DI	Direct Instruction
HEI	Higher Education Institution
ICs	Independent Contractors
ICTs	Information and Communication Technologies
LMS	Learning Management System
LP	Learning Presence or Regulatory Presence
NQF	National Qualification Framework
OECD	Organisation for Economic Co-operation and Development
P21	The Partnership of 21st Century Skills
PCK	Pedagogical Content Knowledge
PDPs	Professional Development Programmes
PIM	Practical Inquiry Model
PK	Pedagogical Knowledge/ Pedagogical Approach
RQ	Research Question
SP	Social Presence
SQ	Secondary Research Question
TCK	Technological Content Knowledge
TK	Technological Knowledge
TP	Teaching Presence
TPACK	Technological Pedagogical Content Knowledge (Framework)
TPK	Technological Pedagogical Knowledge
UNISA	University of South Africa

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CHAPTER ONE: Introduction to study

1.1 Introduction

Williams (2022) in the *Times Higher Education* questions the continuing worth of higher education. This comes after the announcement by PricewaterhouseCoopers (PwC) (as cited by Williams, 2022) of a change in their recruitment process not to prioritise applicants with graduate qualifications owing to "the supposed failures of top universities to ensure those entering the workforce have obtained the status of being *job-ready*". The article referred to the findings from Van Damme and Zahner (2022) that employers have lost confidence in higher education institutions (HEIs) to support the development of critical 21st century graduate attributes in preparing students for the labour market. This finding was corroborated in the report from the World Economic Forum (2023) that identified the skills gap as the biggest barrier in the labour market to industry transformation and growth. To remedy this failure, there is a need to address the skills misalignment between HEIs and industry.

In the HEI context, graduate attributes are defined as a set of generic, transferable "how-to" skills (Erdem, 2019) associated with employability (Gamage et al., 2023; Hammer et al., 2021) and life-long learning (Gamage et al., 2023; Oliver & Jorre de St Jorre, 2018). The term is used interchangeably with 21st century skills (Joynes et al., 2019). This has resulted in a diverse range of definitions and classifications (Care et al., 2019; Erdem, 2019) and a lack of consensus of what constitutes graduate attributes (Joynes et al., 2019). Based on the findings by Care et al. (2019) in their analysis of the national education policies from 152 countries, this study focuses on the highlighted classifications in Table 2.1 (p.13 of Chapter 2) in which the four most frequently cited 21st century graduate attributes fall. These four frequently cited skills are critical thinking, creativity, problem-solving and communication. This study will, however, not be limited to these classifications of competencies (World Economic Forum. 2015), ways of thinking and working (Kennedy et al., 2016), learning and innovation skills (as cited by Erdem, 2019) and social and personal skills (Chalkiadaki, 2018).

Despite HEIs' commitment to graduate attribute development (Hill et al., 2016), teacher-centric approaches have persisted (Blikstad-Balas & Klette, 2020; Phillips

& Condy, 2020). These approaches do not produce graduates with the necessary 21st century skills (Scott, 2015; Kaendler et al., 2015). Furthermore, understanding the importance of these attributes does not necessarily translate into its implementation by lecturers (Hill et al., 2016).

The extant literature associates lack of implementation with a lack of pedagogical knowledge and a focus on content learning outcomes. Firstly, the studies by Antunes et al. (2021), Børte et al. (2020), Kilgour et al. (2019), and Ni Shé et al. (2019) claim that it is a lack of pedagogical rather than technological knowledge that has resulted in the lack of implementation. Adnan (2018) advises a modification in professional development programmes (PDPs) to address the gap in pedagogical knowledge. Brinkley-Etzkorn (2018), however, recommends better integration of information and communication technologies (ICTs) with pedagogy. A study by Kilgour et al. (2019) on threshold concepts reveals a need for lecturers to engage deeply with technology and pedagogy, particularly in the re-evaluation of their beliefs about online teaching. Secondly, the lack of implementation of the desired graduate attributes is a result of the emphasis on content learning outcomes (Le et al., 2018). Content learning outcomes equip students with content knowledge and not necessarily skill acquisition. This study, therefore, investigates how lecturers who have adopted a more activity-based or student-centered approach have created online learning experiences for their students to support the development of 21st century graduate attributes.

1.2 Background context

The HEI in this study is committed to developing 21st century graduates. Their graduates should be “collaborative problem-solvers, equally as able to collaborate in person as they are online” (HEI’s Teaching and Learning Strategy Policy, 2019, p.11). With the onset of the Covid-19 pandemic in 2020, the institution shifted from contact lectures to a blended approach comprising contact lectures plus online synchronous and asynchronous activities. The distance campus, on the other hand, retained its focus on more asynchronous activities and a few online synchronous sessions, and this campus grew due to an increase in student intake.

The teaching and learning principles as outlined by the HEI's Teaching and Learning Strategy Policy (2019) is based on constructivism, with the emphasis on active student engagement. The cohort of lecturers primarily comprised independent contractors (ICs) who are employed to lecture because of their subject expertise. Bezuidenhout (2018) comments that lecturers are traditionally subject experts rather than pedagogical experts. Firstly, the constructivist approach is not necessarily shared by all ICs. This has been a general observation in the peer reviews, conducted with all the lecturers within the selected HEI, by a team of reviewers led by a teaching and learning expert. One of the reasons cited for a more transmissive approach by lecturers is that their teaching frame of reference is based on their experiences within historically teacher-centric environments (Phillips & Condy, 2020). Secondly, several studies (Brinkley-Etzkorn, 2018; Børte et al., 2020; Kilgour et al., 2019) recommend that professional development programmes (PDPs) support the development of both pedagogical and technological understanding in lecturers to support their practices. Despite the importance of this lecturer development, the process necessitates a more timeous and practical support to assist lecturers with intentional learning designs (Dunlap & Lowenthal, 2018; Roselli, 2016; Saadatmand et al., 2017). The focus is on supporting the pedagogical practices of lecturers in creating online learning experiences to prepare students for the 21st century workplace.

Both curricula and assessments are developed by a separate academic team of the selected higher education provider for this study. These competencies are not built into the curricula of all modules. Despite lecturers not developing summative assessments for their students, this is not too different from other HEIs. According to Gamage et al. (2023), many HEIs do not embed graduate attributes in their curricula. Rather, the graduate attributes are purported to develop because of the higher education experience of the students. The onus is, therefore, on the lecturers to drive competency-based skills.

1.3 Problem statement, rationale of study and purpose statement

Figure 1.1 provides an overview of the problem statement, the rationale of this study, and the purpose statement. Each will be discussed accordingly.

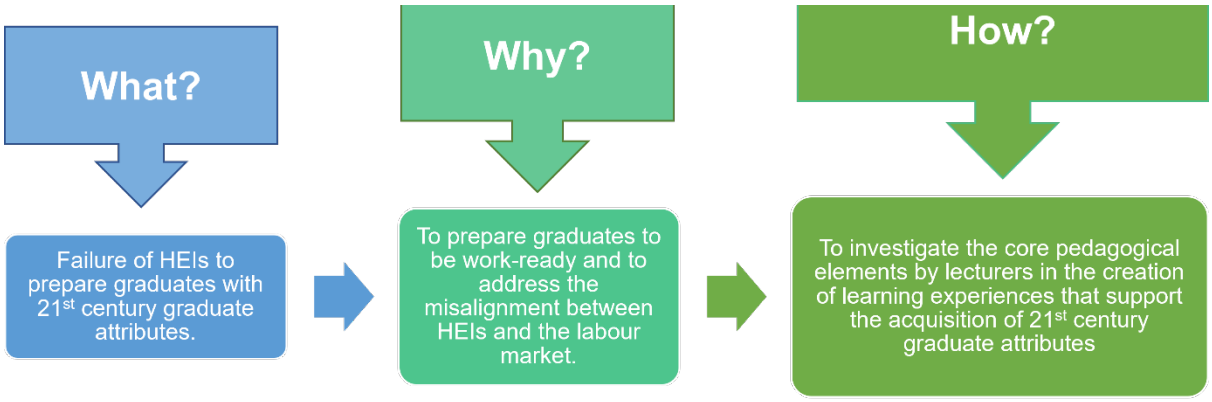

Figure 1.1 Overview of the problem statement, the rationale of study and the purpose statement

1.3.1 Problem statement

The problem or the "what" in Figure 1.1 is that HEIs are failing to prepare graduates with the necessary skill sets for the complexity of the 21st century workplace (Suarta et al., 2017; Van Damme & Zahner, 2022; World Economic Forum, 2015). Graduates should become meaningful contributors to the economy who possess sought-after skill sets associated with their tertiary qualifications (Tomlinson, 2012; Suarta et al., 2017; Van Damme & Zahner, 2022). According to Van Damme and Zahner (2022), a mismatch in the perceived preparedness of graduates by HEIs and the perceived failures of HEIs by employers, presents a risk to the trustworthiness and value of higher education. One of the contributing causes is the persistence of teacher-centric approaches that do not produce students with graduate attributes (Børte et al., 2020; Scott, 2015). According to Care et al. (2019) and Joynes et al. (2019), the broad range in definitions of 21st century graduate attributes has resulted in varied approaches to teaching and assessing these skills. Joynes at al. (2019, p.45) propose that further research be conducted to identify "guidelines for the teaching of 21st century skills."

1.3.2 Rationale of study

The study's rationale or the 'why' in Figure 1.1 is an attempt to address the perceived misalignment between the role of HEIs in preparing students for the 21st century workplace and the labour market. The failure to develop 21st century graduate attributes impacts competitiveness in the labour market (Suarta et al., 2017; World Economic Forum, 2023) and the employment opportunities of graduates (World

Economic Forum, 2023). But more importantly, the misalignment questions the fundamental value of higher education (Williams, 2022). The scope of this study is to investigate and identify how lecturers support the development of these 21st century graduate attributes in their online teaching. The aim is to narrow the gap discussed by Joynes et al. (2019) who recommend that further research is needed into the pedagogical approaches to integrate graduate attributes. The contribution of this study is to establish the core elements needed by lecturers in the planning stages of the creation of learning experiences to support the intentional development (Roselli, 2016) of graduate attributes. The establishment of these online elements are even more valuable since the shift to online teaching by HEIs, including many South African institutions. This is the result of the imposed lockdowns by governments responding to the Covid-19 pandemic in 2020 (Connolly & Hall, 2021). The study aims to contribute to the emerging body of literature on how lecturers create online learning experiences to enhance student engagement in the development of 21st century graduate attributes. Bitzer and Withering (2020) and Mashiyi (2015) contend that there is limited research on graduate attributes in the South African context.

The intrinsic value of this study for me was my role within this HEI. I worked closely with the lecturers and supported their professional development. Despite having recently left, I still have a vested interest in aligning the pedagogical practices of the lecturers to the HEI's commitment to develop 21st century graduate attributes. The online shift changes how lecturers create engaging student learning experiences, making it even more important for them to create online learning experiences to support the development of 21st century graduate attributes. Furthermore, I am fortunate to have moved into a similar role as a Learning Specialist within a consultation firm where part of my role is to develop the practices of other trainers. I am, therefore, hopeful that the findings of this research will be beneficial for the lecturers within the selected HEI of this study as well as meaningful to me in my own pedagogical practices and in my shaping of future trainers.

1.3.3 Purpose statement

The purpose of this study or the 'how' in Figure 1.1 is to explore how lecturers within an HEI support the development of 21st century graduate attributes through the

creation of online learning experiences. Firstly, this study examines and identifies the core elements during the planning stage of learning experiences to support these attributes. Secondly, it includes an exploration of lecturers' use of ICTs. Thirdly, their experiences in creating and implementing online learning experiences are investigated. Lastly, the study examines to what degree the lecturers' beliefs and attitudes about 21st century graduate attributes influence the creation of their online learning experiences. This is to mitigate the failure of the HEIs in supporting the development of 21st century graduate attributes. Since the extant literature (Børte et al., 2020; Kaendler et al., 2015; Scott, 2015) suggests that a student-centric pedagogical approach is required in graduate attribute development, the study draws on constructivist or student-centered practices of lecturers to identify the core elements in the planning stage of the learning experience (presented in Figure 1.1).

1.4 Research questions under investigation

Based on the purpose statement, the following research questions are explored:

1.4.1 Main research question

How do lecturers support the development of 21st century graduate attributes in their online teaching?

1.4.2 Sub-questions

To support the investigation of the main research question, the following secondary research questions were investigated:

1) What pedagogical elements do lecturers implement when planning online learning experiences to support 21st century graduate attributes?
2) How do lecturers use information and communication technologies to create online learning experiences to support 21st century graduate attributes?
3) How do lecturers experience the implementation of the created learning experiences to support 21st century graduate attributes?
4) To what extent do lecturers' beliefs and attitudes about 21st century graduate attributes influence the creation of online learning experiences in HEI?

1.5 Concept clarification

Four concepts are clarified below.

1.5.1 Learning design or the design of learning experiences

This falls outside of the typical association of curriculum design with a focus on 'how' and not 'what' students will learn (Chugh et al., 2017; Walker et al., 2017). The term *learning design* used in this study is synonymous with Kanuka's definition (2006) of instructional design. This is the recognition that "the design and development of effective classroom experiences requires deep understanding of the content and culture within each discipline" (Kanuka, 2006, p.9). Even though it is the process of incorporating general principles of learning and instruction into plans for instructional materials and activities that engage students in the learning process, it is not dependent on prescriptive and context-free instructional design processes (Hong & Sullivan, 2009; Cognition & Technology Group at Vanderbilt (CTGV), 1996). Koh et al. (2015) advocate that a learning or lesson design should develop the students' 21st century competencies.

The term 'design' is one of the components of teaching presence which is required in the planning stages or the creation of learning experiences. References to the creation of learning experiences in this study are used interchangeably with the term 'design' as allocated in the naming conventions of the sub-components of TP.

1.5.2 Direct instruction

Likewise, the term 'direct instruction' in this study is used in reference to the sub-component of TP. Vaughn et al. (2013, p.63) argue that the inclusion of direct instruction (DI) as one of the sub-components of teaching presence (TP) is categorically not the same as 'lecturing'. Rather, the purpose is to deal with specific issues such as clarifying difficult concepts, diagnosing misconceptions or misunderstandings, and providing both direction in discussions and feedback (Anderson et al., 2001; Richardson et al., 2012; Vaughn et al., 2013; Zhang, 2020). This is represented in Figure 1.2 below.

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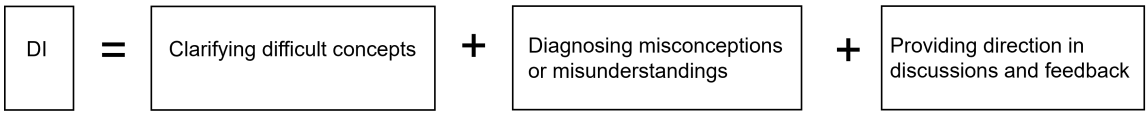


Figure 1.2 Direct instruction as defined in the CoI model

The concern is that direct instruction is a term associated with an instructivist teaching approach that is antithetical to a constructivist approach. According to Renard (2023), DI is a structured, sequenced and teacher-led approach that includes the presentation of academic content to students. DI is premised on the systematic and explicit use of instruction that was first developed by Becker and Engelmann in the 1960s (National Institute of Direct Instruction, 2023). A visual representation of direct instruction by Wales Impact (2019) located on the Structural Learning website provides a formula for DI of explicit teaching, sequential curricula and frequent assessment for learning. This simplified formula is demonstrated below in Figure 1.3.

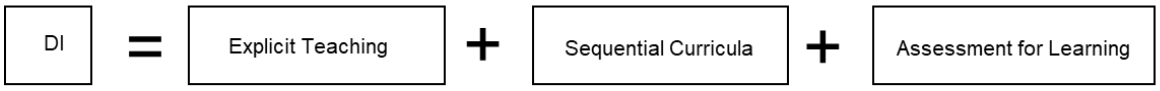


Figure 1.3 Components of direct instruction

Studies such as Martin et al. (2022), Moore (2016), and Rolim et al. (2019) use the term ‘direct instruction’ to describe TP within the CoI model without clarifying the term. On the other hand, studies such as Kyei-Blankson et al. (2016), Plotts (2021), and Wilson and Berge (2023) mention content delivery as part of the subcomponent of DI without examining DI in detail. Wilson and Berge (2023, p.167) define DI as “presenting content” citing Garrison & Arbaugh (2007). Kyei-Blankson et al. (2016, p.60) refer to this sub-component as a “high quality direct instruction of the subject matter to students” citing Anderson et al. (2001). Similarly, Plotts (2021, p.1) refers to DI as the “delivery of curriculum and content in online spaces,” citing Garrison et al. (2000). Pool et al. (2017, p.157) associate the two sub-components of TP, namely the direct instruction and the facilitation of discourse, to the development of higher-order thinking which in turn would result in the resolution stage of the practical inquiry model (PIM). One could argue that the term DI as understood by many as ‘lecturing’ or ‘explicit teaching’ (as indicated in Figure 1.3), could be perceived as resulting in the development of higher-order thinking such as critical

thinking, creative thinking, collaboration and problem-solving. Yet, the extant literature (Hill et al., 2016; Scott, 2015) concludes that these instructivist approaches do not support the acquisition of 21st century graduate attributes.

This clarification of DI as represented in Figure 1.2 is, therefore, important to provide insight into the perceived misalignment of this term by some participants, which was discovered during the analysis stage of this research.

1.5.3 The online learning environment

The online learning environment has seen a recent shift from a primarily correspondence approach (Prinsloo, 2019) where the University of South Africa (UNISA) dominated the distance space to a range of blended or purely online approaches (Torun, 2020). The Covid-19 pandemic pivoted many HEIs towards online teaching, irrespective of whether their lecturers were prepared for it or not (Sen-Akbulut et al., 2022). 'Online' in this study refers to both blended and the purely online approaches that include synchronous and asynchronous engagement. Synchronous engagement is equivalent to a virtual lecture using a webinar tool whereas asynchronous engagement refers to student interaction with resources and activities within the learning management system (LMS) without the presence of a lecturer. The blended approach includes a percentage of face-to-face student contact time.

1.5.4 Learning management systems (LMS)

The majority of HEIs have adopted integrated computer systems known as LMS (Coates et al., 2005). These learning platforms provide virtual online classrooms (Bradley, 2021). It is a web-based software application (Ifenthaler, 2012) that encourages both communication and media tools (Bradley, 2021). The LMS used within the selected HEI houses pre-designed, activity-based modules. Both activities and media-rich resources are aligned with the module outcomes and prescribed textbooks. The activities are available for students to complete asynchronously as either introductory or consolidation activities. The intention is not systematic completion of all the activities within a module. The modules may be further customised (Coates et al., 2005) by the lecturer with a range of tools to allow for either synchronous and asynchronous engagement with the content and fellow

students. The tools include communicating via announcements, engaging students through webinar functions or activity tools such as blogs, journals, wikis, and discussion boards to name a few. Lecturers are also not confined to pre-existing tools but may include other ICTs in the creation of learning experiences.

1.6 Structure of the remaining chapters

The following four chapters address the research question to investigate lecturers' creation of learning experiences that support the development of 21st century graduate attributes. The chapters provide an overview of the extant literature on the topic, outline the selected methodology and present the findings of this multi-method qualitative case-study to identify the core pedagogical elements that assist in the creation of these experiences. Below is a more detailed outline of the chapters to follow:

Chapter 2: Literature review

Chapter 2 provides more insight into existing literature on the creation of learning experiences by lecturers to support the development of graduate attributes. It also discusses the two conceptual frameworks, namely technological pedagogical content knowledge (TPACK) and the revised community of inquiry (CoI) model that underpin the study.

Chapter 3: Research methodology

In this chapter, the emergent research design is explored using the research onion by Saunders et al. (2019) for how the data collections tools and analysis were determined for the study by unwrapping the outer layers from the broad interpretivist philosophical stance to the choice of a multi-method qualitative investigation and the purposeful selection of lecturers from a particular HEI.

Chapter 4: Presentation and interpretation of the findings

This chapter presents the findings of the research by providing rich descriptions and the narrative voices of the seven lecturers who participated in the study to determine the core pedagogical elements that support the development of 21st century

graduate attributes. The findings are presented by themes, sub-themes, and visual representations where possible.

Chapter 5: Discussion, limitations and recommendations

This chapter discusses the findings, draws conclusions, and addresses the limitations to the research. It concludes with recommendations for further research and teaching practices.

CHAPTER TWO: Literature review

2.1 Introduction

This chapter provides an overview of the literature related to the creation of online educational experiences to support the development of 21st century graduate attributes. Three themes are discussed: the first explores the broad range of definitions of 21st century graduate attributes, the second examines the pedagogical challenges to support the development of these skill sets, and the third elaborates on the need to create intentional collaborative educational experiences for students. Lastly, the chapter outlines the conceptual framework used in the study.

2.2 Challenges in defining graduate attributes

HEIs share a commitment to develop employability skills in their students (Hill et al., 2016; Ramnund-Mansingh & Reddy, 2021). There is a collective responsibility to develop graduates who will be socially responsible and productive citizens of an economy. Businesses have shifted to innovation-driven economies reliant on a reduced but more skill-orientated workforce (World Economic Forum, 2015). Since the workplace has become more "knowledge-based, interdisciplinary, and specialized" (Van Laar et al., 2020, p.3) with a greater reliance on effective communication and collaboration skills (Erdem, 2019), employers look to recruit graduates with the relevant qualifications within a discipline. These qualifications represent a perceived value-add of advanced cognitive skills and 21st century workplace readiness (Van Damme & Zahner, 2022). However, these generic transferable skills seem to be ill-developed (Zakaria et al., 2020) or lacking within graduates (Ramnund-Mansingh & Reddy, 2021; Van Laar et al., 2020; Van Damme & Zahner, 2022).

One of the challenges is the diverse range of 21st century skills (Joynes et al., 2019; Suarta et al., 2017; World Economic Forum, 2015). HEIs, therefore, define the skills and qualities of graduate attributes differently as there is no standardised set of competencies (Oliver & Jorre de St Jorre, 2018; Ramnund-Mansingh & Reddy, 2021). Table 2.1 provides an overview of four frameworks that illustrate these broad definitions.

Table 2.1 An analysis of 21st century skills from four frameworks

World Economic Forum (2015)	ATC21S (2012) as cited by Kennedy et al. (2016)	Partnership for 21st Century Skills (P21) as cited by Erdem (2019)	Chalkiadaki's framework (2018)
Foundational Literacies Literacy Numeracy Scientific literacy ICT literacy Financial literacy Cultural and civic literacy	**Ways of Thinking** Creativity and innovation Critical thinking Decision-making Metacognition	**Learning and innovation skills** Critical thinking and problem-solving Creativity and innovation Communication Collaboration	**Personal Skills** Self-development & autonomy/metacognition Creativity Critical thinking and problem-solving Adaptability and agility
Competencies Critical thinking/ problem-solving Creativity Communication Collaboration	**Ways of Working** Communication Collaboration	**Information, Media and Technology Skills** Information literacy Media literacy Technology literacy	**Social Skills** Communication Collaboration Cultural Awareness Leadership and entrepreneurship
Character Qualities Curiosity Initiative Persistence/ grit Adaptability Leadership Social and cultural awareness	**Tools for Working** ICT literacy Information literacy **Skills for Living in the World** Citizenship Life and career Personal and social responsibility	**Life and Career Skills** Flexibility and adaptability Initiative and self-direction Social and cross-cultural skills Productivity and accountability Leadership and responsibility	**Information and Knowledge Skills** Learning Information Management **Digital Literacy Skills** Digital literacy ICT literacy

The above analysis highlights the diverse range of both the classifications of skills and the identified skills. According to the research conducted by the World Economic Forum (2015), sixteen skills (as outlined in the 1st column) are identified across three broad categories: foundational literacies, competencies, and character qualities. Erdem (2019), on the other hand, cites nineteen skills (as outlined in the 3rd column) in three different broad categories within the Partnership for 21st Century Skills framework (2007). In fact, Erdem (2019) and Joynes et al. (2019) conclude that there are several frameworks which outline a variety of skills in the literature. For example, Kennedy et al. (2016) classify the skills (as listed in the 2nd column) into four broad categories within the Assessment and Teaching of 21st Century Skills framework (ATC21S, 2012): ways of thinking, ways of working, tools for working and

skills for living in the world. Yet, Chalkiadaki's framework (2018) as depicted in the last column, classifies the four categories into personal skills, social skills, information and knowledge skills and digital literacy skills. These broad definitions of 21st century skills have hindered how they are integrated into the curricula (Care et al., 2019).

The second challenge to successful integration in curricula are the ill-defined levels of competencies (Care et al., 2019) or threshold learning outcomes (Oliver & Jorre de St Jorre, 2018). To what degree should students be able to problem-solve and collaborate at each National Qualification Framework (NQF) level? This is crucial considering that the level descriptors are a tool for comparability and articulation among qualifications within the NQF framework (SAQA, 2012). The level descriptors inform and evaluate the level of learning achievement of both content and competencies of students within the education system. Despite the indication of these competencies in a discipline module, they do not indicate the level at which these should be achieved by students (Oliver & Jorre de St Jorre, 2018). This provides a challenge to how lecturers teach these skills (Care et al., 2019; Hill et al. 2016).

Notwithstanding these challenges, there is consensus that graduates need a set of competencies or process-oriented skills (Erdem, 2019) to successfully adapt to the 21st century knowledge age. From the broad classification of 21st century skills, four competences (typically known as the 4 Cs) are generally cited (Chiruguru, 2020; Joynes et al., 2019; PowerSchool, 2021; Scott, 2015; Suarta et al., 2017). These are critical thinking, creativity (or problem-solving), communication and collaboration. This is supported by the findings of an analysis of the educational policy documents from 152 countries by Care et al. (2019) where the most frequently cited skills are communication, creativity, critical thinking and problem-solving. The highlighted sections in Table 2.1 indicate where these four competences are classified within the four mentioned frameworks. Irrespective of whether the skills are classified as ICT digital skills (Van Laar et al., 2020), employability skills (Suarta et al., 2017), competencies (World Economic Forum, 2015; Arslan, 2018) or learning and innovation skills (Erdem, 2019), all agree on the importance of these as graduate attributes.

Each of the four most frequently cited 21st century graduate attributes will be explored in more detail. Table 2.1 illustrates that three of these, namely critical thinking, problem-solving, and creativity are all classified within the same category per framework. In fact, three of the frameworks associate critical thinking and problem-solving as similar skill sets with only ATC21S distinguishing it as separate and replacing problem-solving with decision-making. The fourth cited skill, namely communication, is classified differently in two of the frameworks (ATC21S and Chalkiadaki's framework). Collaboration, which is closely linked to communication, seems to be placed next to communication within all four frameworks, and thus will also be examined. This is to show the importance associated with the acquisition of these skill sets within an organisation. Considering the digitalisation that has shaped businesses (Suarta et al., 2017), ICT skills have been included.

2.2.1 Critical thinking skills

Critical thinking is a progressive skill (Care et al., 2019) that can be taught, practise, and mastered, becoming more sophisticated and developed over time (Kuhn, 1989). Firstly, it is an intentional, goal-directed, and reflexive process (Lewis & Smith, 1993 as cited by Care et al., 2019; Van Laar et al., 2020) that requires higher-order thinking skills. Secondly it involves reasoning and reflection to make informed decisions (Van Laar et al., 2020; Willingham, 2007), analyse and evaluate a context to formulate an individual viewpoint or position (Care et al., 2019) and application of this learning to new contexts and situations (Care et al., 2019; Park et al., 2021; Willingham, 2007). Recent studies have also indicated a positive correlation between critical thinking and creativity (Park et al., 2021)

The concern is that despite it being defined as a *learnt behaviour* (Kuhn, 1989), recent studies (Joynes et al., 2019; Van Damme & Zahner, 2022) indicate that graduates have not sufficiently acquired critical thinking skills. According to the OECD report, Van Damme and Zahner (2022) state that on average, only 45% of tested university students are proficient in critical thinking. This indicates that the majority are lacking this 21st century graduate attribute and further confirms the mismatch between a qualification and the perceived attainment of critical thinking skills (Van Damme & Zahner, 2022). There is pressure within HEIs to support the development of this crucial employability skill (Suarta et al., 2017).

2.2.2 Problem-solving skills

Problem-solving and decision-making are sought-after skills sets within the labour market (Tomlinson, 2012; Suarta et al., 2017). To become productive and socially responsible citizens, a skilled workforce needs to address real problems such as the detrimental economic impact of loadshedding by Eskom and the water crisis in South Africa, with sustainable solutions. Problem-solving is characterised as the process of "identifying a discrepancy between an actual and desired state of affairs and then taking action to resolve [it]" (Suarta et al., 2017, p.340).

However, establishing the underlying causes of a problem is often difficult to establish and requires in-depth investigation into the problem and the generation and assessment of various alternatives before decision-making can begin (Care et al., 2019). Decision-making is the evaluation and selection process of the best option of possible alternatives to achieve the desired goal (Suarta et al., 2017). The problems or contexts are often complex and unique (Van Laar et al., 2020; Care et al., 2019) and require innovative solutions (Park et al., 2021; Care et al., 2019). These solutions need to be implemented and assessed. The steps align to part of the critical thinking process of identification, analysis, evaluation, and reflection (Park et al., 2021).

2.2.3 Creative thinking skills

The innovative solutions mentioned above, in part define creative thinking. This is the ability to imagine novel ways to resolve complex problems (Park et al., 2021). Creativity can be defined as the ability to think outside of the box, to work creatively with others, and to implement innovation (Chiruguru, 2020). Park et al. (2021) and Corazza and Lubart (2021) caution that creativity should be context-specific and culturally relevant. This creates complexity in defining benchmarks to measure creativity and to make comparisons across different countries (World Economic Forum, 2015)

Within a competitive evolving global market where task automation has reduced the workforce, innovativeness and creativity are key graduate attributes (Joynes et al., 2019). This is confirmed by the recent report published by the World Economic Forum (2023) that reflected the increased importance of this skill relative to

analytical thinking in comparison to previous surveys from businesses. It is ranked second to analytical thinking. Creativity is, therefore, considered an essential skill for organisational change management and adaptability (Van Laar et al., 2020).

2.2.4 Communication skills

Good communication skills and the ability to work within a team are attributes that employers seek in graduates (Gamage et al., 2023). Good communication skills contribute to a productive and harmonious team of individuals from diverse backgrounds (Suarta et al., 2017). This skill set or proficiency in interpersonal skills is considered crucial for the improved performance of teams (Gamage et al., 2023; Joynes et al.,2019). It is not surprising that communication and collaboration are closely grouped together in each of the four frameworks as illustrated in Table 2.1. The 21st century workplace has seen a shift to more networked collaborations (Gamage et al., 2023), remote working (particularly since the outbreak of the Covid-19 pandemic) and group projects (PowerSchool, 2021). Good communication skills support collaboration (Lewin & McNicol, 2015).

Communication skills can be categorised into four components. Figure 2.1 provides an overview of these four categories.

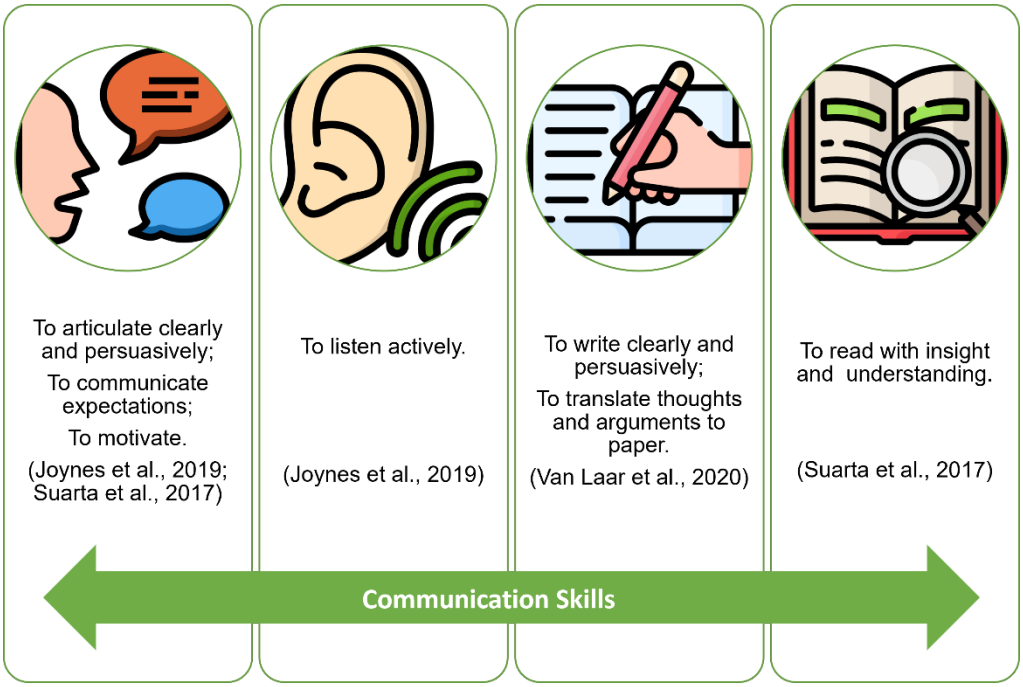


Figure 2.1 Categories of communication skills

The first is the ability to articulate clearly and persuasively thoughts, arguments, and projects to others, to clearly communicate any expectations of what is required and to motivate others through speech (Suarta et al., 2017; Joynes et al., 2019). The second is the ability to listen effectively to avoid misunderstandings and miscommunications (Joynes et al., 2019). The third is the ability to translate ideas or arguments in an appropriate written format considering the audience and selected medium (Van Laar et al., 2020). The fourth is the ability to read and comprehend (Suarta et al., 2017).

2.2.5 Collaboration skills

The 21st century workplace is a global highly networked set of practices with colleagues often separated by distance (Joynes et al., 2019). The ability to work together within this context requires clear and effective communication skills (Joynes et al., 2019; Suarta et al., 2017) and the integration of ICTs to minimise the transactional distances between colleagues (Lewin & McNicol, 2015). Furthermore, within the workplace, employees are dependent on others for their expertise in completing tasks (Van Laar et al., 2020). Working effectively within a team necessitates good interpersonal skills. The development of such skills is ranked more important than job-related skills in the workplace (Kagan, 1994). Cross-cultural skills require employees to be able to interact with others (Kivunja, 2015). When engaging with a diverse group of people, one needs to do so in a respectful manner and to be receptive to differing ideas and values (Chiruguru, 2020; Arslan, 2018; Kivunja, 2015).

Collaboration has been used interchangeably with cooperative learning. In a review by Suarta et al. (2017), cooperatively and collaboratively are defined as the same and used interchangeably: “teamwork is a cooperative process” (p.341) and “teamwork is synonymous to working collaboratively in groups” (p.341). Within the definition of collaboration, there is reference to the purpose of shared goals. Cooperation does not necessarily include a ‘shared’ vision and is more closely linked with achieving an individual outcome.

Yet, collaboration is more than cooperative learning. According to Roselli (2016), cooperation is the division of functions within a particular task whereas collaboration

is a “collective process” (p.255) and a joint involvement of team members in task completion. This division of work loses the essence of collaboration as there is no co-construction of knowledge. Rather, individuals remain experts in their own contributed sections. It is the ‘how’ in relation to the purpose that distinguishes collaboration from cooperation. Cooperation does not mean working together towards a shared vision or goal. Collaboration, on the other hand, is directed by this shared vision or shared responsibility (Ellis et al., 2021; Chiruguru, 2020). Collaboration requires accepting opposing viewpoints or perspective taking (Care et al., 2019; Le et al., 2018), critiquing the contributions of others (Care et al., 2019), providing thorough explanations (Le et al., 2018; Scager et al., 2016), synthesising ideas (Ellis et al., 2021), assisting others or receiving assistance (Le et al., 2018), and the ability to negotiate or compromise (Chiruguru, 2020; Care et al., 2019). This is more progressive than cooperative learning and is an iterative process in the co-construction of knowledge (Roselli, 2016) and the development of critical thinking skills (Scager et al., 2016).

This is also applicable in the creation of online learning experiences that are student-centric and are dependent on the co-construction of knowledge between peers, and between lecturers and students (Garrison, 2009). The findings from a study by Knopf et al. (2021) indicate a significant improvement in the development of higher-order thinking skills through online collaborative learning.

2.2.6 ICT skills

According to Joynes et al (2019), the extant literature examines the degree to which technology-driven skills are considered key to supporting the online acquisition of 21st century skills. Whilst the consensus is that ICT skills are crucial in most frameworks, their position within the framework remain unclear. Some authors consider ICT competencies categorised as separate (ATC21S, P21 and Chalkiadaki’s framework), others consider a “more integrative approach” (Joynes et al., 2019, p.19) This is where the acquisition of ICT skills is embedded in the acquisition of 21st century skills such as critical thinking, problem solving, communication and collaboration (Lewin & McNicol, 2015; Joynes et al., 2019; Van Laar et al., 2020).

2.3 The pedagogical challenges to support the development of these skillsets

The pedagogical approach in developing graduate attributes is key. Scott (2015) raises the concern that the pedagogical approach is overlooked when it comes to supporting the development of 21st century graduate attributes. There needs to be a shift from instructivism or transmission lecturing to a learner-centered approach in which students are actively engaged in the learning experience (Børte et al., 2020; Care et al., 2019; Hill et al., 2016; Kaendler et al., 2015). Lecturers need to create activities that are not only relevant but that foster the required skills. Paniagua and Istance (2018) believe that the completion of complex and authentic activities by students would assess these competency skills. Scott (2015) argues the importance of well-designed collaborative experiences to promote the development of these skills by undergraduates. Both studies advocate the need of lecturers to build student metacognitive skills to support the development of graduate competencies as these are not innate.

Joynes et al. (2019), on the other hand, recommend that further research is needed regarding the pedagogical approaches in integrating these skills. Their concern is the dissensus in both the teaching and assessment of these skills, despite reports from various stakeholders calling for skills integration in the learning experience (Mason et al., 2009). Care et al. (2019) propose that a clear understanding of the essential skills is established to enable lecturers to support the acquisition of these 21st graduate attributes.

Erdem (2019) suggests that for the successful integration of these skills into both curricula and student outcomes, there needs to be an investment in the development of the skills by educators. According to Paniagua and Istance (2018, p.20), “a strong focus on pedagogy” is necessary. Few professional development programmes even address these competencies and when they do, the programmes do not include practical applications of integrating sound pedagogical practice within lesson design and implementation (Care et al., 2019). Both research studies by Bitzer and Withering (2020) and Hill et al. (2016) acknowledge that successful integration is dependent on the view held by lecturers in developing these skills thereby creating learning activities that integrate the skills within their disciplines.

Understanding the importance of these graduate attributes does not necessarily result in lecturers teaching these skill sets (Hill et al., 2016).

The findings from Bitzer and Withering (2020) indicate the inconsistency by lecturers within a South African University in supporting the development of these 21st century graduate attributes in their students. This inconsistent approach and a strong dependence on transmissive pedagogies (Blikstad-Balas & Klette, 2020; Phillips & Condy, 2020; Chai & Koh, 2017) is worrying if these skills must be "explicitly taught" (Scott, 2015, p.2) for students to master the competencies. According to the World Economic Forum (2015), many students are not acquiring these graduate attributes, particularly in the developing countries. South Africa, a developing country, formed part of its study.

2.4 Creating collaborative educational experiences for students

There is a need for intentional designs (Dunlap & Lowenthal, 2018; Roselli, 2016; Saadatmand et al., 2017) when creating online collaborative learning experiences. Børte et al. (2020) argue that lecturers need to acquire competency in learning design to ensure pedagogically-sound use of ICTs to engage students in active learning. This is to ensure that the integration of ICTs reaches its full potential in developing graduate attributes (Park & Shea, 2020).

Collaborative learning such as the community of inquiry (CoI) model by Garrison et al. (2000) involves the shared construction of knowledge between students or between students and lecturers (Chand, 2016; Garrison, 2021; Roselli, 2016). For deeper, more meaningful learning, knowledge is co-created or negotiated between students to solve shared problems (Lailiyah et al., 2021) and is dependent on the active engagement of students within the educational experience.

Yet, despite the alignment of this pedagogical approach to the acquisition of 21st century graduate attributes or the four competencies (Care et al., 2019) and despite a set of the principles by Garrison and Akyol (2013) to assist lecturers in the design component of their teaching presence (TP), students are graduating without these crucial skills (Williams, 2022; Van Damme & Zahner, 2022). West and Allman (2021) contend that lecturers must share the same pedagogical belief as the learning

process model. The focus of this study is to examine the factors related to the implementation of the design component of TP to support the acquisition of 21st century graduate attributes. The intention is to provide a practical way to support the seven principles of Garrison (2011). Figure 2.2 reflects these seven principles which align to the three sub-components of TP.

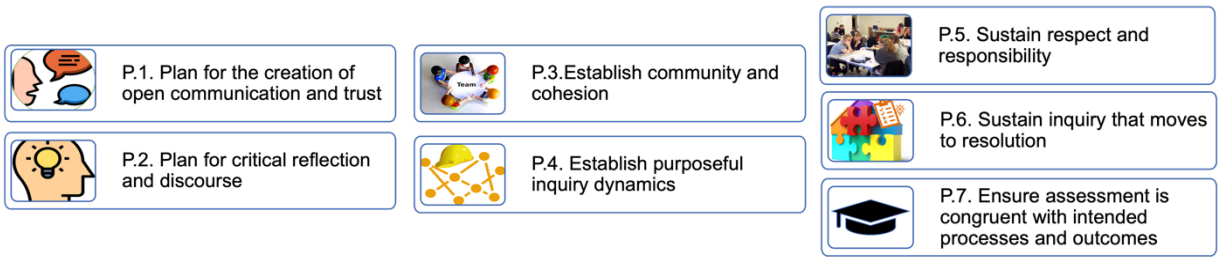


Figure 2.2 The seven COI principles
The seven principles by Garrison (2011)

According to Vaughn et al. (2013), the first two principles (Pr.1 and Pr.2) are related to the design component, the next two (Pr.3 and Pr.4) are linked to the facilitation of discourse, and the last 3 are associated with direct instruction. The critique by Garrison (2011) of the study conducted by Fiock (2020) was that her findings did not align with these principles. Garrison (2021) acknowledges that specific and practical methods that complement the principles would support the implementation of collaborative online educational experiences for students. The findings from Knopf et al. (2021) show that online collaborative learning leads to better achievement of learning outcomes in line with the revised Bloom's Taxonomy than courses without collaborative learning.

A collaborative experience is dependent on an intentional combination of pedagogy and task design by lecturers to support collaborative behaviours within students (Bower et al., 2017; Ellis et al., 2021). Learning success is dependent on the lecturer's "design and way of teaching" (Knopf et al., 2021, p.126). Both the findings from Le et al. (2018) and Kaendler et al. (2015) indicate that a lack of teaching competencies in creating these experiences will hinder collaborative learning amongst students. Individual lecturer outcomes may be achieved but co-construction of knowledge will be lacking. Lecturers should teach students how to

work effectively within collaborative environments (Roselli, 2016) and build in explicit collaborative outcomes into the learning design (Le et al., 2018).

Despite studies such as Dunlap and Lowenthal (2018) and Fiock (2020) that were premised on identifying more tangible and practical design elements of TP in response to the descriptive CoI model and guidelines by Garrison and Akyol (2013), there is still a gap in how lecturers create learning experiences that support the development of 21st century graduate attributes for the workplace. Wilson and Berge (2023) argue that this lack of practical guidelines or implementation methods is problematic as it is either left to the past teaching experiences of lecturers or to the interpretations of literature.

2.5 Theoretical underpinnings

Two theoretical frameworks are used in this study to investigate the integration of technological and pedagogical lecturer knowledge into intentional creation of online learning experiences to support 21st century graduate attributes. The primary theoretical framework is a revised community of inquiry (CoI) model (Shea & Bidjerano, 2010) in which an additional presence, namely regulatory or learning presence, has been included. The secondary theoretical framework is the technological pedagogical content knowledge framework (TPACK). Both will be explored in more detail, followed by an explanation of the purposeful integration of these two models.

2.5.1 The revised Community of Inquiry Model (CoI)

The original CoI model (Garrison et al., 2000) focuses on developing a learning community through collaborative learning experiences in which students engage in purposeful critical discourse and reflection to co-construct knowledge (Martin et al., 2020; Richardson et al., 2012; Garrison & Akyol, 2013). This learning model has been extensively researched (Bosch et al., 2020; Castellanos-Reyes, 2020; Dunlap & Lowenthal, 2018; Lee, 2014; Patwardhan et al., 2020; Sen-Akbulut et al., 2022; Wilson & Berge, 2023) with studies examining each of its dimensions (social presence (SP); cognitive presence (CP); and teaching presence (TP)) as well as the interconnectedness of these presences. This interdependence of the presences is

essential in creating a collaborative educational experience and yet has not been explored in as much detail as the individual presences (Peacock and Cowan, 2016).

Figure 2.3 provides a reconceptualised CoI model that adds a fourth presence to the original three of SP, CP, and TP.

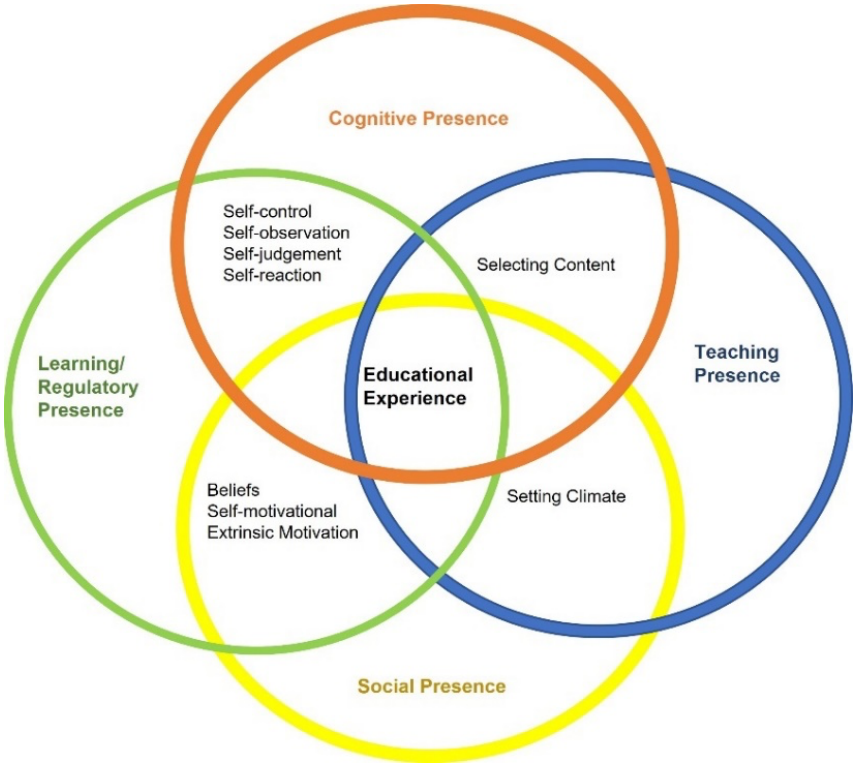


Figure 2.3 Reconceptualization of CoI framework
Reconceptualization of CoI framework by Kilis & Yildirim (2018)

SP, outlined in yellow in Figure 2.3 is considered the mediator between TP and CP (Moore & Miller, 2022) and a pre-condition for CP (Garrison et al., 2000). A criticism of the online space is that it is a lonely, isolating experience that often results in a disengagement from students (Hehir et al., 2021). SP is the intentional creation of a sense of belonging and group cohesion (Zhang, 2020; Parker & Herrington, 2015). It focuses on developing communities in which students feel socially and emotionally connected (Richardson et al., 2012) through the creation of an open and safe learning environment. It is the establishment of interpersonal relationships (Bosch et al., 2020) and supports the cognitive and affective objectives of learning (Kilis & Yildirim, 2018). Findings from Zhang et al. (2020) have established the importance of developing SP to facilitate CP.

CP, outlined in orange in Figure 2.3, is developed through the type of activities relevant to content matter. It is within CP that higher-order thinking skills need to be developed for the acquisition of graduate attributes. CP is the essence of CoI (Zhang, 2020) as it is the process in which students construct meaning through reflection and discourse (Richardson et al., 2012; Martin et al., 2022). It is dependent on the establishment of other presences as preconditions (Zhang, 2020). However, it also requires student autonomy and certain metacognitive abilities (Pool et al., 2017). Garrison et al. (2000) outline the four stages in the practical inquiry model (PIM) required to achieve this critical thinking: a triggering event, exploration, integration, and finally resolution. Figure 2.4 shows the progression in the four cognitive levels of PIM (Moore & Miller, 2022; Rolim et al., 2019; Sadaf & Olesova, 2017).

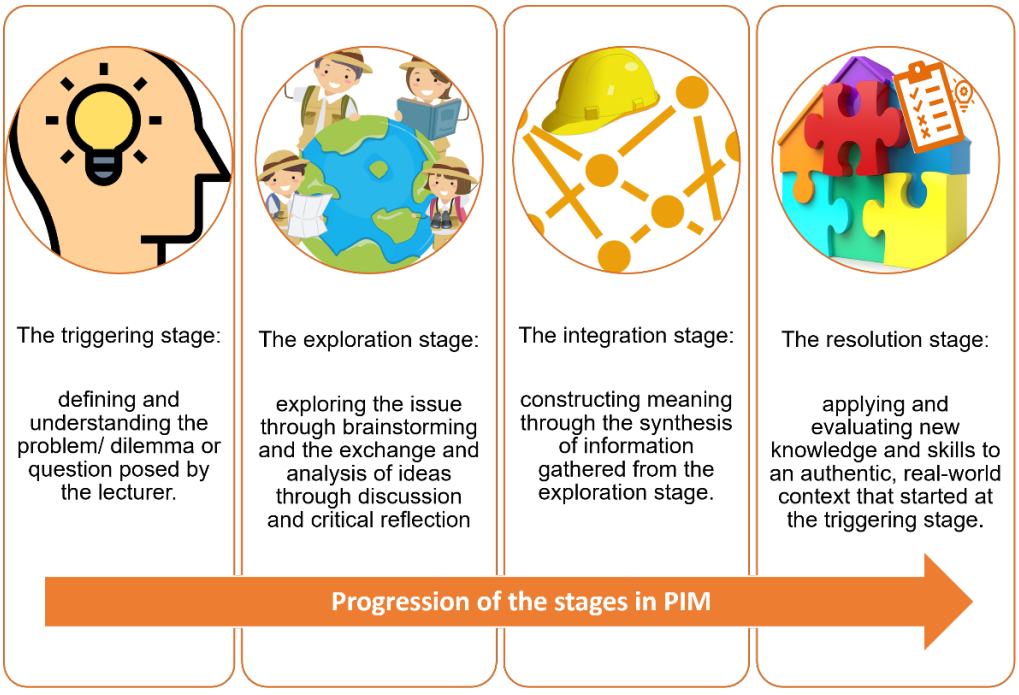


Figure 2.4 An adaption of the Practical Inquiry Model
An adaption of the Practical Inquiry Model by Garrison et al. (2001)

These last two stages are integral to the development of higher-order thinking (Børte et al, 2020; Sadaf & Olesova, 2017), yet the resolution stage is often not achieved (Junus et al., 2022; Sadaf & Olesova, 2017; Shea & Bidjerano, 2010).

TP, outlined in blue in Figure 2.3 connects the other presences to create a CoI (Garrison, 2021; Kilis & Yildirim, 2018). It consists of three elements. The first is the

design of the learning environment and its activities (Ní Shé et al., 2019). The second is facilitating discourse (Zhang, 2020) by establishing the parameters that will allow students to engage in a meaningful manner (Sen-Akbulut et al., 2022). The third is direct instruction which not only defines the lecturer as a "knowledge disseminator" (Richardson et al., 2012, p.5) but also a facilitator of reflection and discourse through content delivery, assessment, and explanatory feedback (Richardson et al., 2012). According to Wang and Liu (2019), too much direct instruction prevents critical discourse and the co-construction of knowledge amongst students. Thus, there needs to be deliberate and intentional consideration about how the lecturer facilitates the learning process at the design stage.

Several studies (Shea & Bidjerano, 2010; Cleveland-Innes & Campbell, 2012; Hayes et al., 2015, Kilis & Yildirim, 2018) suggest a missing presence. Shea and Bidjerano (2010) and Kilis and Yildirim (2018) respectively define the missing presence as a learning or regulatory presence (outlined in green in Figure 2.3). The inclusion of this fourth presence in this study helps lecturers to understand their role in cultivating a "metacognitive culture that promotes greater learning" (Shea & Bidjerano, 2010, p.10) for students. According to Scott (2015), this is a missing skill that needs to be taught. This presence helps to make explicit to lecturers certain required student behaviours to engage effectively within a collaborative milieu. Self-regulation examines the degree of metacognitive ability, the level of intrinsic motivation, and resilient behaviours of students (Wertz, 2022). A lack of self-regulation skills is one of the critiques of the original CoI framework (Pool et al., 2017) even though Garrison (2021) argues that self-regulatory behaviours are developed within the CP. Annand (2011), Kozan and Caskurlu (2018), and Wertz (2022), on the other hand, argue that LP is a discernible construct. A study by Wertz (2022) suggests that LP and CP have the strongest association among the CoI constructs. Likewise, when examining the definitions of CP, self-regulatory behaviours are considered "distinguishable" from other presences (Shea et al., 2013 as cited by Kozan & Caskurlu, 2018, p.107). According to Scott (2015), metacognition needs to be modelled by lecturers so that students can question their thinking and engage in higher-order thinking skills

2.5.2 The Technological Pedagogical Content Knowledge Model

The second theoretical framework used in this study was TPACK. This framework has transformed how ICTs are integrated within a lecturer's teaching practice (Chai & Koh, 2017). It calls for the careful alignment of content, pedagogy, and technology (Voogt et al., 2012) as well as the integration of the three domains indicated in Figure 2.5.

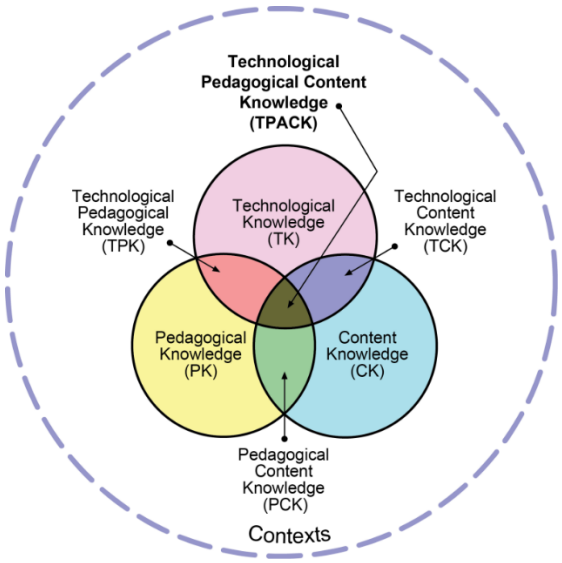


Figure 2.5 TPACK framework
by Koehler and Mishra (2009) reproduced by permission of the publisher, © 2012 by tpack.org website: http://tpack.org

Exploration of technology and pedagogy are both important in the fostering of a student-centred approach in graduate attribute development in the online space. Many studies (Børte et al., 2020; Pisanu, 2014; Røe et al., 2022; Sinclair & Aho, 2018; Tee & Lee, 2011; West & Allman, 2021) have indicated a persistence in the transmissive approach in the integration of technology. Moore (2016) surmises that this misalignment between pedagogy and technology is due to lack of familiarity with ICTs and poor implementation by lecturers to maximise the capabilities of ICTs. To understand the potential of ICTs as cognitive partners (Jonassen & Reeves, 1996), a brief description of the three knowledge domains and the accompanying intersections are provided.

Firstly, the three knowledge domains to be defined, as already mentioned, are pedagogical knowledge (PK), content knowledge (CK) and technological knowledge

(TK). PK is defined as the process of teaching or the level of insight into teaching and learning processes (Avidov-Ungar & Eshet-Alkalai, 2014). It refers to the pedagogical practices of lecturers which are informed by their pedagogical beliefs (Tondeur et al., 2016). CK refers to the body of content (Koehler & Mishra, 2009) that needs to be covered to meet the module learning outcomes. TK incorporates two aspects: the first is the lecturers' technical skills in integrating specific ICTs (De Rossi & Trevisan, 2018) and the second is the knowledge of specific ICTs that will enhance the learning process (Koehler & Mishra, 2009).

Secondly, these knowledge domains overlap creating three integrative domains. Pedagogical content knowledge (PCK) examines how lecturers create and organise their teaching and learning activities according to the subject matter that needs to be covered (Koehler & Mishra, 2009). Technological content knowledge (TCK) examines the relationship between technology and content, and how each influences or constrains the other (De Rossi & Trevisan, 2018). This domain examines how lecturers, firstly, select ICTs to complement the subject matter, and secondly, understand the limitations of the selected ICTs. Lastly, Technological pedagogical knowledge (TPK) is understanding which ICTs will support the pedagogical practices of the lecturer (Chai et Koh, 2017; Voogt et al., 2012). Finally, it is the overlapping of these three integrative domains, otherwise known as TPACK, that creates an effective online learning experience. For this study, the CoI's integrative domains suffice in the establishment of effective online learning experiences.

2.5.3 The purpose of the integration of these two theoretical frameworks

The integration of the two theoretical frameworks is important. The revised CoI model is premised on the creation of collaborative educational experiences with the purposeful inclusion of LP that acknowledges certain behaviours needed from students to support the development of cognitive skill sets and potentially other 21st century skill sets (Wertz, 2022) TPACK, on the other hand, provides an understanding of technology integration to leverage teaching. The criticism from extant literature (Brantley-Dias & Ertmer, 2013; Pringle et al., 2015) indicates that the examination of TPACK in isolation does not necessarily consider the desired pedagogical approach required.

Furthermore, recent research (Kimmons et al., 2020; West & Allman, 2021) has questioned both technology integration models such as TPACK and learning models like CoI in that these theoretical frameworks can "perpetuate a teacher-centric approach to technology use" (West & Allman, 2021, p.8) if lecturers do not share the underlying pedagogical belief of the model. The CoI model assumes that lecturers share its socio-constructivist pedagogy (Coker, 2018; Richardson et al., 2012; Garrison & Akyol, 2013). For this reason, one of the selection requirements of participants was the inclusion of an activity-based methodology that aligns more to a socio-constructivist pedagogy.

The first theoretical framework provides the educational context for the development of 21st century graduate and the second explores the technology integration needed for the online models of HEIs. Considering the purpose of this research study, the integration of TPACK focuses on how the technical knowledge (TK) of the participants is integrated into the pedagogical choices in creating activity-based learning (TPK) for conceptual understanding (TCK).

2.6 Conceptual framework

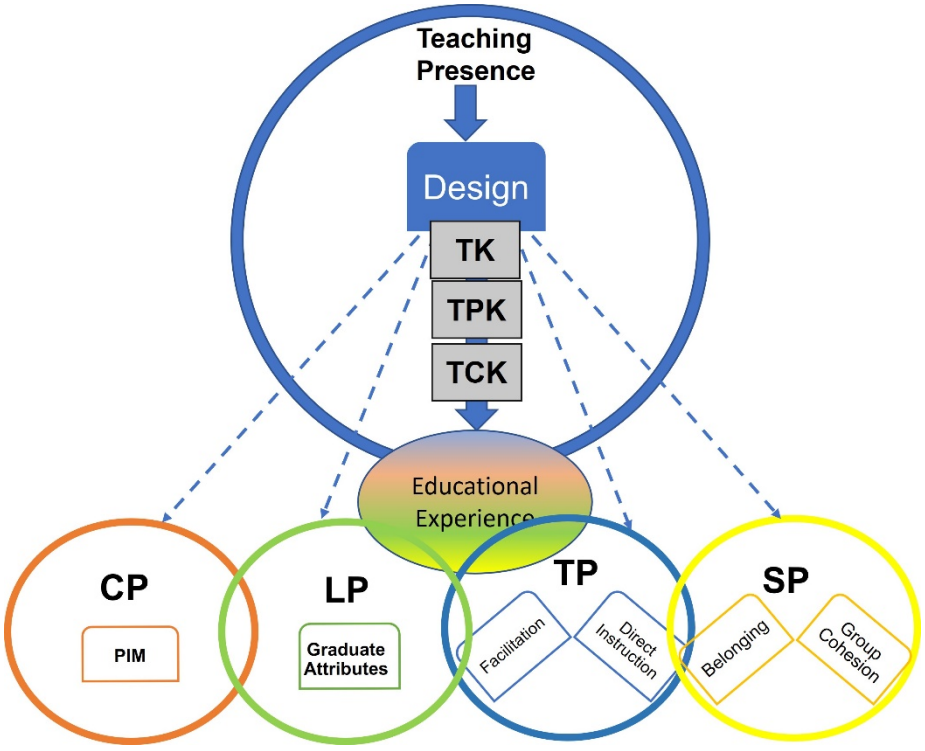


Figure 2.6 Conceptual framework to establish the online core elements to support 21st century graduate attributes

Figure 2.6.illustrates the focus of this research project, namely the design element in TP (within the revised CoI model), through investigating the careful integration of technology and pedagogy by lecturers (within the TPACK model) to develop learning experiences to support 21st century graduate attributes. The three constructs TK, TCK and TPK from the TPACK model have been incorporated into the design process of the CoI model.

The primary conceptual framework of this study is a revised CoI (Shea & Bidjerano, 2010) as represented by the four intersecting circles. This framework is a 'learning' process model with a focus on the creation of an educational experience or collaborative learning experience (as suggested by the thick blue arrow in Figure 2.6) by lecturers. This aligns with the study's purpose to examine and identify the core elements in the creation of student-centred learning experiences to support graduate attribute development. The integration of the presences is necessary if students are to develop higher-order thinking skills within CP. To ensure the highest levels of cognitive ability, the resolution stage of the PIM should be achieved (Shea & Bidjerano, 2010) and is the part of an activity in which the students apply the acquired knowledge and skills to real-world or authentic situations. This phase of PIM is needed to support the development of 21st century graduate attributes. As indicated, the extant literature (Moore & Miller, 2022; Shea & Bidjerano; 2010) suggests that achievement of the resolution phase is often not the case. Thus, to achieve these competencies, the design element within the TP needs to be purposeful and intentional (Gani, 2018). This is represented by the thin connecting arrows to ensure the development of all presences.

Each of the presences have examined and coded in analysing the data collected from the study to identify key aspects or a combination within each presence to create effective learning experiences in support of 21st century graduate attributes. Considering the missing definitions of graduate attributes within CP and the lack of emphasis on the development of regulated student behaviours, the inclusion of LP helps to make these graduate attributes explicit for lecturers to build on within these learning experiences.

The study's contribution is to identify the core pedagogical elements from the

practices of those who share a constructivist or student-centric approach. The study by Fiock (2020) established that the CoI is missing the practical implementation of teaching methodologies and strategies, and her research proposes practical techniques on how to incorporate the presences. This supports the findings of Coker (2018) whose study reveals that the differing pedagogies of the participants have resulted in different interpretations of TP and CP within the CoI model. Despite the seven principles outlined by Garrison and Akyol (2013) to support pedagogy within the CoI model, Garrison (2021) acknowledges the limited application which has resulted in poorly created learning experiences in which students have not engaged in higher order thinking skills (Bennett et al., 2017) Thus, the core elements should in future provide a practical way to support lecturers in the creation of engaging education experiences for students to co-construct and develop 21st century graduate attributes.

A pedagogical approach is crucial in the appropriate selection of technology (Park & Shea, 2020; Ní Shé et al., 2019). Teacher-centered approaches will result in diminished use of the ICTs (Børte et al., 2020; Sinclair & Aho, 2018). In other words, the technological platform will not be leveraged to its potential (Park & Shea, 2020) and the integration of ICTs will not necessarily result in more progressive collaborative skills (Care et al., 2019). In determining how lecturers have leveraged the tools within and beyond the LMS, three constructs from the TPACK framework, a technology integration model, complemented the design process.

TPACK provides a lens to explore the meaningful integration of technology within pedagogical practices (Archambault, 2016). TK, TCK and TPK supplemented the design and organisational elements within the TP for the purpose of this study to investigate how best ICTs have been leveraged to support 21st century graduate attributes. Several studies (Chai & Koh, 2017; Archambault, 2016) suggest the importance of TPK and TCK in leveraging ICTs in purposeful learning designs.

2.7 Conclusion

This chapter has shown the importance of supporting the development of 21st century graduate attributes. Despite the broad range of definitions, the study has focused on critical thinking, problem solving, creative thinking and communication.

The chapter has also examined some of the pedagogical challenges that can hinder the acquisition of generic transferable skills. Both the revised community of inquiry model and TPACK have been used to outline the conceptual framework that guided the investigation into how lecturers create online learning experiences to support the development of these 21st century graduate attributes.

Chapter 3 introduces the research methodology of this study, identifies the sample, and discusses the relevant data collection instruments to address the primary and secondary research questions. It also explores how the data was analysed.

CHAPTER THREE: Methodology

3.1 Introduction

This chapter focuses on the choice of the research design for this study. Figure 3.1 represents an overview, using the application of the research onion by Saunders et al. (2019).

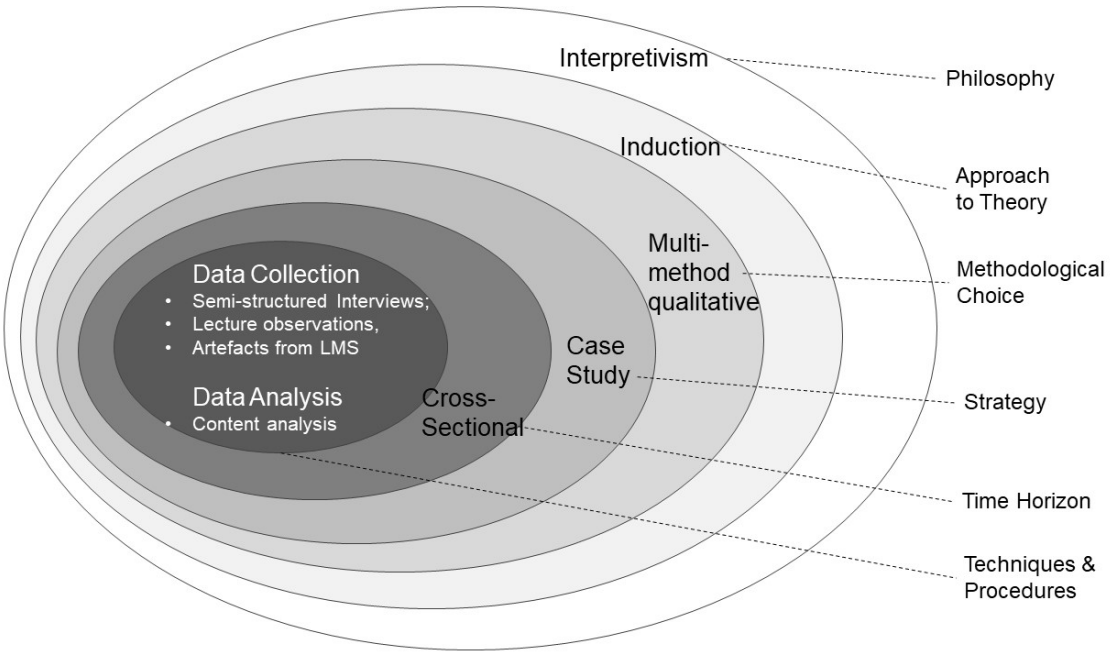


Figure 3.1 Application of the Research Onion as proposed by Saunders et al. (2019)

This chapter will indicate how an interpretivist qualitative case-study emerged as the most appropriate approach for an exploration of the factors that contribute to the development of 21st century graduate attributes in the lecturers' creation of online learning designs. This chapter starts with the broad philosophical stance (or outer onion ring) and moves inwardly through the five layers to the core, to detail the selection of data collection tools and procedures. The chapter also considers the involvement of the researcher, how rigour and quality have been maintained, and the required ethical considerations.

3.2 Research philosophy

The choice of the research design is shaped by the paradigm or lens through which reality is interpreted by the researcher (Nieuwenhuis, 2016). A paradigm is defined as a set of comprehensive beliefs (Bryman, 2012), a worldview (du Plooy-Cilliers, 2014) or a framework (Willis, 2007) that directs the research process and the way

in which the results are analysed. This study's philosophical paradigm was interpretivist. The study was dependent on understanding the multiple and subjective realities of the seven lecturers (Schwartz-Shea & Yanow, 2020) in how they supported the development of 21st century graduate attributes in their students through the creation of online learning experiences. By gaining a deeper insight into the pedagogical practices of the selected lecturers, the intention of the study was to address the concern that HEIs were not preparing students for the workplace (Van Damme & Zahner, 2022; Williams, 2022). These lecturers have indicated the adoption of an activity-based pedagogical approach which is important for the study. The research on the development of graduate attributes has indicated that an instructivist approach does not support this development (Scott, 2015) in a teaching environment where this pedagogical approach still dominates (Blikstad-Balas & Klette, 2020; Phillips & Condy, 2020).

A shared epistemological stance is dependent on the context in which reality is socially constructed. This relative ontological position (Coghlan & Brydon-Miller, 2014) is aligned to a socio-constructivist meta-theoretical lens as mentioned through the pedagogical approach of the seven lecturers. Reality does not comprise a singular universal truth; rather reality is shaped by multiple perceptions and the shared understandings and interpretations of both the researcher and the participants (Schwartz-Shea & Yanow, 2020). The research is, therefore, subjective and provides an emic perspective (Given, 2008) in understanding how collaborative learning experiences are created to support the development of 21st century graduate attributes in students.

3.3 Approach to theory

Interpretivism informs a more inductive approach to the development of a paradigm (Beach et al., 2011; Saunders et al., 2019). There are occasions when deductive reasoning is used such as at the inception of the data analysis process. According to Berg (2001), generating concepts from theory or previous studies may be required at the start of the data analysis process. Likewise, constant checking against data to build and confirm themes is deductive (Cresswell, 2013). However, the approach to theory is primarily inductive.

Woodwell (2014) argues that inductive logic is more than just a simplistic definition of moving from the specific to the general. Rather it starts with the observation of behaviours, actions, and words of the participants. The starting point of this research project was to observe the lectures of specific lecturers, to examine their use of learning management systems (LMSs), and to conduct interviews with them to have a better understanding of what could be the possible pedagogical elements that support the development of graduate attributes. According to Zhang and Wildemuth (2009), an inductive approach reduces raw data into categories and themes to potential theories, which is alternatively known as a bottom-up approach in the development of theory (Woodwell, 2014). From these observations, the researcher compared the data of each participant to trace patterns and to identify possible themes (McGregor, 2018) that could support the pedagogical practices of lecturers to prepare their students with the development of 21st century skills.

3.4 The methodological choice

An inductive approach stems from the epistemological question of attempting to understand the desired pedagogical elements that support the development of 21st century graduate attributes and resulted in the selection of a qualitative study (Harwell, 2011; McGregor, 2018; Nieuwenhuis, 2016). This was deemed appropriate as the focus was to gain an in-depth understanding of: how lecturers have created collaborative learning experiences to allow for deeper learning (Scott, 2015). The observations were conducted in a natural setting and the collection tools reflected a qualitative approach (Given, 2008). The inclusion of three qualitative tools (lecture observations, interviews with the participants, and the collection of artefacts found in their online module) to confirm the consistency of the findings (Harwell, 2011) reflects a multi-method qualitative approach (Saunders et al., 2019). Both the natural setting and data tools aligned with the intended purpose of the study to explore and to understand (Strydom & Bezuidenhout, 2014) rather than to infer and to hypothesise or to search for causal relationships. The significance of the study is to provide lecturers with the ‘design’ elements that could shape the pedagogical practices of lecturers which has historically reflected more of a transmissive (Blikstad-Balas & Klette, 2020; Phillips & Condy, 2020) than socio-constructivist approach.

3.5 Research strategy of inquiry

A single-case study design (as indicated in Figure 3.1) has been used to explore the core pedagogical elements required to support the development of 21st century graduate attributes (Tight, 2017). Firstly, this case study was conducted with a single HEI. The bounded context (Yin, 2009) was the online mode within this HEI that included both a blended approach and a distance approach. Secondly, an empirical inquiry (Yin, 2003) was used to determine how some lecturers from the selected HEI supported 21st century graduate attributes in their online learning experiences. Thus, this "small-scale research with meaning" (Tight, 2017, p.11) has offered in-depth insights into the factors that shape the teaching practice of lecturers. Chapter 4 provides thick descriptions (Nieuwenhuis, 2016) using the narrative voices of the participants to deepen understanding of a complex educational issue. Multiple techniques and procedures (Yin, 2009) such as lecture observations, semi-structured interviews plus a collection of artefacts within the LMS was analysed to gain an in-depth insight into the variables involved (Cresswell, 2013). Lastly, the findings are not generalisable (Tight, 2017) but rather transferable (McGregor, 2018) to HEIs in similar contexts.

3.5.1 Selection of research site

There were two considerations in the selection of the site. The first was the appropriate selection of an HEI that had seen an adoption of activity-based methodologies in their lectures. This consideration is directly aligned to the research question of the study. The second consideration was to identify an HEI that had transitioned from a purely face-to-face contact mode to an online one.

Convenience sampling (Nieuwenhuis, 2016) was used in the selection of the HEI. Firstly, the selected HEI was one of ease of access (Nieuwenhuis, 2016) as the researcher worked in the academic department. Secondly, the researcher's rapport with the research site allowed for assistance in the identification of relevant participants through purposive sampling (Tight, 2017). It also helped in the facilitation of conducting research as she was familiar with the ethical process of obtaining research approval of the ethics committee (McGregor, 2018).

The selected higher education provider has a South African national footprint comprising several geographical sites including a distance campus. The impact of the Covid-19 pandemic had seen the HEI adopt a blended approach except for the distance campus which has retained a pure online focus.

3.5.2 Selection of participants

The selection of the participants formed a key component in the research design. The understanding and identification of the core pedagogical elements was dependent on the type of lecturer selected since the extant research (Blikstad-Balas & Klette, 2020; Phillips & Condy, 2020; Scott, 2015) indicated that an instructivist pedagogical approach does not support the acquisition of graduate attributes. Furthermore, the lecturers needed to have some online teaching experience if the intention was to identify best practice. According to McGregor (2018), purposeful sampling is to select participants on purpose as they are the best source to answer the research question. The purposive selection (Oliver, 2006) of seven lecturers from the selected HEI was based on the following criteria: that they taught undergraduates, had at least two years online teaching experience, and had some experience in teaching in a student-centred, activity-driven or constructivist manner.

3.6 Time horizon

According to Melnikovas (2018), this layer defines the timeframe for the research. Figure 3.2 indicates the selected cross-sectional rather than longitudinal timeframe. It further clarifies the short duration of the timeline of this research, focusing specifically on the data collection points.

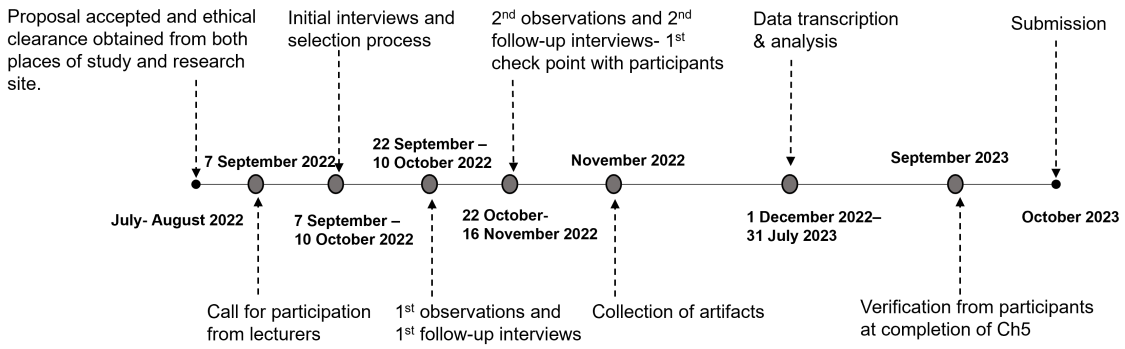


Figure 3.2 Timeframe of study

As depicted in Figure 3.2 the data was collected between the 7th of September to the end of November within one year. This indicates a short timeframe as the research focused on a current situation and did not involve repeated studies over a long period of time (Saunders et al., 2019).

3.7 Data collection techniques

Three data collection techniques were used to explore how lecturers create online educational experiences to support 21st century graduate attributes. Figure 3.3 provides an overview of the three collection points that followed the initial introductory interview with each participant.

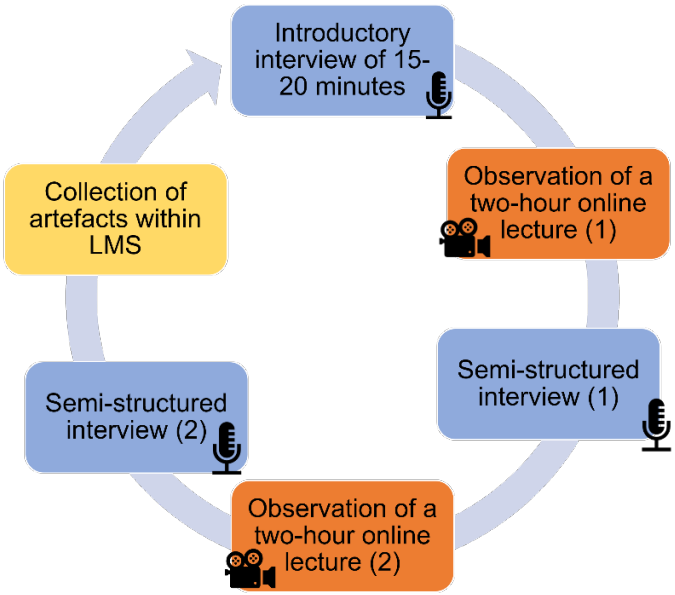


Figure 3.3 The three collection techniques used in this study

3.7.1 Semi-structured interviews

Semi-structured interviews (Nieuwenhuis, 2016) were used in this study. The initial one was a short introductory interview of approximately twenty minutes. The purpose was to help orientate each participant with the study. Participant 6 used this interview as the decision to participate in the study. Otherwise, the other six participants had given their consent prior to the initial interview. After the orientation, all the participants were provided with an opportunity to confirm their participation. It also provided insight into some of the basic demographics, teaching experiences and general pedagogical practices of the participants. This was important as the study required lecturers to have at least two years online teaching experience and

a belief that their pedagogical approaches were student-centered or activity-based. The data is tabulated in Table 4.1 p.51 and is discussed more fully in Chapter 4.

Two semi-structured interviews of approximately one hour each were conducted with each lecturer following two observed synchronous lectures. Even though the observation provided certain insights, the follow-up interview allowed me to have a deeper understanding of what I had observed (Tierney & Dilley, 2001). The online interviews (Annexure A) included predetermined, open-ended questions (Given, 2008). The purpose of open-ended questions are to protect interpretive validity (Given, 2008) by avoiding leading questions that could influence participants to respond in a particular way. This was particularly important as my role in an academic department at the selected site meant that there were existing relationships. This familiarity needed to be carefully managed so as not to influence the way participants responded. Furthermore, the structure allowed flexibility in asking probing questions to enrich, clarify or verify understanding (Nieuwenhuis, 2016). These interviews were digitally recorded to promote accuracy in the transcriptions (Given, 2008).

3.7.2 Lecture observations

The observations of two online lectures enabled me to experience a naturally occurring context (Yin, 2009). My role was more of a detached observer (Spickard, 2017) or a non-participant (Yin, 2009). The aim was to remain unobtrusive to avoid affecting the class dynamics. Firstly, each observation preceded a scheduled interview to avoid any unintentional influences or biased responses from the participants based on the questions asked. Secondly, what the participants said during the interviews was a means to assess the observed practices. The focus of the observations was to explore how lecturers created a learning experience for students to support 21st century graduate attributes. The observation schedule (Appendix B) assisted in purposeful and focused observations (Nieuwenhuis, 2016), and the lectures were digitally recorded. The field notes consisted of both detailed descriptions of what took place and reflections on what had transpired (Given, 2008) to supplement the recorded observations.

3.7.3 Artefact analysis

The third strategy was an examination of the artefacts (Plowright, 2011) within a module on the LMS of the participants (Annexure C). Artefacts are “products of human workmanship” (Schwandt, 2007) and in this case study, the artefacts were a selection of teaching activities, announcements, and resources such as asynchronous lesson plans, lecturer notes, videos or audios, and Power Point presentations for the students to access. The collected artefacts are coded in the Table 3.1.

Table 3.1 Type of artefacts within the LMS

Type of Artefacts Collected from LMS					
	Structured	Resources	Communication	Tools on LMS	Provided feedback to activities on LMS
P1	SS (1) indicate organised and structured	PPT (1); Art (1); ICE (1); Rec (1); Ass (1)	Ann (1)		Yes
P2	SS (2) indicate organised and structured	PPT (2); Wsh (2); ICE (2); Guide (2); Ass (2); ASW (2)	Ann (2); Updated contact details (2)		Yes but some still need marking.
P3	SS (3) indicate organised and structured.	PPT (3); Wsh (3); ICE (3); Rec (3); Ass (3); Art (3); LP (3); Prep (3)	Ann (3)	Minimal discussion threads	
P4	SS (4) indicate simple structure	PPT (4); Wsh (4); Art (4); ICE (4); Ass (4); Rec (4).	No Ann		No activities
P5	SS (5) indicate one click to resources	PPT (5)- minimal; Guide (5); ICE (5);	Ann (5)		Lots of "needs marking"
P6	SS (6) indicate organised and structured	PPT (6); Wsh (6); Schedule(6); ICE (6); Ass (6); Rec (6); ASW (6)	Ann (6)		Feedback provided.
P7	SS (7) indicate organised and structured	PPT (7); Schedule(7); ICE (7); Rec (7); Videos (7)	Ann (7)	Lots of interactiion	Yes

Abbreviations for artefacts	
Ann	Announcements
Art	Additional articles
Ass	Assessments (Tests)
ASW	Additional Support Workshops.
Guide	Guidelines to activities
ICE	ICE Tasks
LP	Lesson Plans
PPT	PowerPoint slides
Prep	Prep activities
Rec	Recordings
SS	Screenshots
Wsh	Additional worksheets

The examination of the type of resources uploaded within the LMS provided further insight into the practices of the participants as well as an opportunity to evaluate the

level of graduate attribute development. This is important in the deconstruction (Plowright, 2011) and identification of the key elements from the participants' artefacts that contributed to the creation of learning experiences to support 21st century graduate attributes.

3.7.4 The alignment and triangulation of the three data collection techniques

The three methods were triangulated (Nieuwenhuis, 2016; Lincoln & Guba, 1985) to provide a holistic understanding of how lecturers support 21st century graduate attributes through the creation of online learning experiences. Figure 3.4 demonstrates the alignment to determine the consistency of the findings.

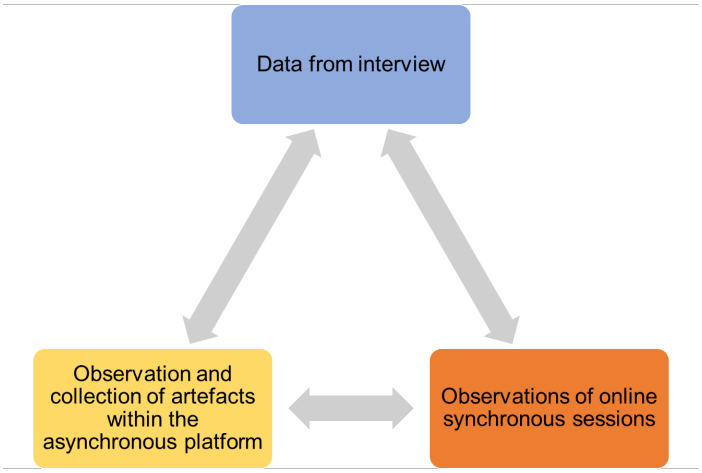


Figure 3.4 Triangulation of the three data tools

Figure 3.4 reflects the interconnectedness of the three data collection tools. The data from the discussion of the interviews followed the online synchronous observations of the pedagogical practices of the lecturers. This provided an opportunity to compare what was observed to what was mentioned during the interview stage. This was then followed with a comparison to the observed artefacts located within the LMS in the asynchronous environment. This triangulation allowed the researcher to confirm the consistency of the findings as well as an opportunity to clarify any discrepancies. The recordings of both the observations and interviews were also used as validation of the accuracy and consistency of the findings (Tight, 2017).

3.8 Data analysis

Both the data collection techniques and type of data analysis are located within the core of the research onion (Saunders et al., 2019) (as illustrated in Figure 3.1.) and determined by the emergent research design. According to Zhang and Wildemuth (2009, p.1) qualitative content analysis provides researchers with insight of the "social reality in a subjective but scientific manner." Content analysis is an iterative (Cresswell & Poth, 2018; Nieuwenhuis, 2016), systematic qualitative approach (Shreier, 2014) in which the data is reduced by classifying the information into patterns, categories, and themes (Cresswell & Poth, 2018; Saldaña, 2013). Cresswell and Poth (2018) proposed a data analysis spiral using a bottom-up approach to reflect the inductive reasoning involved. Figure 3.5 indicates the three-cyclic steps that informed the analysis of the data for this study.

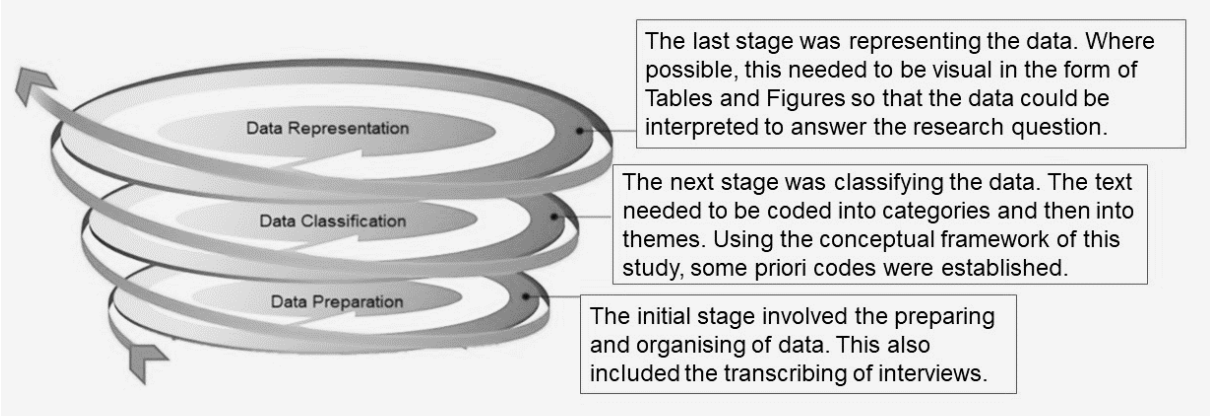


Figure 3.5 The Iterative and evolving spiral approach
The Iterative and evolving spiral approach as proposed by Cresswell and Poth (2018)

The evolving steps above move from the preparation and organisation of data to coding and the identification of categories and themes, and finally to the representation of the findings to allow for interpretations to be made.

3.9 Role as researcher

My role as researcher was to make sense and meaning of the data by determining patterns, themes, and even sub-themes from the collected data. Figure 3.6 provides a more detailed examination of the evolving steps undertaken.

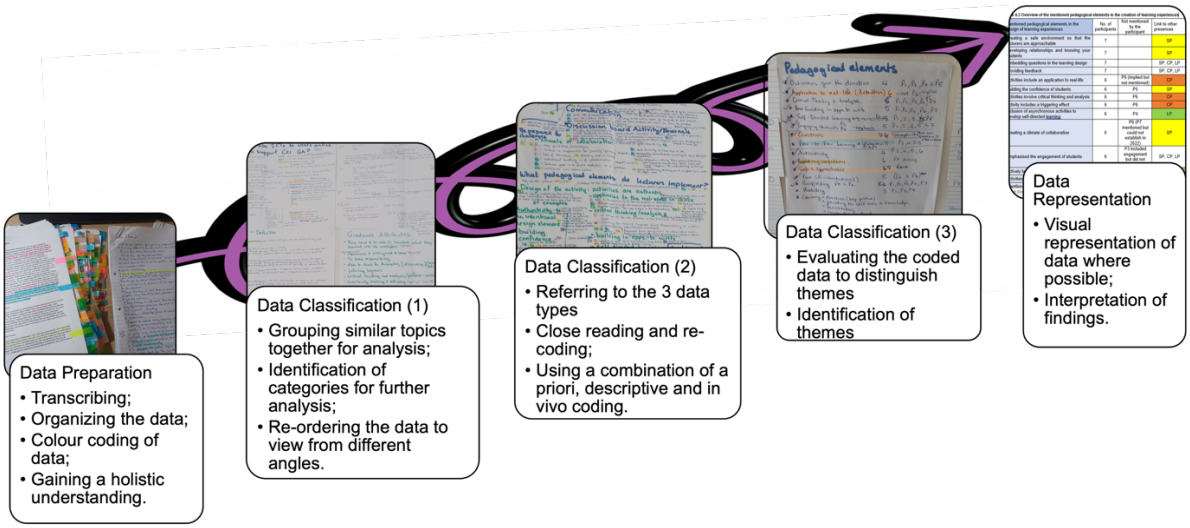
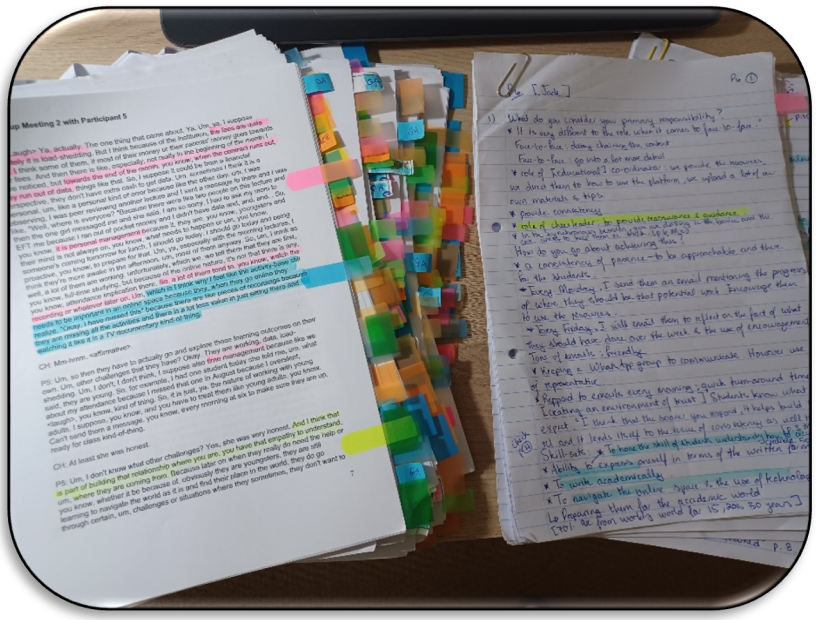


Figure 3.6 The iterative process of content analysis for this study

The first cycle was to prepare the data as depicted in the first diagram in Figure 3.6.



The first diagram shows a pile of transcribed interviews on the left-hand side and the hand-written summary of the key ideas from these interviews on the right-hand side. This step involved the transcription of twenty-one interviews conducted with the seven lecturers, the organisation of the different data techniques, and the coding of the data using different colour tabs and highlighters. The colours were associated

with the conceptual framework and the research questions. For example, in the first diagram, a selection of different types and different colour tabs were used. The slender coloured tabs of green, blue, yellow, and orange indicated information relevant to the different presences of the revised COI model as indicated in Figure 2.6 (p.29). The shorter, square tabs indicated specific information related to the research questions. For example, the square green tabs referred to SQ4 (the lecturers' beliefs and attitudes) whereas SQ2 (the use of ICTs) was indicated by the square orange tabs. Certain additional colours such as the slender pink tabs highlighted the challenges mentioned by the lecturers in response to SQ3 and their experience of the implementation. This was to gain a preliminary understanding of the data and an opportunity to compare the information collected from the three different techniques. The triangulation of the three data tools for each participant is illustrated in Figure 3.4 (p.42).

The second step involved the classification of the data as depicted in the next three images in Figure 3.6.

These are diagrams of the summaries, an analysis of the topics, and a synthesis of the findings. This was an iterative process that involved the analysis and re-coding of the data. Similar topics were grouped together with the key ideas of each participant extracted. For example, the first image indicates the grouping of information or summary of the use of ICTs and the definition of graduate attributes by each participant. Similarities and differences were highlighted in different colours. For example, similar terms used by the participants in their definition of graduate attributes were highlighted in a particular colour such as blue for skill set and green for characteristics. A unique term would be singled out, highlighted in another colour. P7 used the word "something" which was highlighted in pink. The task was to

determine patterns.

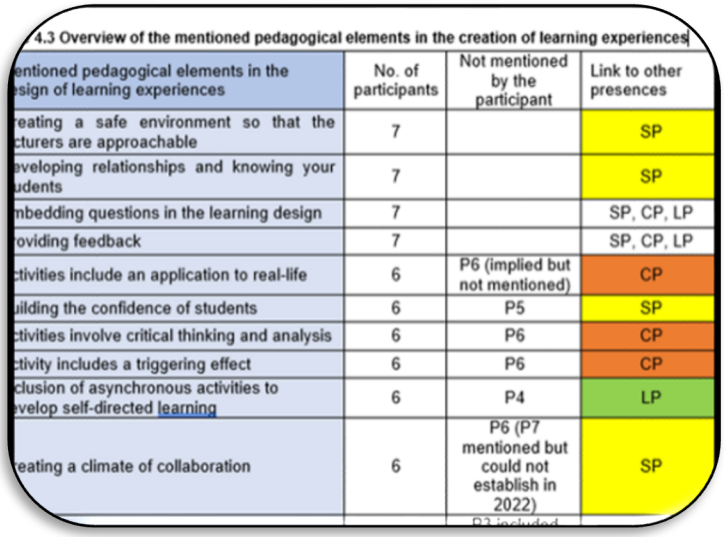
The second image shows the grouping of patterns of the pedagogical elements mentioned by the participants. Identified phrases such as “authenticity”, “building confidence” and “being prepared for challenges” are examples of descriptive codes or as Saldaňa (2013, p.84) states, “basic labels of data to provide an inventory of topics.” Some codes were in vivo as they were phrases used by the participants themselves and reflected the language used by educators (Manning, 2017). These phrases/ terms were linked to the specific participants to determine the frequency and relative importance of these codes. Likewise, possible sequences were established such as the thought-process of P2 (represented in Figure 4.5) that will be discussed in Chapter 4. Hatch (2002, p.29) argues that patterns are not just similar forms but must include ’varying forms’. The identification of patterns included the examination of similarities, differences, frequencies, sequences, and correspondences (patterns that happen simultaneously with other activities) to causation.

Themes emerged from the identification of patterns that included all the data collected, and these were synthesised (as depicted in the third image). The information that had been examined in the second image, for example, had been condensed to represent the order of importance of the pedagogical elements mentioned by the participants in the third image. There were constant referrals to the three data collection tools. For example, the third image acknowledges observed behaviours in the synchronous or asynchronous platform where a participant may not have mentioned the pedagogical element in the interview. For example, P7 did not mention the importance of questions in engaging her students and yet this was observed in both her online synchronous sessions. She was, therefore, included in the tally related to questions.

This variety of patterns indicated the complexity in establishing the classification of themes and sub-themes of the pedagogical elements that support the acquisition of graduate attributes to the coded data and the constant cyclic verification required (Cresswell, 2013). This constant verification was also a checkpoint for the researcher to question whether any perceptions of and biases toward the potential

contributing pedagogical elements were not pre-determining the classifications (Given, 2008). The data was also re-organised through different lenses to reduce potential biases and to strengthen the findings (Given, 2008).

The last diagram in Figure 3.6 shows the transformation of the data into a visual representation. The below visual representation is captured in an Excel Spreadsheet in Table 4.3 (p.54).



4.3 Overview of the mentioned pedagogical elements in the creation of learning experiences

ntioned pedagogical elements in the sign of learning experiences	No. of participants	Not mentioned by the participant	Link to other presences
eating a safe environment so that the cturers are approachable	7		SP
veloping relationships and knowing your dents	7		SP
mbedding questions in the learning design	7		SP, CP, LP
oviding feedback	7		SP, CP, LP
tivities include an application to real-life	6	P6 (implied but not mentioned)	CP
ilding the confidence of students	6	P5	SP
tivities involve critical thinking and analysis	6	P6	CP
tivity includes a triggering effect	6	P6	CP
clusion of asynchronous activities to velop self-directed learning	6	P4	LP
eating a climate of collaboration	6	P6 (P7 mentioned but could not establish in 2022)	SP

This last step was the most challenging due to the complexity of the findings and the inter-connectedness of several pedagogical elements. The focus was to encapsulate the participants' voices through rich descriptions (Cohen et al., 2011) and to transform the data into visuals (Lahman, 2022) that not only accurately represented the narratives of the participants but also coherent flow within the representation. To ensure the accuracy of the representation, this step involved the participants of this study to review the findings for the purpose of verification. This member check provided a measure to establish the trustworthiness of the data from the participants' perspectives (McGregor, 2018).

3.10 Quality assurance criteria

It is important to safeguard the trustworthiness of a study. This section examines the degree of quality, depth, and credibility of the study. The study attempted to meet the four Guba criteria (1981) of trustworthiness: credibility, transferability, dependability, and confirmability.

To protect the data trustworthiness, triangulation of the three data collection tools

(Nieuwenhuis, 2016) as illustrated in Figure 3.4 (p.42) was applied. Triangulation provides credibility by aligning multiple perspectives with the findings and methods, theoretical underpinnings of the research and the research question (Frey, 2018).

Transparency is important for readers to determine whether the findings and analysis are acceptable and of worth (Frey, 2018). Rich thick descriptions (Creswell, 2013) have been included in both the collection and analysis of the data and the in-depth description of the context of the study (Nieuwenhuis, 2016). The audit trail (Given, 2008) shows how decisions and interpretations have been made and whether the findings can be transferred to a similar context (McGregor, 2018). This shows the value and utility of this study (Frey, 2018), thus meeting the criteria of transferability and dependability.

Lastly, participant validation (Frey, 2018) allows participants to verify the accuracy of the interpretations and findings at any point. The study included member checking (Nieuwenhuis, 2016) to prevent misrepresentation owing to my own biases or assumptions. This verification process confirmed that the participants' perspectives were indeed the focus of the study, thus supporting Lincoln and Guba's (1985) definition of confirmability as the degree of researcher neutrality.

3.11 Ethical considerations

Firstly, the ethical guidelines of both the HEI where I am registered and the HEI where the research was conducted, were applied. In addition to the ethical clearance by the institution, I applied for permission to conduct research from the research site. The scope and outcomes of the research were made explicit (Cohen et al. 2011).

Secondly, protection of the participants' rights was crucial to ethical integrity (Lichtman, 2014). Before any research was conducted, the participants had a clear understanding of the research through both the letter of consent (Annexure D) and the initial interviews with each participant. Those willing to participate signed a consent form. This ensured that the participants were making informed decisions (Louw, 2014). A waiver for the benefit of any participants wanting to withdraw without any consequence or penalty, was included. This was to ensure that participants were comfortable during all the stages of the process.

Furthermore, the participants had a right to confidential disclosure, privacy and anonymity (Lichtman, 2014). Pseudonyms were used to ensure anonymity; they were generally referred to as P1, P2… in the data analysis and findings. This is reflected in Table 4.1 (p.51). This privacy was also extended to the research site. The participants were assured that no personal information would be disclosed, and limited biographical information was disclosed only for the purpose of acquiring deeper understanding of the findings. Lastly, the confidentiality of the participants has been protected. The collection of artefacts, field notes, recordings and the transcriptions have been stored on a password protected device to which only the researcher and the supervisor have access.

Lastly, qualitative research is both subjective and interpretive (Nieuwenhuis, 2016). To minimise my influence, biases and perceptions in this study, the findings were firstly, triangulated and secondly, verified by the participants to dispel any misrepresentations in my assumptions (McGregor, 2018).

3.12 Conclusion

This chapter examined the research design in detail, using the research onion model (Saunders et al., 2019) as a guide to peel away layers of data and ensure that the most appropriate approach was selected to understand and identify the key pedagogical elements that support the acquisition of 21st century graduate attributes. The research onion model is a visual layering of how the research paradigm informed each level of the research design to the selection of the data tools and procedures. Lastly, the role of the researcher, the safeguarding of data integrity, and ethical considerations were examined.

The next chapter presents the findings of the data analysis and aligns them to the current literature.

CHAPTER FOUR: Presentation and interpretation of findings

4.1 Introduction

This chapter presents and interprets the data primarily collected from two semi-structured interviews with seven lecturers from an HEI to examine how lecturers create 21st century graduate attributes during online teaching. The findings have been triangulated with the observation of two synchronous lectures which preceded each interview as well as an examination of the artefacts uploaded from the online platform through which students can gain asynchronous access. To support the primary research question (RQ), four secondary research questions (SQs) were investigated. The first (SQ1) explored the pedagogical elements implemented by the participants when planning online learning experiences to support the development of 21st century graduate attributes. The second (SQ2) investigated how the participants used ICTs in the creation of online learning experiences. The third (SQ3) examined their experiences in the implementation of the learning experiences. Finally, the fourth (SQ4) determined the degree to which lecturers' beliefs and attitudes about 21st century graduate attributes influenced the creation of the online learning experiences. From the collected data, several themes were identified and are explored more fully in this chapter.

4.2 Background of participants

Seven lecturers participated in the research project. These lecturers have lectured across a range of faculties. During the introductory interview, their years of experience in lecturing were established as well as an understanding of their teaching practices. Table 4.1 (p.51) refers to the years of experience in lecturing and Table 4.2 (p.52) provides an overview of their teaching practices.

Table 4.1 Data of teaching practice

Participants as referred to in the findings	Pseudonym in interview transcripts	Faculties	Mode of Teaching	Number of years lecturing	Within this institution	Number of years with online webinar
P1	Jasmine	Law Humanities Management Finance & Accounting	Blended	4	4	2.5
P2	Janet	Humanities Management	Blended	3	3	2.5
P3	Joanna	Management Humanities	Blended	25	14	2.5
P4	Julie	Law Management	Blended	7	7	2
P5	Jessica	Education	Blended	7	Approx. 5	2
P6	Jade	Management Humanities	Distance	17	17	6
P7	Janine	Management	Distance	15	6	5

Table 4.1 shows that three (P3, P6 & P7) of the seven participants have over ten years' experience, two (P4 & P5) have more than five years, and two (P1 & P2) have less than five years' experience in teaching and learning. The majority were relatively new in the online space, with five (P1 - P5) having been introduced to the online space during the Covid-19 pandemic in 2020. These five had previously been used to physical contact modes of lecturing.

With the lifting of the country's lock-down restrictions, the institution reverted to a blended approach that comprised physical contact, synchronous online contact, and asynchronous online sessions. The remaining two lecturers with five years or more experience in the online space lectured for the distance campus. The distance mode contained a focus on asynchronous engagement, minimal contact synchronous sessions and no physical contact.

2022 was a challenging year for the institution with the introduction of an online registration platform that was not fully integrated with the LMS. The system flaws negatively impacted the students' experiences and engagement within the distance campus. For this reason, P6 and P7 have been advised to bring in their past experiences of the distance space, and not to speak only about that particular year.

All seven participants have taught undergraduates ranging from higher certificate students to 3rd year or 4th year degree students. Furthermore, all seven indicated in their introductory interview that their lectures were activity-based. Table 4.2 indicates that three participants included activities after the theory was covered (highlighted in yellow) whereas P7 attempted to move away from the theory, with more of a focus on application-based activities.

Table 4.2 Brief overview of teaching practice

Participant	Teaching practice as defined by participants
P1	Activities follow the theory and are generally scenario-based.The students need to understand the essence and her role is to simplify difficult concepts and make it relevant to the students.
P2	Activity-based with real-world scenarios embedded in the lectures with a focus of scaffolding the contents and skills.
P3	Activities follow the theory. The activities consolidate understanding and are a means to assess understanding.
P4	Activities follow the theory and are a means to assess understanding. She feels that she has reverted to a more transmissive approach in the online space. Uses more of a flipped classroom approach with her face-to-face contact class.
P5	Role is to make the content come alive through engagement. She adapts her teaching practice to accommodate her group and consolidates the information by repeating what the students say.
P6	Distance is a different cohort of students with different expectations. Important to create a structured and familiar environment in which she can engage the students.
P7	Application-based activities. She likes to bring in examples and practical applications to move away from the theory.

P2 included real-world scenarios, scaffolding both content and skills. The last two both referred to the importance of student engagement (highlighted in blue) in the learning process.

4.3 The emergent themes from the collected data

Figure 4.1 provides an overview of the themes that emerged from the analysis.

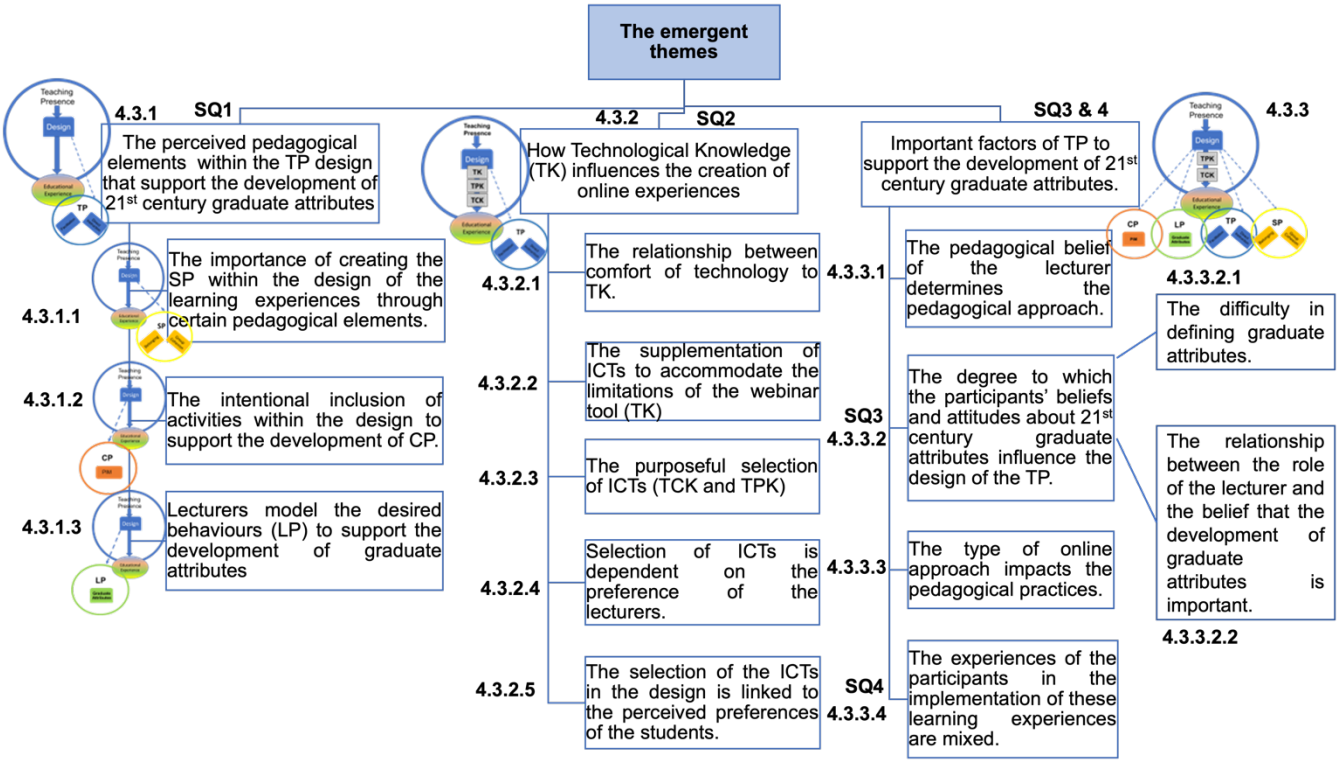


Figure 4.1 The emergent themes

The data will be discussed according to the emergent themes from the four secondary research areas (SQ1, SQ2, SQ3 & SQ4) that align to the components of the conceptual framework as depicted by the various icons in Figure 4.1. They depict the sections under which each theme and the subsequent sub-themes are discussed. The themes were identified through coding of the transcripts, observations, and artefacts. The themes and sub-themes, which are more fully explored in this chapter, provide insight into the primary research question, namely how the participants have supported the development of 21st century graduate attributes in their online teaching.

4.3.1 The pedagogical elements considered important to the design (Teaching Presence-TP) to support the development of 21st century graduate attributes

Table 4.3 shows an overview of the pedagogical elements mentioned in the design of learning experiences to support the development of the 21st century graduate

attributes.

Table 4.3 Overview of the mentioned pedagogical elements in the creation of learning experiences

Mentioned pedagogical elements in the design of learning experiences	No. of participants	Not mentioned by the participant	Link to other presences
Creating a safe environment so that the lecturers are approachable	7		SP
Developing relationships and knowing your students	7		SP
Embedding questions in the learning design	7		SP, CP, LP
Providing feedback	7		SP, CP, LP
Activities include an application to real-life	6	P6 (implied but not mentioned)	CP
Building the confidence of students	6	P5	SP
Activities involve critical thinking and analysis	6	P6	CP
Activity includes a triggering effect	6	P6	CP
Inclusion of asynchronous activities to develop self-directed learning	6	P4	LP
Creating a climate of collaboration	6	P6 (P7 mentioned but could not establish in 2022)	SP
Emphasised the engagement of students	6	P3 included engagement but did not emphasize it.	SP, CP, LP
Actively build in opportunities to write	5	P3 & P5	LP
Activities include a fun element	5	P3 & P6	CP
Intentional inclusion of scaffolding	5	P5 & P6	SP, CP, LP
Communication is crucial	5	P1 & P3	SP
Consistency in the approach helps create a re-assuring element	5	P1 & P4	SP
Importance of an organised and structured approach within the online platform	5	P1 & P4	SP, CP, LP
The importance of authenticity	4	P1, P3 & P7	SP
The learning outcomes provides the direction to the design of the learning experience	4	P3, P6 & P7	CP
Modelling behaviours	4	P1, P4 & P7	LP
Encourage students to select their own ICT in response to activities	3	P1, P3, P5 & P6	CP, LP

The emphasis is on the word ‘mentioned’ since Table 4.3 does not necessarily provide a conclusive examination of the core pedagogical elements that support the acquisition of graduate attributes. Rather, it highlights what the seven lecturers who have used activity-based approaches deemed important considerations in response to the research sub-question 1 (SQ1). Some of these pedagogical elements can be

grouped together to support the creation of an SP (indicated in yellow), a CP (indicated in orange), and an LP (indicated in green). Other pedagogical elements are interconnected with the development of more than one presence. The identification of the presence(s) in the last column is the link to the conceptual framework, based on the analysis of the literature on the revised CoI model (Shea & Bidjerano, 2010).

Table 4.3 reflects the participants' consensus of several elements in the design of an activity-based methodology. The 2nd column indicates the number of participants who mentioned the same element in the 1st column. The 3rd column provides further information on the participants who had not articulated the particular element.

4.3.1.1 The importance of creating the SP in the design of learning experiences through certain pedagogical elements

A key aspect to support the acquisition of 21st century graduate attributes was the importance of creating the SP within the design of the learning experiences. Table 4.3 shows the grouping of the pedagogical elements mentioned by the participants that support the creation of an SP to support the development of CP through the design of TP (Moore & Miller, 2022). For this discussion, the underlined pedagogical elements were numbered to align to the references in Figure 4.2 in the analysis on the following page. The numbers bear no relevance to the importance of the pedagogical elements but are purely present from a reference perspective. These pedagogical elements support group cohesion and a sense of belonging (Zhang, 2020; Parker & Herrington, 2015) as indicated in Figure 2.6 (the conceptual framework).

Figure 4.2 Mentioned pedagogical elements in the creation of a SP

Table 4.3 indicates that all seven participants mentioned the importance of developing authentic relationships (1) with students. This means personalising the online space so that students connect with the lecturer, and see the lecturer as an interested, empathetic human and not an impersonal screen with a voice. This resonates with a study by Turk et al. (2021) that focused on the asynchronous online mode and a study by Tyrväinen et al. (2021) that focused on the synchronous mode. Irrespective of a synchronous or asynchronous platform, lecturers perceive the importance of developing authentic relationships. Turk et al. (2021, p.169) classify authenticity as 'being present' and suggest that this perceived element is an important component of the design of TP, while Tyrväinen et al. (2021) focus on the instructor's presence which is derived from the intersection of TP and SP (Richardson et al., 2015). Nevertheless, the design component within TP needs to reflect intentional inclusion of the set of behaviours and actions required to establish authenticity.

P5 spoke to the importance of sharing mistakes to show vulnerability and imperfection in creating connections. Five participants (P1, P2, P4, P5 & P6) spoke to the inclusion of humour in creating connections. P2 incorporates a meme at the start of the lecture to encourage some laughter and smiles from her students. P1, P3 and P6 logged on ahead of time to encourage some light-hearted banter with the

students who joined early. P5 used her Bitmoji as a deliberate connector to her students in all her communications with the intention of establishing trust. All seven mentioned the need to create a safe environment for teaching and learning to take place and the approachability of the lecturer (2). P4 summed this up with "I don't want them to ever feel like they can't come to me." This was also a commonly expressed desire from P1, P3 and P5.

The focus on building relationships (1) was linked with the intention of building student confidence (3) through intentional scaffolded questions and activities (5) (P1, P2, P3, P4 & P7). This link between developing relationships (1) and student confidence (3) was reported by Ryan et al. (1998 as cited by Wang et al. (2021)). Building confidence allows students to ask more probing and challenging questions in collaborative learning (Peacock & Cowan, 2016).

Interestingly, all seven participants spoke to the importance of embedding questions into the learning design (6), which indicated a deliberate attempt to provide students with multiple opportunities to engage in the learning process (4). These opportunities of engagement provide a platform to develop 'psychological investment' from students in their learning, efforts in learning and mastery of skills (Newman et al., 1992, p.12). Five participants (P1, P2, P3, P4 & P7) articulated the word 'intentional scaffolding', which indicates that the design of the TP shows a progression in the higher-order thinking skills more likely to develop cognitive 21st century skills (Kilis & Yildirim, 2018; Kyei-Blankson et al., 2016). P4 embedded lower-order questions in the PowerPoint slides to develop confidence of her students before moving on to the higher-order questions. She described this strategy as baiting individual students to engage before higher-order discussions followed. This deliberate creation of a SP through the TP design aligns with the findings of Lee's research (2014) that showed a positive correlation between SP and CP in the promotion of both cognitive and affective objectives of learning (Kilis & Yildirim, 2018).

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To further develop SP, five participants (P2, P3, P5, P6 & P7) mentioned the importance of consistency (7 & 8) as an intentional design element in the asynchronous platform (P2, P3, P6 and P7). This was also reflected in consistent

communication (8) with students, and the two participants in the distance space (P6 and P7) noticeably emphasised the importance of routine and familiarity. This is a means to manage expectations from students, to provide them with direction, and re-assure them that they can access the module anywhere and anytime. Both adopted a similar approach to a Monday email that provided focus and direction to the topics that would be covered during the week and the self-directed learning required; and a Friday email that consolidated what should have been completed. Their role was to motivate students to work independently. This consistency, according to P6, is instrumental in developing a relationship of trust. Consistency also supports the importance encouraging students to access the information (Wang et al., 2021).

In fact, five participants (P2, P4, P5, P6 & P7) mentioned the importance of clear and directional communication (9) and all seven acknowledged the importance of feedback (11) with three participants (P4, P6 & P7) emphasising immediacy of feedback (12) as key in the asynchronous space. Immediacy is considered a key factor in reducing the transactional distance between students and lecturers in developing SP (Oyarzun et al., 2017; Parker & Herrington, 2015). P5 articulated the importance of this feedback as establishing a presence (TP) so that students can feel someone is “interested in what they [had] to share with the rest of the class … so that they [felt] valued and heard when doing the activities”. This relationship between students’ perceived value and immediacy of feedback aligns with the findings of Martin et al. (2018) and Morrison and Jacobsen (2023). Furthermore, P5 associated TP in the asynchronous space as integral in establishing a conducive learning environment for engagement from students (SP).

The intentional development of SP is also supported through the design and organisation (Parker & Herrington, 2015) of resources and activities in the LMS. Five participants (P2, P3, P5, P6 & P7) spoke to the importance of an organised and structured approach within the online platform (10). P2, P3, P5 and P6 discussed simplicity in accessing the resources online to allow students to easily navigate the resources (Arbaugh, 2010) to complete the activities. An intentional approach in the organisation of these resources is nuanced. Figure 4.3 provides a sample of the organised resources of P3 and P7.

P3's organisation of resources on the LMS

More resources

[redacted] Module Content
Enabled: Statistics Tracking

[redacted] LessonPlans/Notes/Worksheets/Activities/Recordings 2022
Enabled: Statistics Tracking

[redacted] Lecturer Slides
Enabled: Statistics Tracking
This folder contains slides uploaded by your lecturer(s).

[redacted] live Q&A on VCLearn Discussion Board
Enabled: Statistics Tracking

[redacted] ICE Activities
Enabled: Statistics Tracking
This folder contains ICE activities as uploaded by the lecturer.

[redacted] Uploading of ICE Tasks

Under more resources, P3 has created many folders that categorizes the uploaded information

[redacted] ICE Activities
Enabled: Statistics Tracking
This folder contains ICE activities as uploaded by the lecturer.

[redacted] Uploading of ICE Tasks
Enabled: Statistics Tracking

[redacted] Memos for Activities on VCLearn
Enabled: Statistics Tracking

[redacted] Revision
Enabled: Statistics Tracking

[redacted] Module Content
Enabled: Statistics Tracking
Attached Files: [redacted] Timetable S2 2022.pdf (170.048 KB)
[redacted] Module Outline 2022.pdf (437.424 KB)
2022 MACROECONOMICS [redacted] Module Outline copy.pdf (173.894 KB)
[redacted] Workbook 2022.pdf (613.523 KB)
[redacted] Programme Assessment Schedule 2022 V6.pdf (102.979 KB)

To the right, is a sample of resources located within lesson plans, notes, worksheets, activities and recordings. These resources are classified according to the learning units for ease of reference.

Sample found within this section

LU1 - Interdependence between Major Sectors, Markets and Flows in a Mixed Economy (Chapt
Enabled: Statistics Tracking
Attached Files: LESSON PLAN FOR [redacted] LU1.pdf (264.632 KB)
[redacted] Prep Activity 1 (LU1).pdf (432.499 KB)
[redacted] Prep Activity 1 (LU1) Solutions.pdf (450.299 KB)

LU2 - The Monetary Sector (Chapter 14)
Enabled: Statistics Tracking
Attached Files: LESSON PLAN FOR [redacted] LU2.pdf (259.688 KB)
Extra material.pdf (5.435 MB)
[redacted] Prep Activity for LU2.pdf (205.014 KB)
[redacted] Prep Activity for LU2 MEMO.pdf (227.852 KB)
Link to LU2 (Themes 1 and 2) - The Monetary Sector (02/08/2022) Recording 1 can be found here https://eu-bl.bbcollab.com/recording/33dcac34dfa142888e699aed3ec808e2
Link to LU2 (Themes 1 and 2) - The Monetary Sector (02/08/2022) Recording 2 can be found here https://eu-bl.bbcollab.com/recording/ff1928efaadd470c84d5c2e4b79c2187

LU3 - The Public Sector (Chapter 15)
Enabled: Statistics Tracking
Attached Files: LESSON PLAN FOR [redacted] LU3.pdf (254.687 KB)
Demand Management Notes.pdf (531.026 KB)
Extra Material.pdf (978.303 KB)
LU3 - Worksheet.pdf (1.031 MB)

[redacted] ICE Activities
[redacted]
LU1 - Interdependence between Major Sectors, Markets and Flows in a Mixed Economy (Chapter 3)
Enabled: Statistics Tracking
Attached Files: LU1 - Worksheet ICE Task.pdf (2.599 MB)
LU2 - The Monetary Sector (Chapter 14)
Enabled: Statistics Tracking
Attached Files: LU2 - ICE Task.pdf (3.058 MB)
LU3 - The Public Sector (Chapter 15)
Enabled: Statistics Tracking
Attached Files: LU3 - ICE Task.pdf (2.491 MB)

To the left, is a screenshot of a sample of the Integrated Engagement Activities (ICE Tasks) that P3 conducted with her class to assess the various outcomes in a formative manner.

This folder is the place where students were able to upload their completed ICE tasks. Part of P3's thinking is to ensure ease of navigation. She is modelling the behaviours that graduates will need in the workplace. The rest of the folders are organised in the same manner.

[redacted] Uploading of ICE Tasks
[redacted]
LU1 - ICE Task 1
Enabled: Statistics Tracking
LU2 ICE Task 2
Enabled: Statistics Tracking
LU3 - ICE Task 3
Enabled: Statistics Tracking
LU4 - ICE Task 4
Enabled: Statistics Tracking

Figure 4.3 Sample of organised resources by P3 and P7

Figure 4.3 (created in Canva) indicates the nuanced differences between P3 and P7. P7 as well as P5 and P6 found it necessary to limit the resources available to their students. P6 summed this up: “keep it simple and to the point…limited but as valuable as possible” so as not to overwhelm the students. P3 and P1, on the other hand, provided as many resources as possible so that according to P3, there the students had “no excuses” not to complete the various activities. All, however, agreed that a structured and clearly delineated approach supported ease of navigation which is an element mentioned by Parker and Herrington (2015). Figure 4.3 also indicates how P7 categorised the resources in different colours.

Whether it is the chunking of materials (P2 & P3), the simplicity of one click for access (P5), the organisation of resources according to units (P3), the design is structured and purposeful. The user-friendliness of the structure is to re-assure the students with ease of access to resources and to develop a conducive environment for learning (Parker & Herrington, 2015). This provides the foundation needed for the development of CP (Pool et al., 2017; Richardson et al., 2012). An “uncluttered design style” and “logical” or organised “flow of information and materials” encapsulate the guidelines provided by Parker and Herrington (2015) in their study of setting the climate for authentic online learning.

The intentional development of SP is important as it is necessary to create a platform to encourage critical discourse (Garrison et al., 2010; Lee, 2014). Both Garrison et al. (2010) and Lee (2014) acknowledge that this, however, does not necessarily translate into critical discourse. This was observed from the comments of both P6 and P7 who mentioned that their students did not know each other. This was despite P6 including humour and banter within her limited synchronous sessions. Despite an intentional development of SP by both participants, the erratic attendance of the students (in the case of P6) and the lack of attendance of the students (in the case of P7) to the limited synchronous online sessions did not develop the relationships enough to lay the platform that encouraged the critical engagement amongst peers.

It could be argued that the invested establishment of a collaborative environment (13) by lecturers is more successful than just the development of relationships in the creation of a platform to encourage critical discourse. This invested establishment

of a collaborative environment supports the finding of Kyei-Blankson et al. (2016, p.55) that a collaborative process is crucial for significant learning to occur. Six participants (P1, P2, P3, P4, P5 & P7) mentioned the importance of creating a climate of collaboration. All six provided variations on how this could be achieved. P1 and P5 spoke to the importance of clear guidelines and instructions. P3 acknowledged the importance of this in clarifying what had gone wrong in her planned break-out group activity that resulted in confusion. From the post-discussion of the observed lecture, P3 surmised that after hearing the instructions, the students who had been randomly allocated to a break-out room, needed to refer to the instructions. The missing copy of the instructions had hindered their group discussion which resulted in P3 aborting the break-out activity and reverting to a class discussion in which she could lead and facilitate the activity. P1 and P2, on the other hand, referred to the importance of strategically placing students according to their strengths and their weaknesses into groups to encourage peer-to-peer learning and to strengthen collaboration. P4 and P7 emphasised the importance of interactions with others in the co-construction of knowledge to deepen learning whereas P5 differed in her approach by assigning tasks to members within a group.

The student-centered approaches of P2, P4 and P5 in creating a vested collaborative environment differed from P1 and P3s' pedagogical approaches of theory first before the inclusion of activities. Their student-centered approaches encouraged a collaborative environment in which students were actively involved in the learning process through various activities (Dagar & Yadav, 2016). They premised their pedagogical approaches to the importance of facilitating learning. Their focus was on the engagement of the students to "master the relevant outcomes" (P2) through active participation in the learning process. P5 even stated that she was "not going to fill in the gap for them" since the process of learning needed to incorporate some level of discomfort for students as they acquired certain skills and knowledge. This resonated with the findings of Scager et al. (2016), namely that the design of tasks should be challenging to build shared ownership amongst students. Three participants (P2, P4 and P5) selected more ICTs that focused on real-time engagement to facilitate collaborative discussions between students. These three were intentional in creating collaborative opportunities for their students. Both P4 and P5 articulated that the process of shared thinking by

students leads to learning or more simply stated, it is “where the magic happens” (P4).

4.3.1.2 The intentional inclusion of activities within the design that supports the development of CP and certain 21st century cognitive skills.

CP, like SP, needs to be integrated in the planning stages (TP) of the design of learning experiences (Garrison et al., 2010). The pedagogical elements represented in Figure 4.4 support the development of a CP. This is needed if cognitive skills like critical and creative thinking and problem-solving skills are to be developed within students. The numbers have been used purely for ease of reference in this section.

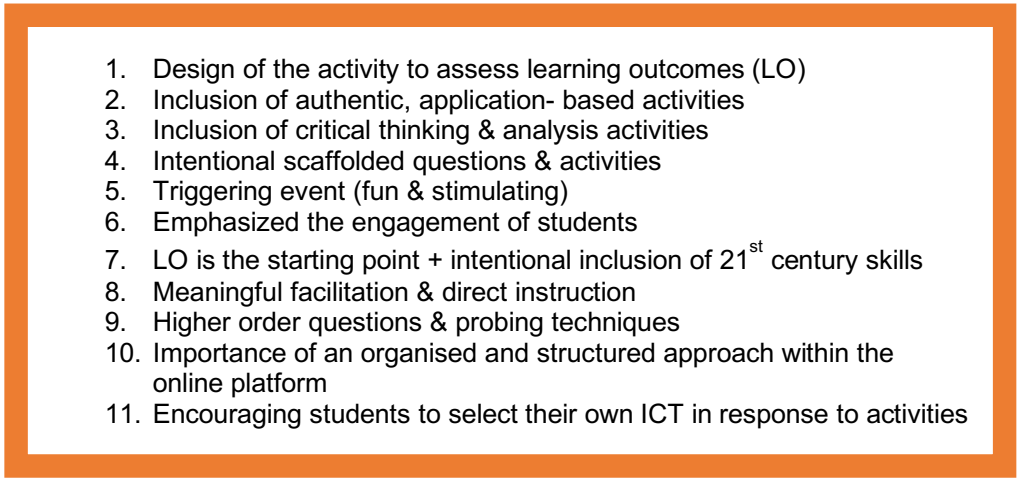

Figure 4.4 Mentioned pedagogical elements in the creation of CP

The design of the activity is crucial (1). There was consensus among the participants that authentic, application-based activities (2) should be included as well as activities that develop critical thinking and analysis (3). These types of activities support the development of the 21st century cognitive skills (Fiock, 2020) such as problem-solving in an out-of-the-box innovative manner, and critical thinking. However, not all these activities led to a resolution stage within CP. This could be linked to the degree of applicability through the intentional scaffolded questions and the scaffolded design of the activities (4) (Baber, 2020; Fiock, 2020) to move beyond the second stage of exploration (Moore & Miller, 2022). In fact, both Pool et al. (2017) and Richardson et al. (2012) contend that the design and organisation of the resources and materials provide the context for the two other sub-components of TP (facilitation of discourse and direct instruction) to achieve the resolution stage within PIM. This supports the development of cognitive 21st century graduate

attributes.

Six participants (P1-P5 and P7) designed activities that involved a triggering event (5) that invited responses from the students. Both P1 and P3 respectively included current trending headlines and newspaper clippings as a point of departure for an application activity, P7 shared an example in which students needed to create a slogan to describe themselves, and P2 mentioned the inclusion of something fun and stimulating. In fact, almost all the participants (P2, P3, P4, P5 & P7) intentionally included a fun element (5) in the design to encourage student engagement (6). Student engagement is crucial in the development of CP. According to Lee (2014), without establishing engagement from the students (SP), it is highly unlikely that critical discourse will ensue, and without critical discourse the development of 21st century skill sets will not necessarily materialise.

Differing results from the activities (CP) is firstly linked to the core planning and design element (TP). Four participants (P1, P2, P4 and P5) mentioned the importance of learning outcomes (7) as the starting point as well as their belief in the development of 21st century graduate attributes (P2, P4, P5 and P7). Gamage et al. (2023) acknowledge that poor integration of 21st graduate attributes is linked to the belief by HEIs that the tertiary experience and not the embedding of these outcomes within the actual curricula leads to the development of 21st century graduate attributes. The intentional and purposeful inclusion of 21st century skills (7) within the planning stages of the learning experiences is, therefore, needed (Gani, 2018) as demonstrated by both P2 and P5.

P2 mentioned that she not only considered the learning outcomes of her module but also the necessary 21st century skills required. She provided an example of how a module learning outcome was meant “to illustrate the components of the communication model”. However, she also wanted to assess the students’ creative thinking as a graduate attribute. The given activity was, therefore, to design their own communication models so that she could also assess the uniqueness of their designs. The students could select their own design tool(s) to create the models (11).

Figure 4.5 outlines the thought processes of the design of the above activity from P2.

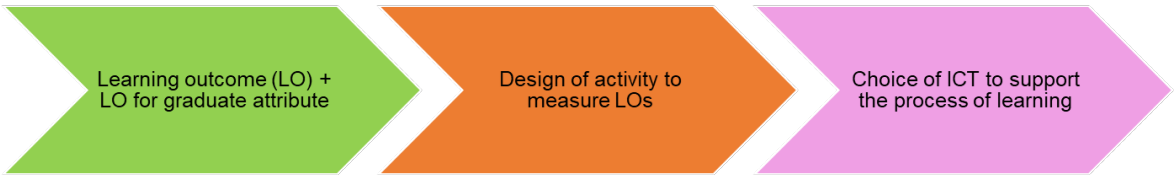

Figure 4.5 Thought process of the activity design of P2

Firstly, P2 identified the learning outcomes, which included the intentional development of a graduate attribute. This was followed by the design of an activity by P2 that would measure the mastery of the outcomes. The design of the activity indicates the importance of the pedagogical content knowledge (PCK) of lecturers to support the development of CP and the development of graduate attributes within their students. Lastly a technology tool which is dependent on the outcome of the content and skill set (TCK and TPK) was selected. Figure 4.5 illustrates the explicit pedagogical rationale of P2 in her design, a concern cited by Ng'ambi et al. (2013) in the successful integration of technology to promote learning. P5 mirrored this approach in the design of activities that reflected a collaborative environment in which students shared their own designs of teaching mathematics concepts using a story in an English lesson on a Padlet board. This became shared resources for their teaching practice. The learning outcome was for the students to identify the necessary mathematics concepts from English stories, integrating mathematics with English literacy. P5 chose a Padlet tool so that her students could post comments on the shared resources of their peers in real-time as well as post their own resources. The graduate outcome that P5 wanted to develop was collaborative skills. This board is like a Pinterest board; a tool often used by teachers to develop a range of resources. The additional learning tool here is the fact that the Padlet board can be downloaded as a summary of all the resources available for the intended activity. The Padlet tool, therefore, also developed the students' summary skills. From the above example, it is clear that both the module learning outcome as well as specific graduate attributes are being supported through the shared activity and facilitation of the discourse. The choice of the ICT is dependent on the purpose of the activity. The focus of the students is on completion of the task and mastery of the outcomes through the technology (Bozalek & Ng'ambi, 2015).

P4, on the other hand, expressed feeling challenged in how she would assess the development of graduate attributes. This despite her belief that the development of graduate attributes was an integral component in her work. This suggests that the thought-process in her design was not clearly linked to the learning outcomes of graduate attributes as illustrated in Figure 4.5 for both P2 and P5. The intentional inclusion of outcomes that support the development of graduate attributes is, therefore, important to support the development of the 21st century skills.

The second reason for differing results from the activities (CP) is linked to how the participants facilitated the discourse and student engagement. According to Sen-Akbulut et al. (2022), facilitating discourse means encouraging engagement in a meaningful way. This meaningful facilitation needs to be factored in the design of the learning experience (8) with the inclusion of scaffolding of activities and questions from a CP (Rolim et al., 2019) and not just from a SP perspective (4). Five participants (P1, P2, P3, P4 and P7) mentioned the importance of this scaffolded approach in the design of their problem-solving or application-based activities. P1 and P3s' approaches were to simplify the problem-solving activity into simpler manageable steps to support the development of cognitive skills. However, this was more of a teacher-led approach than allowing students to grapple with the analysis as mentioned by P4. Her approach was also a scaffolded one. Students completed these activities in the asynchronous space as this space allowed them to work through the various steps in their own time. This complements the finding of Moore and Miller (2022) that self-regulated learning is crucial to higher-order learning. However, the self-reflective component, the other crucial factor to support higher order learning (Moore & Miller, 2022) within the design of P4's activities, was missing. P2's approach was similar to P4, but the activities were often included in the synchronous lecture as well, using real-time feedback to guide the students in the completion of the activity. According to Garrison (2012), this combination of individual and collaborative perspectives is core to PIM.

The type of questions and probing techniques (9) are also important to develop the critical discourse needed to support the development of the more cognitive 21st century graduate attributes (Sadaf & Olesova, 2017). This scaffolding is necessary to support both the integration and resolution stage of the PIM model. Merely including an application-based activity in the design stages does not necessarily

lead to the resolution stage. Consideration of questions that require students to critically assess a problem and provide justified solutions within the design component of the learning experiences is key (Sadaf & Olesova, 2017). The level of applicability or scaffolded questions need to be considered to support the reflective practices required by students (Fiock, 2020). Only P5 mentioned the importance of developing this self-reflective skill as a key graduate attribute.

4.3.1.3 Lecturers model the desired behaviours (LP) to support the development of graduate attributes

The participants did not display as much intention in the active development of the LP in the design element as in the development of SP and CP. This was indicated by the limited new pedagogical elements in Figure 4.6 and a vagueness around how the lecturers support their students in developing certain behaviours. The use of numbers is merely for ease of reference.

1. Embedding questions into the learning design
2. Intentional inclusion of scaffolding
3. Providing feedback
4. Actively building in opportunities to write
5. Modelling the behaviours
    a. model the ICT abilities
    b. model solution-based and grit
    c. model organised and structured through design on LMS
6. Inclusion of asynchronous activities to develop self-directed learning
7. Encouraging students to select their own ICT in response to activities

Figure 4.6 Mentioned pedagogical elements in the creation of a LP

According to Scott (2015) and Guglielmino (2013), self-efficacy skills and self-regulated behaviours need to be taught as they are not innate. Brenner (2022) contends that these self-regulated behaviours need to be developed by lecturers. By viewing LP as a discernible construct, Wertz (2022) argues that this presence

helps to make explicit to lecturers that certain behaviours on the part of students are required. According to Huh and Reigeluth (2017), self-regulation is a combination of regulating cognitive abilities, associated behaviours, intrinsic motivations, and environmental factors that will help students achieve their goals in the completion of tasks. Even though Garrison (2021) argues that this metacognitive awareness is

central within CP and the PIM model, Pool et al. (2017) argue that the original CoI model has been criticised for a lack of developing these self- or co-regulatory behaviours.

One identified pedagogical element to support the development of self-regulation was the importance of modelling certain behaviours (5) within the design component of the learning experience (TP). Three participants (P2, P3 and P5) mentioned the importance of modelling desired behaviours within the students and P6 implied the importance of developing self-efficacy skills by modelling an attitude of perseverance and grit (5ii).

Despite almost all the participants placing importance on an organised and structured approach in the design element of the online space, three participants (P2, P3 and P5) mentioned the importance of modelling the required behaviours for their students (5iii). The intentional inclusion of this design element was to encourage (5) similar behaviours from students. As P3 stated, students "can use their lecturers as examples" to learn the behaviours of being organised and prepared for the workplace, of consistency and a systematic way to complete tasks.

Likewise, both P2 and P6 spoke to the importance of perseverance and modelling these behaviours (5ii) so that their students can learn this graduate attribute or these self-efficacy skills which are not innate (Scott, 2015). P6 has created an environment in which students understand the importance of being solution-driven and to learn from their mistakes. Her attitude of perseverance is encapsulated in the comment "Don't make excuses and make it happen". She provided examples of how students decided to overcome challenges.

Lastly, most of the participants mentioned the importance of mastering their ICT skills (5i) since they consider themselves role models to students. P2, P3 and P5 shared the importance of becoming familiar with the online platform so that they could lead by example (Sinclair & Aho, 2018). The familiarity with which students engaged with multiple platforms during the observed sessions of P2 and P5 showed the students' acceptance of and familiarity with these platforms.

Table 4.3 also indicates the inter-connectedness of LP and CP. Where the pedagogical element led to the establishment of LP, CP was also indicated. This strong association between LP and CP (Wertz, 2022) indicates the importance of developing self-regulated students with the intention of achieving self-directed learning (Pool et al., 2017). According to Torun (2020), self-directed learning is the strongest predictor of academic achievement. The commitment to develop self-directed learning is, therefore, an integral step in the design component within TP. Six of the seven participants had incorporated activities within the asynchronous platform to develop this self-directed learning (6). Scott (2015) argues that metacognition needs to be modelled by lecturers so that students become accountable for their learning through a set of learnt behaviours to allow them to question their thinking and engage in the higher-order thinking skills.

For this reason, the intentional embedding of scaffolded questions (1 & 2) and the subsequent feedback (3) help students to master the metacognitive elements needed to support the development of 21st century skills such as problem-solving, creative thinking, collaboration, and critical thinking. Intentional scaffolded questions or prompts help transition students through the self-regulatory phases. These self-regulatory phases are forethought, performance, and self-reflection (Zimmerman, 2008). According to Morrison and Jacobsen (2023), timely, positive, and personalised feedback supports students through the self-regulatory phases which encourage sustained engagement and learning. Feedback which has always been associated with the direct instruction component of TP (Turk et al., 2021), was also considered a design element by the participants.

Wang and Liu (2019) contend that too much direct instruction hinders the co-construction of knowledge and skills by students. Rather, their findings suggest that more facilitation than direct instruction supports the development of student agency and self-motivation. This suggests that during the design stage, lecturers should consider how they will facilitate the learning process through the design of scaffolded activities and how they will facilitate subsequent feedback to reduce a reliance on direct instruction. Figure 4.5 provides an overview of the thought-process in the design. The feedback component needs to be embedded in the design of the activity to measure the achievement of the learning outcomes. The

sub-components of feedback facilitation and clarification of misunderstanding through direct instruction still forms part of the process.

Lastly, an interesting finding was the vagueness in how the lecturers supported the students in developing certain behaviours. The participants could provide the behaviours that they would like to see. However, when questioned how they assisted students in their readiness, their responses were not as forthcoming. Roddy et al. (2017) state that it is the institution's responsibility to gauge students' preparedness for the online mode. In a similar vein, P7 expressed this viewpoint in her suggestion that the institution should have more stringent entrance requirements. Roddy et al. (2017) cite several studies (Dray et al., 2011; Farid, 2014; Wladis et al.; 2016) to summarise the importance of technical skills, self-efficacy skills, self-regulated learning, and good time management.

4.3.2 How Technological Knowledge (TK) influences the creation of online learning experiences

In reference to the conceptual framework (Figure 2.6), the design of a TP also includes the use of technology. The second research sub-question (SQ2) investigated how technology was selected by the participants to support the acquisition of 21st century graduate attributes.

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Figure 4.7 shows the range of ICT tools that the seven participants used to engage the students online and to develop contextual understanding and skills. This research question investigated the degree of TK and whether this knowledge is integrated with the content (TCK) and the pedagogical process of learning (TPK).

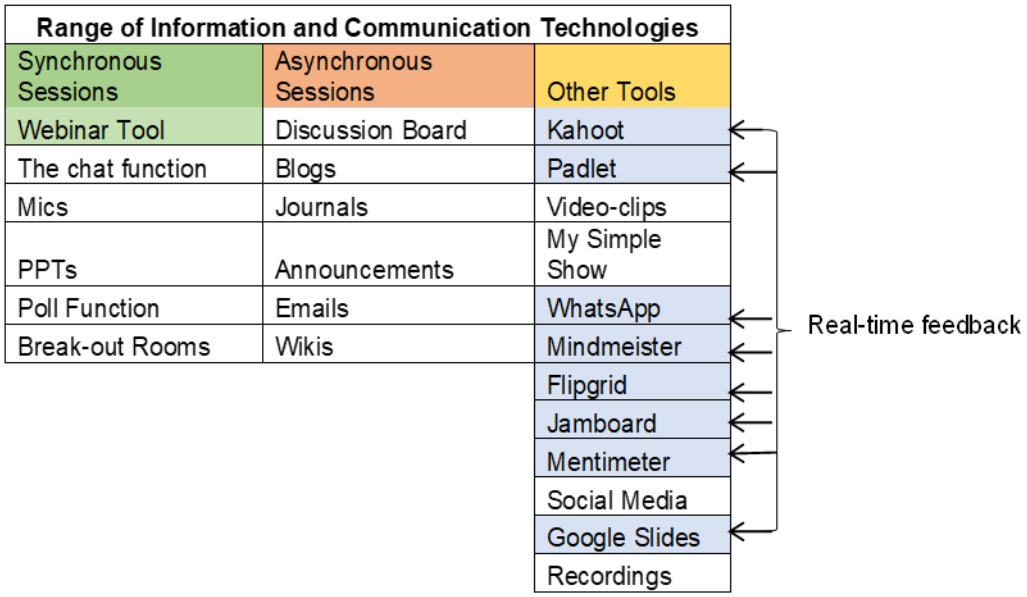

Figure 4.7 Range of ICTs

4.3.2.1 The relationship between comfort of technology to TK

The first theme is the correlation between the TK of the participants and the comfort level in designing online activities that support the development of 21st century graduate attributes. The technical knowledge of the online platform and its accompanying tools may be a contributing factor to how a safe environment is perceived. TK has a strong influence on how the participants designed the learning experiences. P4 acknowledged that in the beginning she had reverted to a more transmissive approach as this placed the control in her as she attempted to navigate the online space. Her own levels of discomfort seemed to mirror the perceptions of her students.

A pervasive fear of technology was expressed by almost all the participants. Five of the seven (P1, P2, P3, P4 & P5) were forced to adopt a completely online approach during the imposed lockdown in the Covid pandemic of 2020. Three participants (P2, P4 and P5) spoke to the importance of interacting with the platform on their own to master the technical skills. This was after a short but intensive training of the institution's LMS by the HEI in preparation of converting to a purely online approach in response to the lockdown. P4's analogy to learning to drive a car provides a good overview of how she familiarised herself with the platform: "You can only really learn how to drive once you have got the license and you are in the car yourself, and you

have to do all the things by yourself." P5 spoke to the importance of practising with a colleague before the first online class to familiarise and re-assure herself that the webinar tool and its functionalities would work. Her advice to other lecturers is to remain calm and collected when experiencing technical issues. This resonates with the findings of Sinclair and Aho (2018, p.19) who mention that fear of technology is associated with a perceived fear of failure by lecturers in performing leadership roles and therefore "a threat to their professional standing". All three participants spoke to the importance of conquering fear of technology.

Likewise, P6 could not see the value of ICTs such as Kahoot, Padlet and Jamboard as learning tools in her dismissal of ICTs for working adults. She labelled these ICTs as mere means of entertainment. This suggests that more knowledge of ICTs allows for more informed decision-making on how to integrate content (TCK) and pedagogical practices (TPK) more effectively as demonstrated by P2, P4 and P5. This finding supports the argument by Røe et al. (2022) of the need to develop the technical know-how of lecturers to support pedagogical practices.

4.3.2.2 The supplementation of ICTs to accommodate the limitations of the webinar tool (TK)

The second theme is that the participants have supplemented the tools within the LMS to engage students. This supplementation is important as lecturers need to be intentional in the design of learning experiences to engage their students (Moore, 2016; Oyarzun et al., 2017) to address online transactional distance (Moore 2016). In Figure 4.7 the 3rd column shows a range of ICTs that the participants used. Out of the 12 mentioned ICTs, eight (highlighted in light blue) have been used to provide real-time feedback. This is in response to some of the challenges that the participants have encountered with the webinar tool. This indicates the importance of TK in understanding the limitations of the webinar tools in the creation of the learning experience to support student engagement.

Despite the encouragement from the lecturers for students to reply with their mics, there has been a reluctance by most students. P3 summed it up with "it would be nicer if they did actually use their mics, but they tend not to." P6 has used the strategy of asking one or two students to use the mic in their response and has

noticed that it seemed “to encourage the others in sessions down the line”. However, the questions must not “put them on the spot” or “make them feel uncomfortable” which could result in a likelihood of disengagement.

The chat function, on the other hand, could be an effective tool for engagement. However, there were two challenges. The first was the inability of the lecturers to determine whether the students were responding. With online, “it is just crickets” (P5) and “you can have radio silence” (P1) because of the uncertainty of “whether they are responding” (P1). This can be disconcerting; P5 indicated that at least the ellipsis in the Team’s chat (unlike the webinar’s chat function of the institution) is an “indication that there is life on the other side”. The second was the disjointed and time-consuming replies from students which hindered “the flow of the actual class itself” (P2). P2 used Jamboard, Mentimeter and Padlet, sharing the presentation screen, so that the students could see “their other peers commenting and posting, and that encourage[d] them.” This real-time feedback indicated that students were in the process of responding and it helped to mitigate the lack of non-verbal cues from the chat function.

The third tool in the webinar is the break-out rooms which allow students to work in smaller group discussions. However, despite the majority having used this tool, there were challenges of non-participation, connectivity issues, and the requirement of constant monitoring within each group to measure the levels of engagement in a tool that was not easy to navigate. P5 used Google Slides as an alternative as it mirrored the familiarity of group discussions in a face-to-face classroom. “It is kind of like when you walk through the classroom, you can see, ‘Okay, what are you doing? Where are you stuck?’” This allowed P5 to facilitate the discussions more readily within the groups as she could “see it happening in real time”.

This real-time feedback provided cues that the lecturers tended to miss in contact face-to-face sessions. It allowed them to create a more natural setting for the discussions that promoted the engagement of students (P1, P2, P4 and P5). The real-time feedback of certain ICTs (such as Padlet, Google Slides, Jamboard, Mindmeister) encouraged a more natural flow to the lecture. According to four participants (P1, P2, P4 and P5), it also helped to connect the students which is

often a criticism of the online space (Moore & Miller, 2022; Roddy et al., 2017). These ICTs helped to promote a more collaborative learning experience in which students were connecting with others, either by sharing responses (P1, P2, P4, P5) or even critiquing the posts of others (P2, P5 and P7).

4.3.2.3 The purposeful selection of the ICTs (TCK and TPK)

The third theme indicates the purposeful selection of the ICTs. A study by Røe et al. (2022) refers to the evidence that lecturers who adopt a more student-centered approach are more purposeful in their selection of ICTs to support learning. Five participants (P1, P2, P4, P5 and P7) outlined the importance of the activity design and then the selection of the right technology. The choice of technology for P5 was dependent on "what I actually want[ed] to teach them", whether it is skill- or content-related. This approach as outlined by Ng'ambi et al. (2013) complemented the view of P2 who stated that "the use of the technology is dependent on the outcome of the activity" and that she has used Bloom's digital taxonomy to select "the best tool for that particular outcome." The thought-process of the activity design is depicted in Figure 4.5 (p.65). The technology was, therefore, the vehicle that supported the design of the activity (Bozalek & Ng'ambi, 2015; Kimmons et al., 2020), particularly in the online space, to support the development of 21st century graduate skills.

The inclusion of video-clips is dependent on the purpose of the activity. For example, P1 and P3 have used video-clips to explain a concept from an expert or to provide an example to illustrate some theoretical or abstract construct. P6 and P7 mentioned that YouTube videos were good visual resources for students to access in the asynchronous space to have better clarity. However, video-clips could also be incorporated to support the development of certain graduate attributes. P7 incorporated a video clip as springboard for discussion to develop critical thinking through a process of scaffolded questions. P2 shared a scenario-based example in which students were required to respond with a communication strategy to a particular crisis that she had shown them. This encouraged collaboration, problem-solving and creativity amongst students and aligned to skill sets needed within their potential careers. P4, on the other hand, used the videos as a tool to assess the students' responses to certain scenarios. For example, students had to work together in presenting a newsclip in response to a problem. This supported the

development of higher-order thinking skills such as analysis and synthesis as well as the graduate attributes of communication and teamwork. These examples are indicative of the importance of assessing the intended learning objectives of intended activities.

This integration of the ICT to support the assessment of the learning objectives of the activity is further reflected in Table 4.4.

Table 4.4 Purposeful choice of ICT

ICT	Purpose as per participants	Participant
Kahoot	Tool to review material/ assess understanding and the gamification encourages engagement.	P1 & P5
Padlet or Jamboard	Tool to share responses and real-time feedback that encourages engagement from students.	P1, P2 & P4
Padlet	Tool to collaborate in the sharing of ideas (like a Pinterest board)	P5
Mindmeister	Visual tool to provide a summary/ mind map through the collaboration of students.	P2
WhatsApp	Informal communication tool	P2, P4, P6 & P7
WhatsApp	Tool to build a community of learners through the development of connections and a tool of reassurance and confirmation	P2, P4 & P7

The selection of the ICT was dependent on whether a participant tried to assess conceptual understanding (as in the case of the Kahoot tool) or encouraged others to respond to questions (as in the case of the Padlet or Jamboard) or created a visual mind map that summarised the key ideas (as in the case of Mindmeister). This purposeful selection of ICTs complements the finding by Tyrväinen et al. (2021, p.143) that the integration of technology must be purposefully planned both “contextually and pedagogically” in the synchronous online space.

WhatsApp was primarily considered an informal and quick communication tool. For four participants, WhatsApp became an additional layer of communication to the formal online platform. This was to indicate if there were connectivity issues or last-minute instructions before an online lecture as students were more comfortable with this platform and more likely to read the WhatsApp message than the more formal email or announcement. Yet, two of the four (P2 and P7) also referred to the power of WhatsApp in bringing students together within an online learning community in

which the students were encouraged to “chat among their peers as well” (P2) even during an activity within a synchronous session.

4.3.2.4 Selection of ICTs is dependent on the preferences of the lecturers

The choice of ICTs was also dependent on the preferences of the lecturers. Certain ICTs were favoured more than others. The choice of ICTs amongst the seven participants is summarised in Figure 4.8.

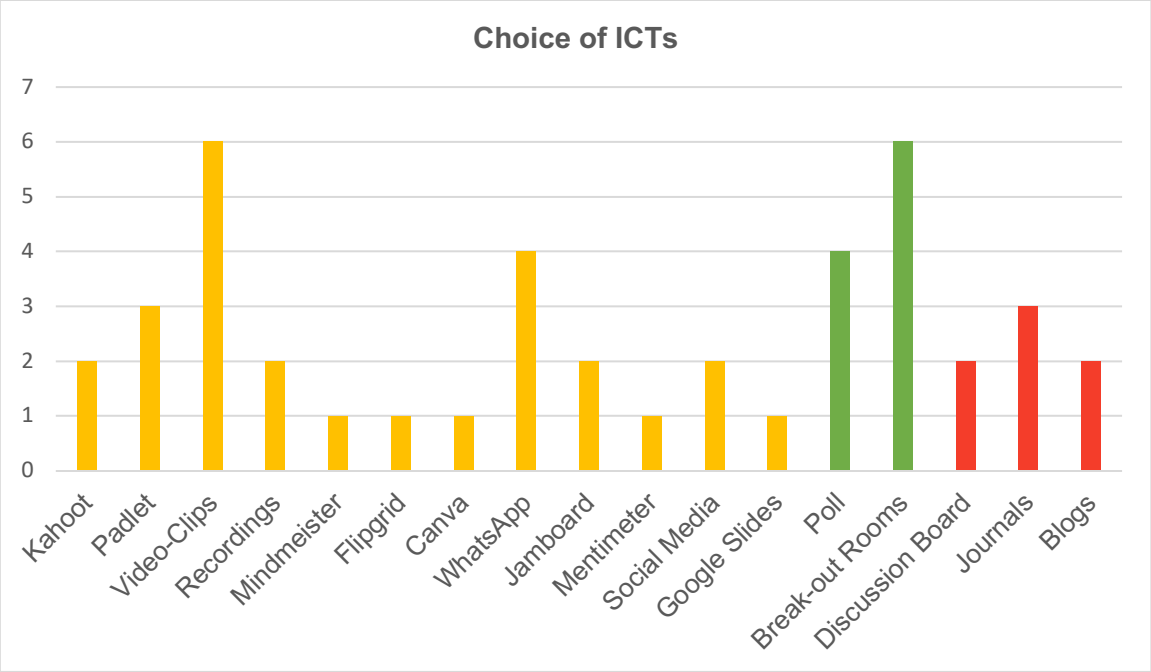

Figure 4.8 Choice of ICTs used by the participants.

The last five tools in Figure 4.8 are related to the LMS of the institution with the two in green representing the webinar tools and the last three in red the activities used from the LMS. The rest are external ICTs mentioned by the participants.

The choice of ICT is determined by the preferences of each participant. An underlying theme that was verbalised by at least four participants (P2, P3, P4 & P5) was the importance of familiarity with the ICT tool or LMS for the participant. In fact, P4 expressed that her preference is determined by ease of use. According to P4, technology must be “quick”, “easy” and “going to get the work done”. This perceived usefulness of the ICT based on the perceived ease of use is consistent with the finding from Kwok and Yang (2017). However, it is important to note that the outcome of the activity was foremost in her mind as she commented that the ICT tool must “speak to the outcome; it [must] speak to the skill set. We can quickly

evaluate whether it is working or not." For this reason, two of her most frequently used tools are Jamboard and polls. In contrast, P1 preferred not to use the poll function. Her reasoning–- "it took so much effort to explain it to [the students] …it just didn't turn out what I needed."- reflects the importance of familiarity with the tool by the user to achieve the outcome of the activity.

Furthermore, the attitude towards ICT can determine whether it is used or not. P6 viewed the use of Apps as frivolous and for entertainment purposes only. In contrast, all the other participants viewed the apps as tools to engage students in the learning process. The statement- "When you try and play or entertain with apps with the distance students, it falls flat"- indicated that these apps are not adding to the learning experience. For this reason, P6 encouraged the use of tools within the online webinar and supplemented the learning experiences with the inclusion of videos. The perception of the purpose of the ICT for the lecturer is, therefore, crucial. This supports the finding of Kwok and Yang (2017, p.10) who note that the perceived usefulness of ICT "was a stronger predicator than perceived ease of use" in the selection of ICT. Their study focused on the use of ICTs by students, yet the findings seem to mirror the choices of lecturers as well.

4.3.2.5 The selection of the ICTs of the design is linked to the perceived preferences of the students

Interesting, the participants also spoke to the perceived preferences of their students. The question is whether the perceived preferences merely reflected the participants' own levels of discomfort with the ICTs. Nevertheless, Fish (2013, p.65) argues that the perceptions of students towards the integration of technology is "a critical factor to consider". Most participants disliked the break-out rooms, citing that students were not comfortable. P1 and P7 referred to certain students logging off at the point of break-out rooms due to their unwillingness to work with certain other students (P1) or the students' perceptions of lack of value for the time spent (P7). P3, on the other hand, cited confusion and subsequent disengagement of the students as a possible reason.

Secondly, the selected ICT by the lecturer is dependent on the perceived preferences of the students. P2's selection of Jamboard or Padlet was dependent

on her group of students. According to her, commerce students preferred Jamboard as it was perceived to be more analytical than Padlet. Padlet, on the other hand, was the preferred tool for her students within Humanities. The level of engagement was, therefore, also linked with students' perceived preferences.

A few participants mentioned that they left the choice of technology in responding to an activity to the students. This further confirmed that the focus was on the outcome of the activity, with technology merely the vehicle through which the outcome was achieved. P2 and P4 cited the creativity of the students' responses to an activity with their choice of the ICT. Whereas P2 and P7 acknowledged that students tended to stick with platforms with which they felt familiar. According to P4, both the type of activity and the choice of technology provided students with an opportunity to be stimulated and empowered. This is summed up in the comment:
"So, it also gave them an opportunity to be creative and I think a lot of them felt empowered that they could take ownership of how this was going to be presented and really have fun with it."

This positive association between the choice of technology and a creative outlet for the students corroborates a finding from Kwok and Yang (2017). They argue that the choice of ICT by students is significantly enhanced through the lecturer's perceived usefulness of the ICT tools. More importantly, the outcome of the students' engagement in learning through their selection of ICT supports the development of certain graduate attributes in the students. In the above example, P4 was assessing the students' creative thinking about how they would present a problem-solving activity.

4.3.3 Important factors of teaching presence (TP) to support the development of 21st century graduate attributes

Understanding the key influences in the design of a TP will contribute to the type of support required for lecturers to develop graduates with 21st century skills. Firstly, an exploration of the pedagogical beliefs of lecturers is required and secondly, their attitude towards their role in the development of these attributes. This refers to SQ3. Another factor is the examination of the online approach that impacts TP. The final factor is an examination of their implementation experiences (SQ4) to determine the

likelihood of continued practices.

4.3.3.1 The pedagogical belief of the lecturer determines the pedagogical approach

The first important factor that influences the TP of the participants complemented the findings of Antunes et al. (2021) and Tondeur et al. (2016). This suggests that a pedagogical approach (TP) is determined by the pedagogical beliefs of the lecturer. Despite all seven participants in the initial interview referencing activities in the creation of their learning experiences (refer to Table 4.2, p.52), their pedagogical beliefs about the process of learning differed. For example, P1 and P3 mentioned that their activities were secondary to the theory whereas P2, P5 and P7 emphasised the importance of an activity-led approach in which students actively engaged with the content to gain conceptual understanding of the theories. The second discrepancy in their approaches is the relationship between the level of comfort or discomfort in the learning process.

The pedagogical approaches of P1 and P3 were predominantly teacher-centered with the focus on dissemination of content and student engagement as a secondary component in the development of skills. The difficulty of the Economics module, coupled with the anxiety levels of her students, resulted in P3's belief that her students were "never going to be able to work it out on their own". This was similar to P1's reference to her industry experience as a value-add in helping students see the relevance of the theory. It indicated perception of the lecturer as an expert and disseminator of knowledge. This has resulted in more of a teacher presence than a teaching presence. Although both have still incorporated activities, and both have understood the importance of including opportunities for student engagement, the focus was on a single aspect of direct instruction and did not balance the aspect of "facilitator of reflection and discourse" with the role of disseminator as outlined by Richardson et al. (2012, p.5). Likewise, both Palloff and Pratt (2011) and An et al. (2009) found that too much teacher control of the collaborative process hinders student participation in the learning process and subsequent acquisition of cognitive 21st century skills.

Garrison (2011, p. 63) states categorically that the purpose of direct instruction is

not to lecture but rather to ensure “that students achieve [the] intended learning outcomes in a timely fashion without unnecessary frustration”. This finding of the misalignment of the word “direct instruction” as the perceived teaching of difficult concepts by lecturers where the desired behaviour from students is to listen to the expert, is counter-productive to the pedagogical approach of the revised CoI. However, the misconception of this term is perpetuated in the literature (Martin et al., 2022; Moore, 2016; Kyei-Blankson et al., 2016; Plotts, 2021; Pool et al., 2017).

Interestingly, the second discrepancy in the pedagogical approach was linked to the disparity between comfort levels and learning. In contrast to the beliefs of P2 and P5 that learning required some discomfort in the students, P4 indicated that there should not be discomfort as this results in disengagement. The statements from P4 that she “would rather have them there than not there at all” and that “learning mustn’t be uncomfortable” are indicative of how beliefs influence the design of educational experiences for the students. This could also attest to P4’s belief that content comes first and activity second. This approach would be a more comfortable and familiar space for the online students to a “flipped classroom approach” as mentioned by P4 with her contact students (refer to Table 4.2, p.52). The approach is more teacher-led as the dissemination of content was crucial for her before scaffolded activities were introduced. However, the type of collaborative activities such as slam poetry, bedtime stories or news clips that the students designed reflected P4’s pedagogical belief in the importance of developing the skill sets. It also questions her perception of creating a safe environment for learning (social presence-SP). Those collaborative activities required a certain level of discomfort amongst the students in both their analysis and synthesis with the content to create the slam poetry, the bedtime stories or news clips.

All seven participants spoke to the importance of creating a safe learning environment (SP) and being approachable. But this perception is nuanced and layered. According to P2 and P5, levels of discomfort were integral in learning. However, the focus by the two was to provide a safe, respectful learning space through the careful facilitation of discourse. In contrast, both P4 and P6 associated discomfort levels to be an unsafe or fearful space for students. These perceptions or assumptions are reflected in the nuances of the pedagogical approaches.

4.3.3.2 The degree to which the participants' beliefs and attitudes about 21st century graduate attributes influence the design of TP

The second factor that impacts TP is the degree to which the participants' beliefs and attitudes about 21st century attributes influence the design of learning experiences. Two sub-themes emerged: the first is vagueness in defining graduate attributes and the second is perceptions of the lecturer's role and beliefs in the development of graduate attributes.

4.3.3.2.1 The difficulty in defining graduate attributes

The first sub-theme (to the degree to which the participants' beliefs and attitudes about 21st century attributes influence the design of learning experiences) is the difficulty in defining graduate attributes. This supports the extant literature regarding the challenges in developing and accessing the required graduate attributes (Joynes at el., 2019; Suarta et al., 2017; World Economic Forum, 2015). Both P4 and P6 articulated the challenges in measuring the acquisition of these 21st century skills. Table 4.5 provides an overview of each participant's definition. Despite all seven participants acknowledging that a graduate attribute is preparing students for employability (as indicated in green in Table 4.5 on the next page), the definitions varied.

Table 4.5 Overview of each participant's definition of a graduate attribute

Participant	Graduate Attributes as defined by participants
P1	Preparation for the profession. Did not define graduate attributes.
P2	Preparation for the profession. The necessary skills, qualities, and characteristics that students gain through learning and practical experience.
P3	Preparation for the profession. Characteristics that hold the students in good stead for their career. Characteristics that are inherent in you that are applied in the workplace: high-achiever, consistent, organised, hard-working, disciplined, balanced and cheerful.
P4	Preparation for the workplace. Skill sets and the thought-processes with which students graduate critical thinking, problem-solving, analytical, resilience, taking the initiative, attention to detail and good communication skills.
P5	A skill set from the perspective of the employer. These are 1) content knowledge, 2) application of knowledge, 3) reflective practice, 4) effective communication with various stakeholders, 5) technological skills, 6) professional & ethical conduct, and 7) identification of key ideas.
P6	The attributes with which students graduate that will make them an asset in the workplace. Employers look for consistency in performance, acting with integrity and having a good reputation.
P7	Asked for clarity between the difference between a graduate attribute and a skill. An attribute is something you have developed over your academic studies. The end-result in preparation of a career.

Table 4.5 indicates that four participants (P2, P4, P5 & P7) defined graduate attributes as a set of skills (indicated in yellow in Table 4.5). P5 clearly articulated that it is “a set of skills from the perspective of the employer” and confidently listed seven skill sets needed within the teaching profession. In contrast, P7 expressed uncertainty with the term *graduate attribute*, initially asking for clarification between *skills* and *attributes*. Her description of an attribute as “*something* you have developed over the course of an academic journey” and “the end result” reflects her difficulty in defining the term.

P6 preferred to keep the term *attribute* in her definition of employers looking for “consistency in performance” and “having a good reputation.” This aligns more closely with the definition of P3 who used the term “characteristics” that are “inherent” within the graduate. The examples are, therefore, adjectives such as “ambitious, consistent and organised”. This shifts the focus from a skill set to a set of behaviours (as indicated in blue in Table 4.5). When P3 was asked how she supported the development of graduate attributes, her response aligned with her definition of a set of behaviours. She believes in modelling the behaviours through leading by example and creating a structured approach to how students experience and navigate the online platform within her module.

Only P2 referred to graduate attributes as the skills, qualities, and characteristics that students gain during their studies. This participant also distinguished between the skill of collaboration and the skill of the collaborative problem-solver. She defined the collaborative problem-solver as someone who is not only able to work together in a team but also understands that the problem “cannot be solved by a single person” and that one needs “to capitalise on the skill sets” of others “to find a resolution to a problem.” Collaborative problem-solver is one of the graduate attributes mentioned in the institution’s Teaching and Learning Policy.

Furthermore, when examining the necessary skill sets for students to develop for the 21st century workplace, the range amongst the seven participants was considerable and resulted in different attributes being prioritised. Figure 4.9 shows the range of mentioned skills by the seven participants.

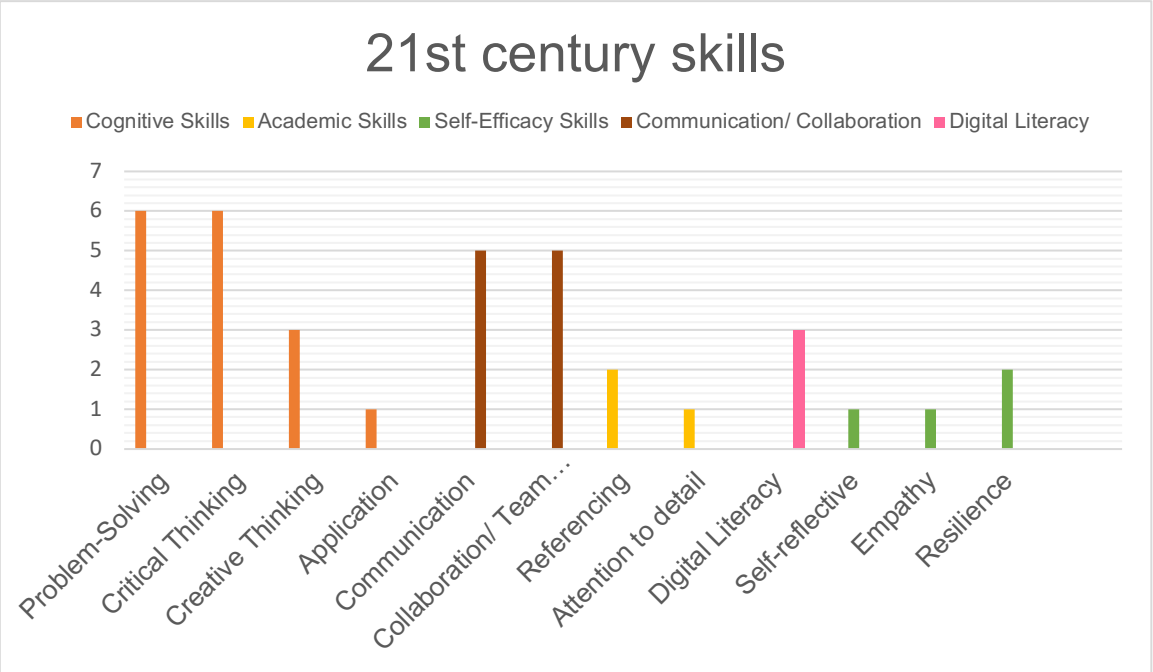

Figure 4.9 The lecturer'' range of 21st century skill sets

All agreed that the above skills are relevant to the intended profession and are important from an employability perspective. P3 and P7 also referred to these skills as crucial for personal growth as a life-long learner. The skills reflect the importance of cognitive and self-efficacy skills, working with others, and technology skills. However, Figure 4.9, indicates a lack of consensus in skill sets. The two highest skills, namely critical thinking and problem-solving, are cognitive skills which according to the World Economic Forum (2023) are reported to be growing in importance amongst businesses for employees to be able to perform complex problem-solving. Only three participants (P2, P4 and P7) spoke to the importance of creativity. Yet, the findings from the World Economic Forum (2023) have identified significant growth in the necessity of this skill in businesses, which is ranked second to problem-solving. There was agreement that graduates should be independent workers, showing behaviours such as a willingness to learn and being resourceful and proactive in the workplace.

4.3.3.2.2 The relationship between the role of the lecturer and the belief that the development of graduate attributes is important

The second sub-theme (the degree to which the participants' beliefs and attitudes about 21st century attributes influence the design of learning experiences) is the

correlation between the lecturers' perceptions of their roles and their views of supporting the development of 21st century graduate attributes.

Figure 4.10 provides an overview of the participants' responses to the question of the primary responsibility of the lecturers, unpacked in the interviews. This provides the context of their pedagogical approach (TP).

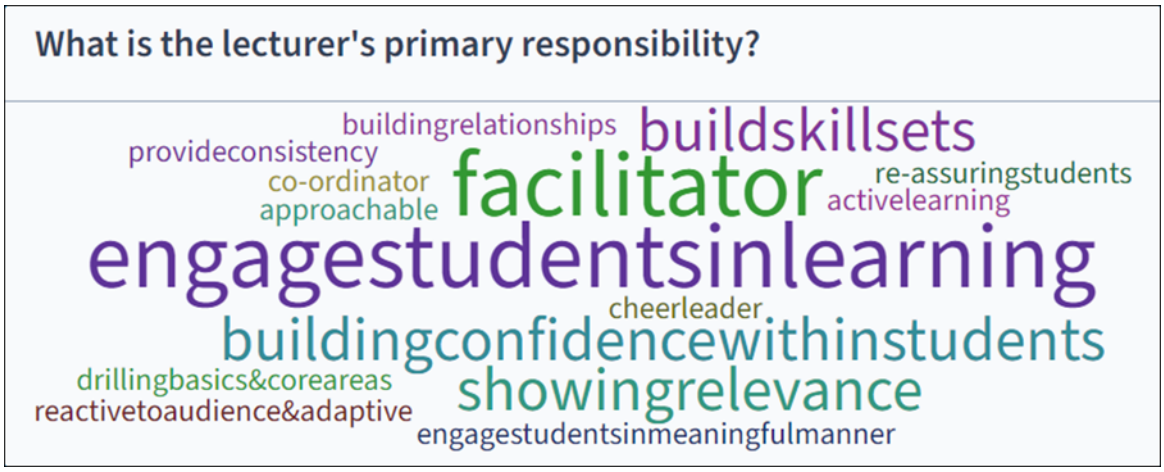

Figure 4.10 Primary responsibility of lecturer

The wordle (generated in Poll Everywhere) in Figure 4.10 does not reflect every response. However, it highlights common responses from the participants. The terms "engage students in learning" and "facilitator" reflected a more learner-centered approach in the pedagogical practices of the participants. Furthermore, "building skill sets" was mentioned by three of the participants and reflected a shift from a more historical transmissive approach that would have focused on direct instruction of the content and "drilling basics". The selection of the participants was based on recommendations for a more activity-based approach to their teaching practice as indicated in Table 4.2 (p.52) to align with the research conducted by Hill et al. (2016) and Kaendler et al. (2015) that suggests students should be actively engaged in the learning experience to see a transfer of skill sets. The development of TP is, therefore, based on the pedagogical approach of the lecturer (West & Allman, 2021) and the degree of facilitation of discourse for meaningful engagement (Sen-Akbulut et al., 2022) as determined by the lecturer in the transfer of skills.

This commitment to building skill sets is reflected in the responses of the participants

to the question of whose responsibility it is to develop 21st century skill sets in the students. Of the seven, four (P2, P3, P4 & P7) referred to the dual responsibility of both lecturer and students, and one (P5) felt that it was her responsibility alone. P5 alludes to the importance of creating learning experiences for the students in which she mediates the transfer of skills. She corrected herself in her explanation of the need to integrate practical activities in her lecture to it "is not really a lecture, it is a facilitation" with the intention to "get them to use skills that they are going to apply" in their professions.

Interestingly, P2 and P4 both changed their initial responses to the question of responsibility to the dual relationship. Initially, P4 felt it was the responsibility of the lecturer whereas P2 assumed it was the students' responsibility. P2 acknowledged that the question had challenged her with the realisation that lecturers need to model the desired behaviours and that her role is "to be encouraging and motivating [for] students to learn and to master a skill."

All five (P2, P3, P4, P5 & P7) acknowledged that the year of study for the students is linked to the progression in skills development. In other words, as the student progresses from year one to year three in their qualification, so too do the students need to develop their skill set, particularly cognitive and self-efficacy skills. Those participants who believe in dual responsibility in skills development also agreed that the level of responsibility shifted between the parties. The initial responsibility rests with the lecturer with the perception that higher certificates and 1st year students have not developed enough confidence and self-regulated behaviours. As the students progress in their studies, their responsibility increases based on the assumption that they have become more self-directed, having developed some self-efficacy skills. P4 commented that "it's important that [the students] also realise that it is a scaffolded approach and that each year, each semester, they have to take on more accountability for their own engagement." This aligns with the sentiments of P3 that students should take on "responsibility for their own learning" as they become more independent. This corroborates the findings of Shea and Bidjerano (2010) that intrinsic motivation, metacognitive involvement, and active engagement in learning are characteristics of a self-regulated student and the integrated LP required for the acquisition of 21st century graduate attributes.

P1, however, did not share the same sentiment in the development of graduate attributes as the above five participants. She did not provide a definition of graduate attributes, and this could be linked to her perception that developing skill sets was not the primary responsibility of the lecturer. Rather, the primary responsibility was providing students with the "best opportunity and best platform to learn" content, rather than developing a skill set. Her response that lecturers could "be encouraged to impart that knowledge" reflected her lack of emphasis on this skill development. This is significant since Bitzer and Withering (2020) and Hill et al. (2016) indicate that the development of graduate attributes is dependent on the degree of interest from the lecturer if graduate attributes are not built into the curricula. P1 was one of two participants who believed that it was the students' responsibility and that once graduated, students must transition from theoretical knowledge to practical implementation.

P6 lectured in the distance space where students were typically working adults. Her belief that it was the responsibility of the students to develop 21st century skill sets is based on the assumption that working adults have already developed cognitive skills such as critical thinking, creativity, and problem-solving. Her primary role was to equip these students with academic skills such as research, referencing, and academic writing. As these students were accustomed to the working world, the focus was rather on "preparing them for the academic world" and the use of technology as "they find it quite daunting." She viewed her primary role as both a co-ordinator and cheerleader; someone who directed the students to the resources such as the online library, guided them in navigating the online platform, provided reassurance, and drilled "the basics and core areas to keep them on track during the synchronous sessions." When questioned about how she supports students with the development of problem-solving skills, she claimed that the distance space does not cater for problem-solving scenarios, particularly during the first year. Driving the students "to those higher-order critical thinking dimensions" was a secondary responsibility.

This is juxtaposed against P7's belief that working adults are not vested in their learning. She did not necessarily agree with P6 that these students have the necessary 21st century graduate attributes. Despite her belief in the importance of

collaboration, she had not implemented a collaborative environment citing that the students do not know each other. This needs to be contextualised against a time in which students did not have access to the online platform owing to registration and administration issues.

4.3.3.3 The type of online approach impacts the pedagogical practices

The third factor that impacts the pedagogical practices of lecturers is the type of online approach. A significant finding was the disparity between the hybrid or blended approach of the lecturers to the distance approach. This was highlighted with their perception of the readiness of students to acquire these 21st century skills and the focus of their role as a lecturer.

As this study investigates how lecturers support the development of graduate attributes, the readiness of students to acquire these graduate attributes was important to explore. The outcome reflected the disparity in the perceptions between the lecturers with the differing online approach. The five participants who have a blended approach could all respond in the affirmative that their students were ready to some degree. In contrast, both P6 and P7 shared uncertainty. Both spoke to the disparity of skills amongst the students in the distance space, particularly post-Covid that saw more recently matriculated students opting for a distance mode of learning rather than a blended mode. This disparity of skills is inconsistent with the findings of Khalifeh et al. (2020) and Xiong et al. (2015). Rather, their findings suggested that recently matriculated students demonstrated sufficient ability in both perceived online technical skills and levels of comfort in the online space. The question, however, is the level of psychological readiness for a distance approach that requires more self-discipline and levels of maturity than a blended approach.
Secondly, both P6 and P7 placed more emphasis on the engagement of students in the course content than on the development of skills. Fewer synchronous sessions resulted in P6 reverting to an instructivist role, “drilling the basics”. In contrast, P7’s pedagogical belief in developing the skills was hindered by a lack of engagement, the reliance of students on the recordings of the lectures and complete lack of a community of learners in the online space. This resulted in the description of her synchronous role in 2022 as one-sided and teacher led.

4.3.3.4 The experiences of the participants in the implementation of these learning experiences were mixed

This question has resulted in polarised experiences in the implementation of learning experiences. The learning experiences examined both the blended and distance approaches. The first incorporated a percentage of face-to-face contact lectures, synchronous online lectures, and asynchronous sessions. The latter did not include a face-to-face contact mode and had a reduced number of synchronous sessions. P1 and P2 expressed an overall “disheartening” (P2) and “demotivating” (P1) experience. The remaining five participants, in contrast, viewed the experience positively with P3, P4 and P6 referring to personal growth within themselves. All agreed that the implementation was impacted by poor attendance or connectivity challenges for the students. The experiences of the lecturers in the implementation of the online learning experiences are important for the adoption of collaborative or activity-based learning experiences by lecturers since negative experiences act as a barrier to the successful integration of ICTs that facilitate the learning process (Shelton, 2017).

This “disheartening” (P2) or “disconnected” (P1) experience stemmed from initial excitement in having to design online activities to engage the students and the accompanying disillusionment when the time and effort was not necessarily rewarded. This complements the finding by Shelton (2017) who shared a similar experience to Interviewee K where the time and effort outweighed the experience with the students and resulted in an avoidance of the particular teaching approach. P2, on the other hand, did not necessarily avoid the teaching practice but rather adjusted her strategy with less time-consuming designs and with less enthusiasm.

Likewise, P2 shared an example of creating a Kahoot activity that did not result in competitive engagement from the students due to poor attendance. In contrast, P2 shared her perseverance in providing unique and “innovative lessons” despite feeling disillusioned. The cited reason for perseverance was her view that her students are her “biggest priority”. The sacrifice of personal time and effort was outweighed by her commitment to create positive learning experiences for her students. Like P6, she provided solutions to overcome some of the challenges experienced. This is consistent with the findings of Shelton (2017) who also

established that unsuccessful experiences do not necessarily result in the avoidance of ICTs.

P7 also expressed feeling “utterly demoralised”. However, this experience was associated with the institution’s registration, administrative and system challenges that had severely impacted teaching and learning in 2022 for many distance students. It did not, however, reflect her overall experience in the distance space.

Furthermore, it seems to mirror the remaining participants positive responses. P3 acknowledged that despite the many sacrificed hours and effort in understanding the platform, the experience has been personally rewarding. This sentiment is echoed by P4, P5 and P6. Despite the initial challenges of an unfamiliar platform, they have either conquered their fear of technology (P4) or referenced their personal growth (P4 and P6). P6 even articulated her happiness in being part of the evolution of the distance space.

4.4 Conclusion

This chapter discussed and interpreted the findings derived from the collected data generated by the seven participants. There was consensus that certain pedagogical elements were required in the design of learning experiences. This design is one of the sub-components of TP. These were outlined in Table 4.3, and further elaborated in

Figure 4.2, Figure 4.4 and Figure 4.6. These three figures indicated the pedagogical elements required to support the development of SP, CP, and LP respectively. However, there were nuances in the approach of the seven participants. The findings suggest that the beliefs of the lecturers about their primary roles and their awareness of the learning benefits of technology play a significant role in the design of the learning experiences. TK is integral in the design of online activities for the integration of content and pedagogical practice and use of ICT, which can either deter or encourage student engagement. This TK allows lecturers to select the appropriate LMS tools or supplement the LMS with a 3rd party ICT that will engage students in mastering the learning outcomes of the activities (TPK) or engage with the content (TCK) in an appropriate manner. These TPACK constructs are part of

the design component of TP and cannot be separated from the other two sub-components, namely the facilitation of discourse and direct instruction as clarified in Chapter 1.

Chapter 5 discusses the findings that support the key pedagogical elements to create an online environment in which lecturers support the students with the acquisition of 21st century skills. It also outlines several limitations to the study and makes recommendations.

CHAPTER FIVE: Discussion, limitations and recommendations

5.1 Introduction

This chapter discusses the findings and themes from the study in response to the research question. It explores how the development of 21st century graduate attributes are supported in the online space through the teaching practices of lecturers. It provides guidance to lecturers on how to support the development of 21st century graduate attributes in the online space by firstly, discussing the identified pedagogical elements in the development of online learning experiences; secondly, by examining how lecturers have used certain ICTs; and lastly, it explores the experiences, beliefs and attitudes to investigate whether there is a link to those lecturers who support the development of graduate attributes. It also examines possible limitations in this study that could have affected the findings and proposes further areas of research on the topic. The chapter concludes with several recommendations for the HEI in this case study and proposes a template that lecturers could use to support the development of graduate attributes.

5.2 Discussion of the analysis and the accompanying themes

The purpose of this study was to explore how lecturers within an HEI supported the development of 21st century graduate attributes through the creation of their online learning experiences. According to Martin et al. (2022), TP has the largest effect on actual learning in both online and blended platforms. The purpose of this study was, therefore, to identify the pedagogical elements that support the acquisition of graduate attributes to address the misalignment between HEIs and the labour market (Van Damme & Zahner, 2022; Williams, 2022).

The extant literature on pedagogy that supports the acquisition of these competencies (Hill et al., 2016; Kaendler et al., 2015; Knopf et al., 2021; Scott, 2015) determined the choice of an activity-based methodology using the revised CoI model. Prior research (Hill et al., 2016; Scott, 2015) dismisses the instructivist approach in supporting the development of the cognitive skills such as critical thinking, creative thinking, communication and problem-solving. Fiock (2020) states that there is a void in how practically to implement the instructional strategies of the CoI model. Moore and Miller (2022) also call for lecturers to share best practices to

assist in the establishment of key elements that need to be applied and adopted in online learning experiences. This was considered important as the study from Knopf et al. (2021) indicates that the process of learning is dependent on the lecturer's design and pedagogical approach. Furthermore, one of their conclusions (Knopf et al., 2021, p.126) is that an online collaborative environment "significantly" promotes "better achievement of learning objectives along Bloom's Taxonomy."

This study examined the pedagogical practices of seven lecturers who had applied an activity-based approach to determine the core elements in the design of learning experiences to support the acquisition of 21st century graduate attributes. The identified pedagogical elements from the data are indicated in Figure 5.1. This figure, therefore, provides an overview of what is considered the important pedagogical elements that lecturers need to consider in their online teaching to support the development of graduate attributes.

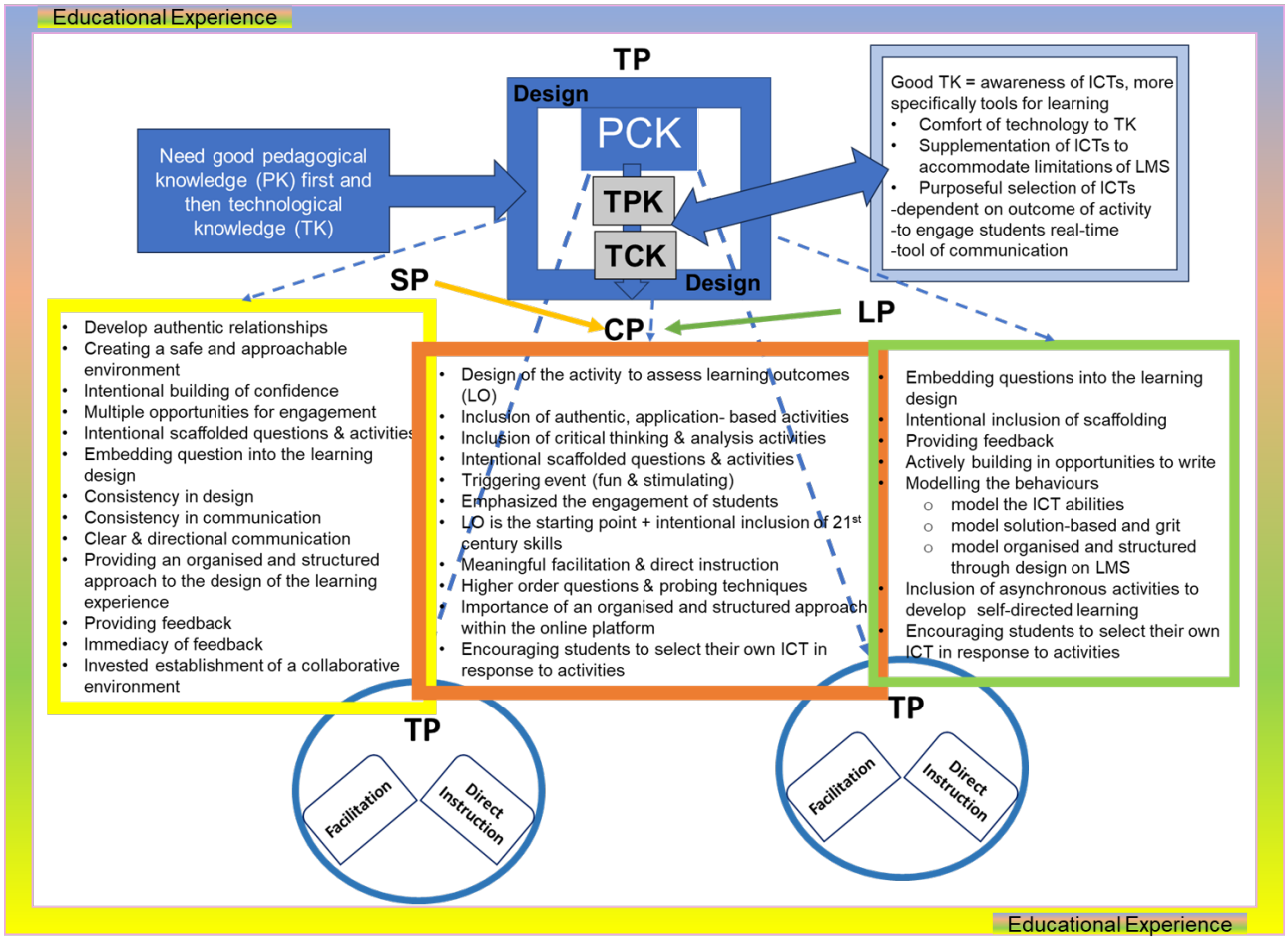

Figure 5.1 The identified pedagogical elements
The identified pedagogical elements to create learning experiences for the development of 21st century graduate attributes

These pedagogical elements (as summarised in the yellow, orange, and green boxes within Figure 5.1) are needed at the design stage of the creation of online learning experiences. The importance of the interconnectedness of the different presences (Peacock & Cowan, 2016; Pool et al., 2017) is indicted by the arrows in Figure 5.1. SP is directly correlated to CP (Lee, 2014). This relationship is indicated by the yellow arrow. SP is the presence that should develop 21st century cognitive skills such as creative thinking, critical thinking and problem-solving. However, this is dependent on intentionally designed activities (Dunlap & Lowenthal, 2018; Roselli, 2016; Tyrväinen et al., 2021) or active pedagogies (Antunes et al., 2021; Røe et al., 2022) to measure the application and integration of specific 21st century skill outcomes. Figure 5.1 also indicates the alignment needed between LP and CP (as indicated by the green arrow) to support the development of self-efficacy skills. LP as a discernible construct (Annand, 2011; Shea & Bidjerano, 2010; Wertz, 2022) places emphasis on both the development of metacognitive skills and self-regulatory behaviours which are important predictors for learning (Røe et al., 2022). TP is the interwoven presence (Anderson et al., 2001; Saadatmand et al., 2017, Tyrväinen et al., 2021) connecting all three presences (as indicated by the dotted blue arrows).

The design component includes the purposeful consideration of the other two components (facilitating a discourse and direct instruction, represented by the icon  in Figure 5.1). This purposeful consideration provides direction in how to manage the engagement of students in the learning process to move towards acquisition of 21st century graduate attributes. The listed pedagogical elements should assist lecturers in how to create engaging collaborative experiences that complement the seven principles of the CoI model as outlined by Garrison (2011). Figure 5.2 depicts this alignment.

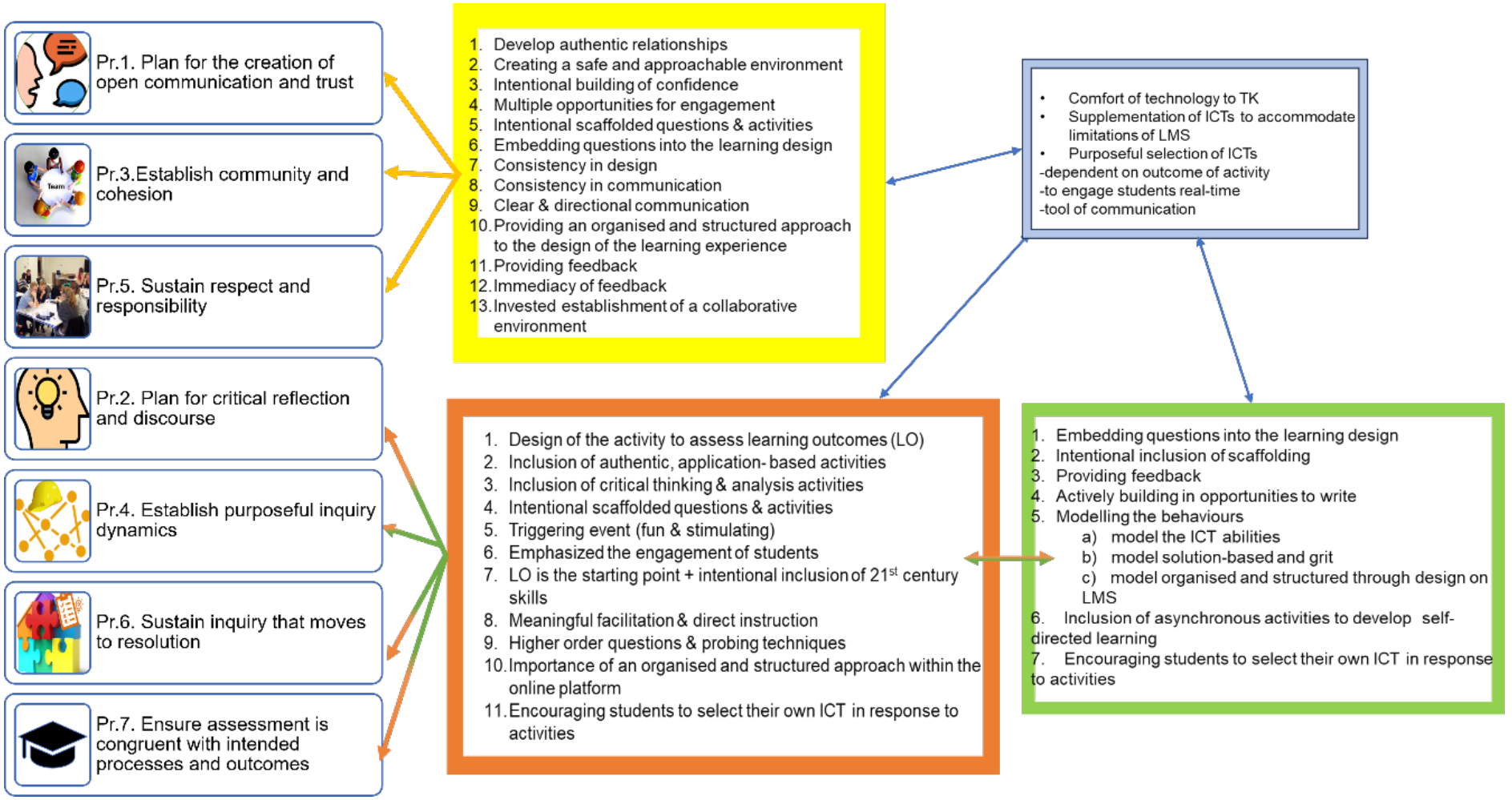

Figure 5.2 The alignment of the identified pedagogical elements to the seven COI principl

The seven principles are listed to the left of Figure 5.2. These principles (numbered Pr.1 to Pr.7) have been regrouped to align with the development of SP and the development of CP and LP accordingly. According to Vaughn et al. (2013), the first two principles (the plan for the creation of open communication and trust (development of SP) and the plan for critical reflection and discourse (development of CP)) are linked to the design component of TP. In contrast, Pr.3 and Pr.4 are linked to the facilitation component of TP and Pr.5, Pr.6 and Pr.7 are linked to the direct instruction component of TP. The findings from the data of this study propose that all seven principles be considered at the design component to ensure a purposeful engagement with the two other sub-components of TP. Purposeful consideration of these two sub-components of TP within the design component should lead to sustained progression within CP. This deliberate development of a meaningful CP and LP should address the misalignment between HEIs and the labour market in the adequate preparation of the 21st century graduate attributes. This also resonates with the acknowledgement of Garrison (2021) that specific methods and techniques aligned to the seven principles could result in more effective implementation.

Likewise, the role of technology within the design of TP must be mentioned. It needs to be viewed as a “strategic tool” (West & Allman, 2021, p.5) by lecturers to support the pedagogical purpose of the design of learning experiences (Røe et al., 2022). It is the vehicle through which meaningful development of SP, LP, and CP is established. This connection to the various presences is indicated by the arrows from the blue box in Figure 5.2. The design component, therefore, includes a purposeful selection of educational technology (as indicated in the blue box in Figure 5.1) to support online pedagogical practices. This means that greater emphasis is needed to support the TPK of the lecturers.

A suggestion is to include Bloom’s Digital Taxonomy as used by P2 in her design of activities. This informed her selection of the ICT tool to ensure that the design of the activity supported not only the assessment of the intentional learning outcomes of the activity but also the learning process of the students. This aligns with the argument by Antunes et al. (2021) that an institution’s pragmatic approach in shifting pedagogic beliefs from teacher-centered to student-centered results in a change in

pedagogical approach. The combination of PCK and TPK within the design component of TP provides the platform for the acquisition of 21st century graduate skills.

The exploration of how the selected lecturers used various ICTs, one of the secondary research questions, indicates the need to create an awareness of the different educational ICTs available. Creating an awareness or demonstrating the purposeful use of these educational ICTs provides insight to the lecturers in how to create meaningful engagement in the online learning experiences to support the development of 21st century graduate attributes. The importance of TK is supported by the extant literature (De Rossi & Trevisan, 2018; Mishra & Koehler, 2006; Moore, 2016). Børte et al. (2020) cite lack of digital competency as one of the barriers to effective implementation of ICTs by lecturers.

The finding of a correlation between the comfort levels and the lecturers' use of ICT also cannot be overlooked. All the participants referred to their levels of anxiety working with the ICT tools and the need to familiarise themselves with the platform before they could confidently embed the ICT into their designs. This experience of the lecturers' use of ICTs to create this online learning experience, the purpose of the third secondary research question, indicates the importance of building in a safe space for lecturers to experiment with new educational ICTs before using these tools in front of students for the first time.

Four participants (P2, P3, P5 & P6) mentioned the importance of modelling behaviours to support the acquisition of graduate attributes by their students with P2 and P5 mentioning the importance of modelling digital skills. The comfort and ease of use, therefore, not only assists the lecturers in using an ICT to support the facilitation of the learning process but also in developing ICT literacy skills of their students. Confidence to navigate the ICT tool was positively correlated with comfort levels. This is consistent with the finding of Kwok and Yang (2017) who conclude that lecturers' familiarity with the use of ICT tools results in a positive attitude which affects the perceived usefulness of ICTs amongst students. This needs to be factored into the development of the teaching practices of lecturers in the onboarding by institutions and possible future workshops. Interestingly, the sharing

of best practices was mentioned by three participants in how they developed an awareness of certain tools. This resonates with P7's suggestion of developing a community of practice. It would not only allow lecturers to learn from others through sharing their experiences of what works but also provide connections to those who experienced the implementation of online education as isolating and demotivating.

More importantly the development of TPK is critical to the activity design in selecting the appropriate ICT to achieve the outcome of the activity as indicated in Figure 4.5, p.65. Røe et al. (2022, p.3) argue that lecturers who have adopted a student-centered pedagogical approach "are more open to the use of purposeful technological tools in their teaching". The findings of this study are, therefore, consistent with the findings from Røe et al. (2022). Thus, both sound pedagogical practice and TK are needed to allow lecturers to purposefully select the appropriate ICT or LMS tool to maximise the learning experiences of students. In a similar vein, Park and Shea (2020) emphasise the importance of pedagogical understanding in utilising educational technology effectively.

The purpose of this study was to provide clearer direction to lecturers in the creation of online learning experiences. The representation of the pedagogical elements in Figure 5.1 as mentioned by the seven lecturers, provides a more practical way to assist lecturers in the planning and design stage of these learning experiences. To further support the key considerations at the design stage of TP, a proposed template (Annexure E) using this data has been created. Figure 5.3 shows the links of the design template to the identified pedagogical elements from the analysis.

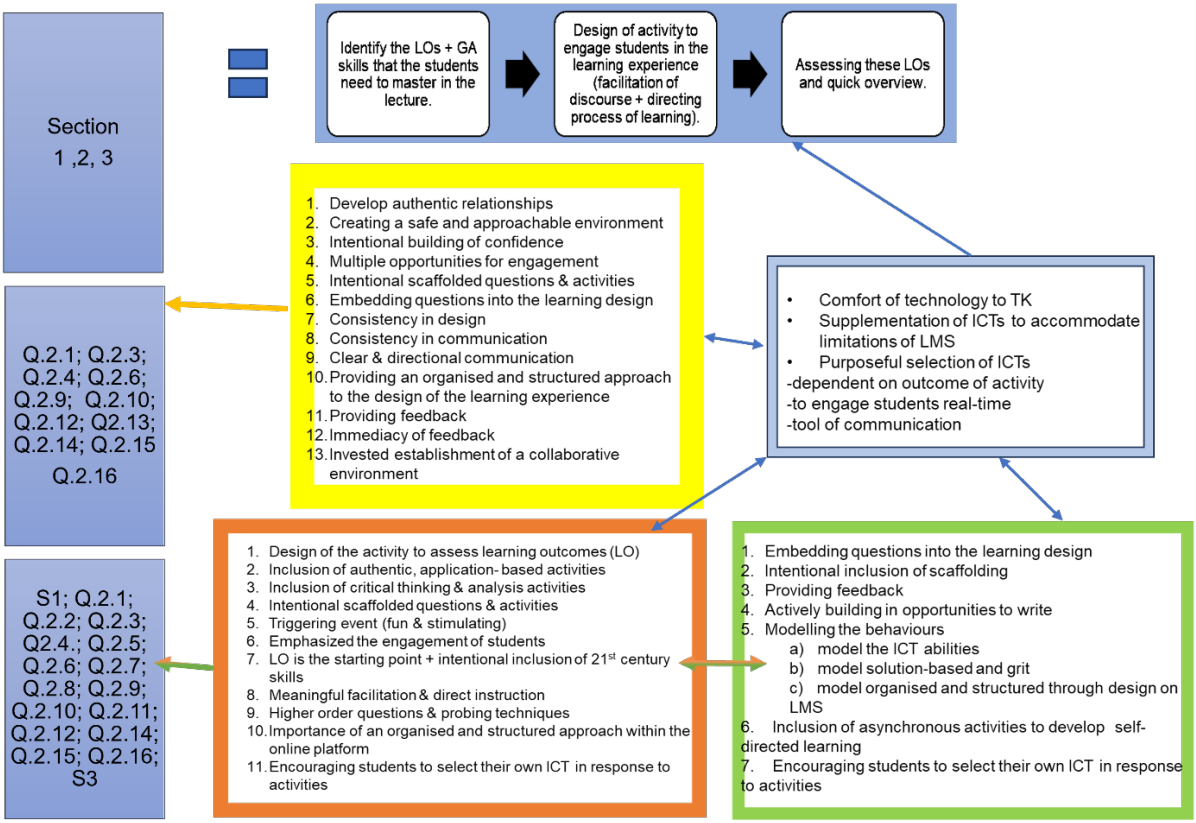

Figure 5.3 Link between the design template and the findings from the analysis

There are three steps to the design template: identification of the learning outcomes, design of the various activities to engage students, and assessment of the learning outcomes. These three steps have been separated into three sections that support the creation of learning experiences that lead to the acquisition of 21st century graduate attributes. To ensure that CP progresses within the four stages of PIM as represented in Figure 2.4, all three sections need to be implemented. These questions also support the behaviours, attitudes and metacognitive awareness needed from the students (LP). On the other hand, to develop the SP, the focus is on section two. These selected questions are listed in Figure 5.3. There is a distinct overlap of questions with section two that support the development of SP, CP, and LP.

Figure 5.4 provides an even more detailed breakdown of the proposed template in relation to the seven principles as outlined by Garrison (2011).

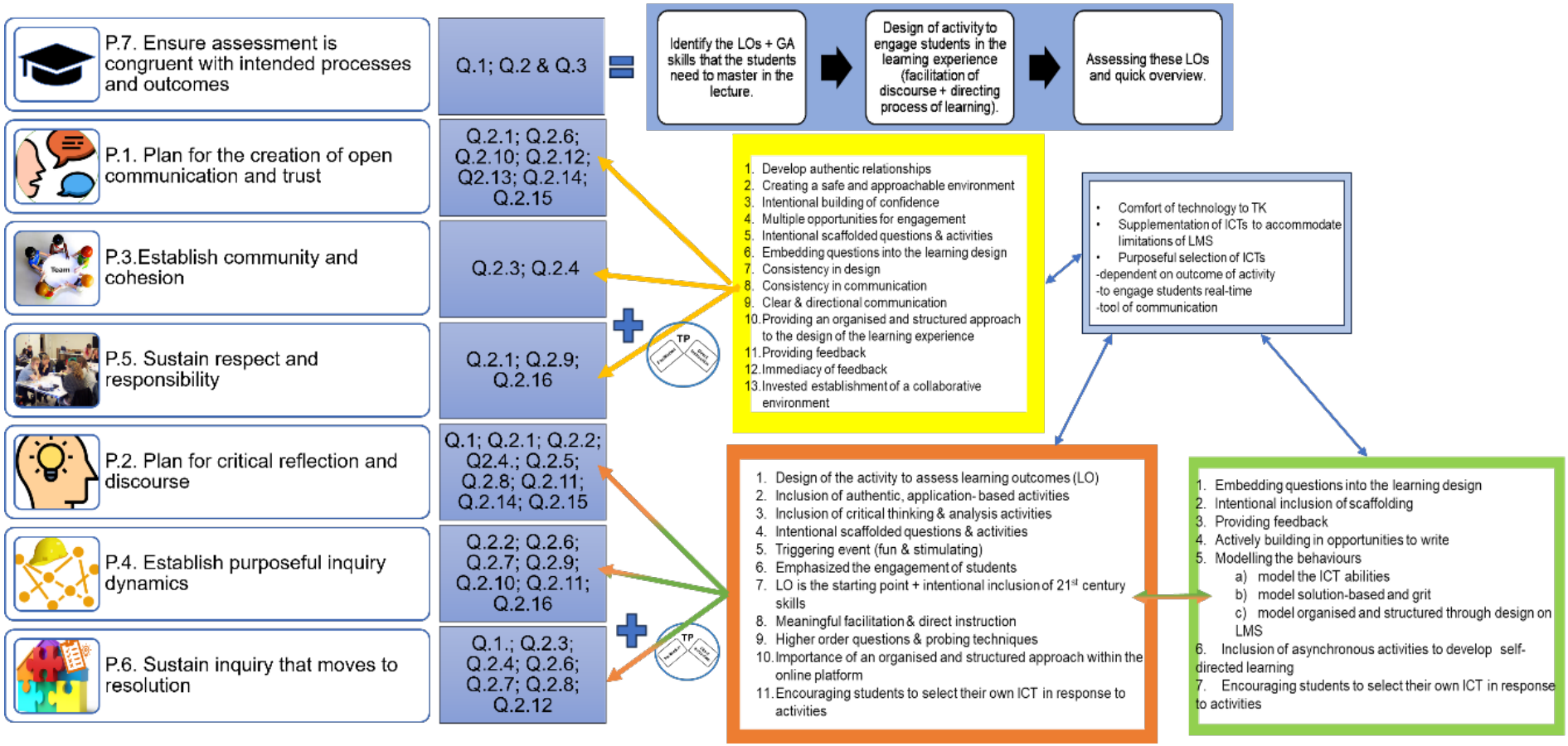

Figure 5.4 The alignment of the template, identified pedagogical elements and the seven COI principles

This figure indicates how the questions of section two relate to each of the principles. Principle 7 (ensure assessment is congruent with intended processes and outcomes) has been re-ordered to the top as this aligns with the three steps in the proposed design template. The reference to assessment in this context is that of continuous assessment of the activities within the learning experiences rather than a summative assessment.

The focus of the proposed design template is to measure the competency level of students to the outcomes of the activities in the creation of learning experiences, whether synchronous or asynchronous. By providing a more tangible and practical way to support the design component of TP, this study hopes to guide lecturers in their creation of learning experiences that support the development of 21st century graduate attributes. This is to address the perceived lack of graduate attributes as cited in the report by the World Economic Forum (2023) and the article that questions the relevance of qualified university graduates (Williams, 2022).

Lastly, the establishment of sound pedagogical learning designs to support the development of 21st century graduate attributes cannot be developed without an examination of the contextual factors that influence the lecturers' pedagogical practices. Figure 5.5, therefore, provides an additional lens. It contextualises the factors (as indicated in the grey circle) that influence the pedagogical approach of the lecturers, depicting the complexity in supporting the development of graduate attributes. This further provides insight into the experiences of the lecturers and also examines the role of lecturers' beliefs and attitudes about 21st century graduate attributes which is the last secondary research question.

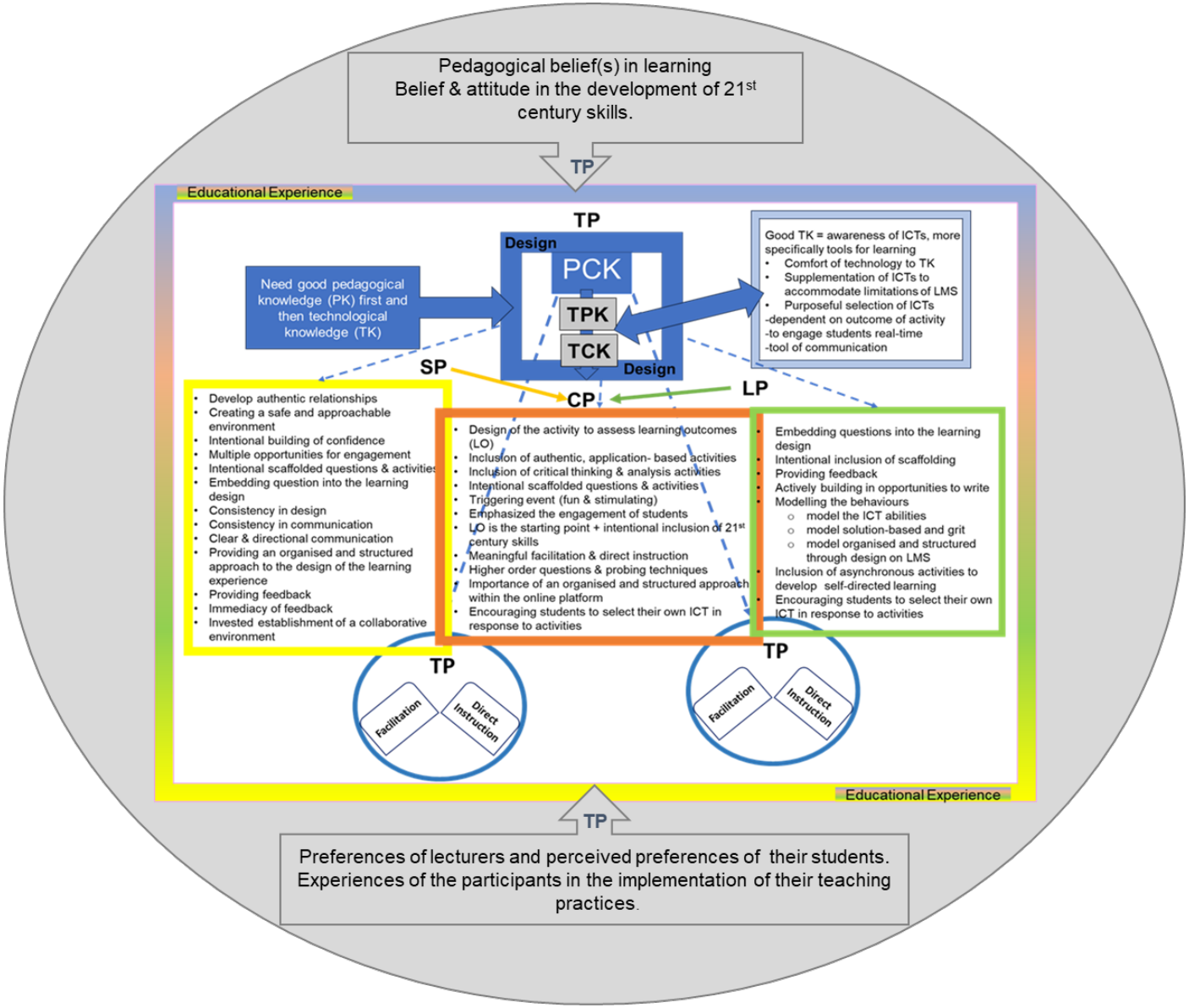

Figure 5.5 Overview of the findings in relation to the conceptual framework

Despite all seven participants indicating that their pedagogical approaches were based on an activity-based methodology, the differences in the creation of learning experiences are dependent and shaped by not only differing pedagogical beliefs (Coker, 2018; West & Allman, 2021), but also the perceived responsibility in the development of these graduate attributes and their experiences in the implementation of these online educational experiences. Lastly, the preferences of the lecturers as well as their perceived perceptions of their students also influence their approaches to TP.

Firstly, the pedagogical approach (TP) is influenced by the pedagogical beliefs of the lecturer. This supports the extant literature (Antunes et al., 2021; Coker, 2018; Phillips & Condy, 2020; Chai & Khoi, 2017) and is crucial to how institutions support the alignment of pedagogical beliefs with the recommended pedagogical approach of creating online collaborating educational experiences to support the development of graduate attributes. The findings of Antunes et al. (2021), Hill et al. (2016), and Scott (2015) suggest that a constructivist approach must be adopted before there is a significant shift in the design of learner-centered methodologies.

However, a pedagogical approach is multi-faceted and nuanced. Even if a more constructivist approach has been adopted, the assumptions and perceptions of learning by the lecturer shape the creation of these learning designs (West & Allman, 2021). This was evident from the differing beliefs of what constitutes a safe environment and the levels of comfort or discomfort in students for learning to occur, the application of direct instruction by the lecturers, and their views of group work that impact the design of activities to even the perceived beliefs of their students. All these have been encapsulated in the three references to the *pedagogical belief(s) in learning, preferences of lecturers and perceived preferences of their students* that are because of *the experiences […] in the implementation of their teaching practices* in Figure 5.5. This is indicative of the importance of developing the TP of the lecturer or more importantly the understanding of the pedagogical elements needed for effective engagement of the students in the learning experiences to support the acquisition of 21st century graduate attributes. Pedagogical knowledge shapes the integration of content and skills (PCK) to the learning outcomes through the

intentional combination of pedagogical elements that support the development of SP, LP and CP.

The data also shows the dependency of the pedagogical approach (TP) on the *beliefs and attitudes* of lecturers *in developing 21st century graduate attributes* (as represented in Figure 5.5). A finding indicates the importance of embedding the development of graduate attributes into the learning outcomes of the educational experience (whether synchronous or asynchronous). Without the purposeful inclusion of these learning outcomes, the design cannot effectively measure the mastery of outcomes from the students. This was evident with P4 and P6s' challenge in measuring the acquisition of skills. The dilemma is the vagueness of what constitutes graduate attributes. This was represented in Table 4.5 (p.81). Considering all participants concurred that these transferable generic skill sets are crucial for employability, a clearly defined list of graduate attributes associated with each faculty would provide more clarity amongst lecturers and would support the active development of 21st century skills for the workplace which is currently lacking in the business sector (World Economic Forum, 2023; Van Damme & Zahner, 2022) The shift in South African recruitment practices to the use of tools other than the qualifications of university applicants to assess core skill sets in the interview stage suggests the urgency in addressing the short-comings in the perceived preparation of 21st century graduate attributes by universities.

5.3 Limitations to the study

The limitations to this study are outlined below. They range from firstly, the sample size and restricted context, secondly to two inconclusive findings, and thirdly, to testing whether the identified pedagogical elements of this study have resulted in the development of 21st century graduate attributes within students.

The first limitation that affects the interpretation of the findings is the limited size of the sample and the restricted context. Due to the nature of this qualitative study and the selection of one higher education institution, the findings are limited in its generalisability. However, the findings of this research should be transferable (Lincoln & Guba, 1985) to similar contexts considering the nature of the investigation.

Secondly, one of the findings indicates a misalignment with the purpose of direct instruction in the revised CoI model. Garrison (2011) explicitly states that direct instruction is not 'lecturing' which is indicative of a teacher-centered approach. This misalignment with the purpose of direct instruction was only identified during the analysis stage. It was, therefore, not explored and unpacked during the interview stages to gain insight into the lecturers' perceptions of the purpose of direct instruction. This finding is significant as it has a direct impact on how learning experiences are created and facilitated to support the development of graduate attributes. Further investigation into this finding and the degree of misalignment in the practice of lecturers within institutions is required to explore whether a shift in the understanding of direct instruction would assist in developing more meaningful and engaging learning experiences.

A further limitation is the inconclusive finding between the lecturers from the distance campus and the blended mode and the disparity in their pedagogical beliefs and approaches in supporting the development of graduate attributes. The finding is based on the discussions with and observations of only two distance lecturers with the other five lecturers from the blended approach. Furthermore, the collection of data coincided with a problematic registration period at the distance campus that negatively impacted teaching and learning. Even though it could be argued that this problematic period highlighted the importance of establishing a SP with students at the outset of a course to avoid complete disengagement, the disparity between the two modes is an inconclusive finding. Further to this, P7 did not have significant attendance in her modules, which means that triangulation between the observed lectures and the discussions during the interview stage could not be corroborated.

The last limitation in the study is that it did not measure the development of graduate attributes in the students. The focus of the study was on the identification of the core elements in the lecturers' creation of student learning experiences to support the development of their graduate attributes.

5.4 Recommendations

5.4.1 Recommendations for further research

The first recommendation is that the pedagogical elements from the study are tested within the HEI to measure the development of graduate attributes. This will enable assessment of whether the mentioned elements from a small sample of lecturers who have an activity-based methodology do in fact develop graduate attributes within students. It is also important to ascertain which graduate attributes are developed.

Secondly, the HEI may want to conduct further research with a larger sample size to investigate the disparity between the blended approach and the distance campus. Considering that there were only two participants from the distance campus, the findings of this disparity are inconclusive. However, given the importance in the development of 21st century graduate skills, the concern about the perceived lack of readiness on the part of the students to develop these graduate attributes needs further investigation.

Thirdly, the finding about the misalignment or misunderstanding of the term *direct instruction* by lecturers requires further investigation because of the significance of how lectures create and facilitate learning experiences to support the development of graduate attributes. The degree of this misalignment of practice from lecturers within institutions, or more specifically the HEI within this study will provide significant insight into the adoption of meaningful and engaging learning experiences that support the development of 21st century graduate attributes.

5.4.2 Recommendations for practice

One of the findings from the data analysis is that not all lecturers share a pedagogical belief in the importance of supporting the acquisition of 21st century graduate attributes. Yet these graduate attributes are considered an outcome of the tertiary experience (Hill et al.,2016; Kaendler et al., 2015; Kanuka, 2006). The recommendation for the HEI in this study is thus to embed these graduate attributes in the curriculum. This aligns with the recommendations of Oliver and Jorre de St Jorre (2020) that contextualisation and communication of graduate attributes at

course levels support skills integration into pedagogical practices. Considering that four participants articulated that the learning outcomes provide direction for the creation of their learning experiences, this would result in intentional integration of activities to support the development of graduate attributes. This would also shift the lecturers' perceptions of their roles as suggested by participants 4 and 6 whose priorities were to first cover the curriculum's content since this was the mentioned outcome.

The second recommendation is that lecturers are provided with a template from the findings of this study that can be used to support the creation of online synchronous and asynchronous sessions. A proposed template is provided in Annexure E (p.135). This design template outlines an elementary structure and 16 questions to assist in shaping the design of learning experiences to complement the principles of good teaching practice (PCK) that in turn support the development of graduate attributes. The observed lectures and discussion with P2 showed how Bloom's digital taxonomy supports the integration of technology to her activity design for students to engage with intended learning outcomes and accompanying content. A recommendation is the accompaniment of the digital Bloom's taxonomy with a template to support the awareness of the TPK. The intention of including a design template is to provide lecturers with something tangible and practical right from the start of their synchronous and asynchronous sessions with their students. The implementation of a practical tool to assist in the pedagogical shift for lecturers to a more student-centered design aligns with the finding from Antunes et al. (2021). Their findings (p.16) suggest that either an "epistemic" or a "pragmatic" route can promote a change in pedagogical approach. PDPs and support workshops often happen at a later stage. The proposed template, in contrast, is an attempt to shift lecturers at the start of their lecturing journey from a more transmissive pedagogical approach to a student-centered collaborative one to support the acquisition of 21st century graduate attributes in addressing the gap in skills alignment (Van Damme & Zahner, 2022).

The final recommendation is to provide the support required to develop sound pedagogical and technological knowledge amongst lecturers for an online mode of delivery. Antunes et al. (2021) suggest that HEIs should adopt a more visible role in

supporting a shift in pedagogical beliefs to align approaches to student-centered and active learning. This recommendation should be two-fold: support for newly appointed lecturers to lay the foundations of good practice and support for existing lecturers to leverage their PCK and TPK.

To support newly appointed lecturers within HEIs that share similar contexts, the suggestion is to provide a combination of pedagogical and technological knowledge within the onboarding prior to the start of their lecturing journeys. Firstly, an understanding of sound learning principles will help correct misconceptions or assumptions of learning and position the institutions' teaching and learning approach. Secondly, the timing of onboarding is crucial to allow lecturers time to familiarise themselves with the LMS as indicated in the findings. The advice of 3 participants (P2, P4 & P5) was to provide time for lecturers to navigate this platform after the training to gain confidence in their ability to navigate within the LMS. This complements the finding by Kwok and Yang (2017) that the lecturer's own ability to master an ICT positively influences the students' online experiences. The findings from the study suggest that fear of the platform hinders technical know-how on how to maximise engagement from the students. This would account for the unnatural interactions that P1 experienced.

The recommendation of further workshops or PDPs to support the adoption of more student-centric approaches and the development of PCK and TCK of lecturers, complements the findings of Adnan (2018), Antunes et al. (2021), Børte et al. (2020), Brinkley-Etzkom (2018) and Kilgour et al. (2019). In a similar vein, Lillejord et al. (2018) indicate that there seems to be a reluctance for lecturers to shift from a transmissive or an instructivist approach. This is despite learning and technology models that are aligned to a constructivist approach (West & Allman, 2021). The proposed template may provide more practical and timeous support in how to implement the principles of learning into their teaching practice which resonates with the suggestion from Roselli (2016) that learning designs must be intentional. However, considering the factors that have shaped the TP of lecturers, support will need to be ongoing. The establishment of a community of practice will also provide a platform for the sharing of best practice. This supports the recommendation by Moore and Miller (2022).

5.5 Conclusion

This chapter discussed the findings, proposed a template to assist lecturers within the design component of TP, acknowledged several limitations, and made recommendations for future research to support the findings of the case study. There are also suggestions for the selected HEI in this study.

The findings emphasise the importance of both PCK and TPK in the design of an online activity-based methodology that engages students in the learning process to support the acquisition of 21st century graduate attributes. PCK should be prioritised as it shapes the pedagogical approach or TP of the lecturer. TPK also complements TP in how technology will be used (TPK) to achieve the intended outcomes (PCK) of the content (or in this case, 21st century graduate attributes) (TCK). The findings indicated the complexity in the adoption of a pedagogical approach as it is influenced by the pedagogical beliefs and attitudes of the lecturer, the accompanying assumptions and perceptions they have of pedagogical and technological tools, and the experiences of the lecturers in the implementation of their created learning designs. The purpose of this study was to provide a practical guideline for the combination of pedagogical elements required in the intentional creation of online learning experiences that support the development of graduate attributes. The findings are summarised in Figure 5.1. However, the inclusion of these pedagogical elements needs to be supported by PDPs and an onboarding programme needs to accompany this pedagogical transition. Lastly, the chapter emphasised the importance of establishing a community of practice to support the sharing of best practices.

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7. Annexures

7.1 Annexure A: Semi-structured interview

Below is the set of questions that you can expect on the day of the interview. There will be some additional probing questions that will allow me an opportunity to delve deeper into some of your responses.

As mentioned in the initial communication, all information is strictly used for research purposes, and your details will not be disclosed.

Here is the set of questions:

1.1. As an online lecturer, what is your primary responsibility?

1.2. How do you achieve this?

2.1. In preparing students for the 21st century workplace, what skill sets do you consider important for these students to develop?

2.2. Why do you consider these important?

2.3. Whose responsibility is it to support and/ or develop these skill sets?

3.1. What is your understanding of “graduate attributes”?

3.2. Do you prioritise some graduate attributes more than others?

3.2.i) Which graduate attributes do you prioritise?

3.2.ii) Why do you prioritise these?

3.3. How do you support these graduate attributes in your creation of online learning experiences?

3.4. When creating online learning experiences, what do you consider as important design elements in the development of 21st century graduate attributes? Explain.

4. What techniques or strategies (if any) do you use in the online space to encourage engagement from the students?

5.1. How do you select the type of information and communication technologies (ICTs) when creating online learning experiences for the development of 21st

century graduate attributes? Please clarify with some examples.

5.2. When using these ICTs, what is your aim in the development of your activity?

5.3. Which ICTs do you use most frequently in supporting 21st century graduate attributes?

5.3.1. Is there a reason for the preference?

6.1. What challenges have you experienced in preparing these online learning experiences?

6.2. How have you dealt with these challenges?

6.3. What has been your experience in the implementation of these online learning experiences?

7. In your opinion, are undergraduates ready to develop these skill sets?

7.1 If yes, what student behaviours do you believe students should already be demonstrating in class?

7.2 .i. If no, in your opinion, what should be done to assist students to become more ready in developing these skill sets?

7.2.ii. Have you created activities to develop this readiness?

7.2.iii. If yes, what activities did you create?

8. Let us consider the support in the development of the "collaborative problem-solver" which is mentioned as an outcome in the Teaching and Learning Strategy Policy:

8.1. What is your understanding of collaborative learning?

8.1.i. What elements do you consider when creating collaborative tasks in the online space?

8.2.ii. Can you describe a collaborative task as an example?

8.3.i. What elements do you consider when creating problem-solving tasks in the online space?

8.3.ii. Can you describe a problem-solving task as an example.

7.2 Annexure B: Observation of an online lecture

Teaching Presence (TP) consists of 3 elements: the design of the learning experience, facilitation, and direct instruction by the lecturer. This is the online teaching presence.		
How is TP developed?	**Description of observed actions**	**Reflections of researcher**
How has the lesson been structured?		
How has the lecturer facilitated learning? (before, during and after the activity)		
How has the lecturer made use of direct instruction? And other teaching activities?		
Describe any other observations related to TP.		
Technological Content Knowledge (TCK) examines the relationship between the choice of information and communication technologies (ICTs) and the content of the module.		
How appropriate are the ICT choices in relation to the content?	**Description of observed actions**	**Reflections of researcher**
What ICTs are used with the content of the lecture?		
How are these ICTs used in relation to the content?		
Describe any other observations related to TCK.		
Technological Pedagogical Knowledge (TPK) examines the relationship between the choice of ICTs and the pedagogical practices of the lecturer.		
How are ICTs integrated to support the development of 21st century graduate attributes?	**Description of observed actions**	**Reflections of researcher**
What ICTs are used to support 21st century graduate attributes?		
How have these ICTs been used?		
To what degree have students demonstrated a level of competency through the activity?		
Describe any other observations related to TPK.		
Social Presence (SP) is the development of communities of learning by the lecturer through the creation of an open and safe learning environment.		

How is SP developed?	**Description of observed actions**	**Reflections of researcher**
How has group cohesion been developed?		
How has the lecturer created a sense of belonging?		
Describe the interpersonal relationships.		
What techniques are used to create a safe space for students to engage?		
Describe any other observations related to SP.		
Cognitive Presence (CP) is the process in which students develop their higher-order thinking skills through the activities developed by the lecturer.		
How is CP developed?	**Description of observed actions**	**Reflections of researcher**
Does the lecturer make use of PIM or any other similar teaching strategy?		
What level of thinking skills are required by the students?		
How do students construct knowledge?		
Describe any activities that involve student reflection and discourse. How do the students engage in these activities?		
Describe any other observations related to CP.		
How is learning presence developed by the lecturer? Self-regulation is not innate and is a skill that needs to be developed. How do lecturers develop the metacognitive abilities of their students?		
How is LP developed?	**Description of observed actions**	**Reflections of researcher**
Are there techniques/ activities that support students' practising of graduate attributes? (For example, how to collaborate or how to think critically?)		
If yes, what do these techniques entail?		
How has the lecturer encouraged students to question their learning?		
Describe any other observations related to LP.		

7.3 Annexure C: Examination of artefacts

How is TP developed?	**Description of Artefacts**	**Reflections of researcher**
How have the resources been organised?		
How has the lecturer facilitated asynchronously?		
Examine any artefacts related to TP.		
How appropriate are the ICT choices in relation to the content?	**Description of Artefacts**	**Reflections of researcher**
What ICTs have been used?		
How are these ICTs used in relation to the content?		
Examine any artefacts related to TCK.		
How has ICTs been integrated to support the development of 21st century graduate attributes?	**Description of Artefacts**	**Reflections of researcher**
Which embedded tools have been used within the LMS?		
Have other ICTs been included?		
How have the ICTs been used?		
Examine any artefacts related to TPK.		
How is SP developed?	**Description of Artefacts**	**Reflections of researcher**
How has the lecturer created a connection with the students?		
How has the lecturer encouraged a sense of belonging amongst the students?		
How has the lecturer established a safe space for students to engage?		
Examine any artefacts related to SP.		
How is CP developed?	**Description of Artefacts**	**Reflections of researcher**
Does the lecturer make use of PIM or any other similar teaching activity asynchronously?		
Are there any activities related to the development of the higher-order thinking skills?		

How do students construct their knowledge?		
Are there artefacts that show the development of reflection and/ or discourse?		
Examine any artefacts related to CP.		
How is LP developed?	**Description of Artefacts**	**Reflections of researcher**
Are their resources/ activities that support the development of 21st century graduate attribute skills? If yes, which activities?		
How do the resources/ activities aim to develop 21st century graduate attributes?		
Is there evidence from the lecturer in developing the timeous completion of activities or encouraging perseverance from students?		
Are there any activities/ resources that challenge the students to question their learning?		
Examine any artefacts related to LP.		

7.4 Annexure D: Letter to participants

Dear Participant

INVITATION TO PARTICPATE IN A RESEARCH PROJECT:

Lecturers' creation of online learning experiences to support the development of 21st century graduate attributes

My name is Chantal Hammer, and I am currently registered for a Master's degree in Education at the University of Pretoria. To complete this qualification, the successful submission of a research project is required.

What is this research project about?

The purpose of this research project is to explore how lecturers support the development of 21st century skills or graduate attributes through the creation of their online learning experiences. These 21st century skills include critical thinking, creativity, innovation, problem-solving, communication, collaboration, metacognition, and entrepreneurial skills. However, this study is not limited to these skills. The investigation is within the online space.

Why is your participation important?

The intention of this study is to understand how you develop learning designs that facilitate the development of 21st century graduate attributes within the online space. The contribution of this study is to establish the core elements from the findings to support the intentional development of 21st century graduate attributes for the online space (Roselli, 2016).

What will be involved if you participate?

There will be an initial introductory meeting/ interview of 15-20 minutes to orientate you with the study and to provide me with insight into some basic demographics, teaching experience and understanding of your teaching practice.

Thereafter, there will be two observations of online lectures, each followed with an interview of approximately one hour. These interviews will be conducted online due to the pandemic unless otherwise expressed by you for a face-to-face interview (and that request is logistically possible). Total interaction is, therefore, approximately 2 hours 20 minutes of interviews and 2 x 2hrs online observation. The last is an analysis of one of your modules within the Learning Management System and its accompanying artefacts to provide a deep

understanding of how you have developed your learning designs both synchronously and asynchronously.

What is my commitment to you?

To ensure transparency, confidentiality, and accuracy of interpretations throughout the research process. You are welcome to direct any questions anytime to me. The observation sheet, intended questions for the semi-structured interview, and the artefact analysis tool will be shared ahead of time. All information will be kept confidential. The collected data will be stored electronically, and password protected so that access cannot be gained by anyone other than the researcher. All data collected will only be used for research purposes. All references to participants will be through pseudonyms with no distinguishing features. The analysis and interpretations of this research project will be shared with you to confirm accuracy.

Participating within this study is completely voluntary and as such, the completion of the consent form is needed. As a participant, you may withdraw from the research at any time without any negative or undesirable consequences, and with the assurance that any data collected from you will be destroyed.

Your participation and input are invaluable and greatly appreciated.

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UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education

Letter of Consent for individual participant

VOLUNTARY PARTICIPATION IN THE RESEARCH PROJECT TITLED:

Lecturers' creation of online learning experiences to support the development of 21st century graduate attributes

I, _____, hereby voluntarily and willingly agree to participate in the above-mentioned research project (reference number from research site).

I, _____, agree to allow Chantal Hammer to audio record my interviews as part of the research that investigates the core elements of online learning experiences to support the development of 21st century graduate attributes.

I, _____, agree to video record my two observed online lectures and provide Chantal Hammer with access to these as part of the research that investigates the core elements of online learning experiences to support graduate attributes.

We also would like to request your permission to use your data, confidentially and anonymously, for further research purposes, as the data sets are the intellectual property of the University of Pretoria. Further research may include secondary data analysis and using the data for teaching purposes. The confidentiality and privacy applicable to this study will be binding on future research studies.

I understand what participation in this research will involve. I understand that:

- My confidentiality will be ensured.
- The recordings will be stored in a password-protected file on the researcher's computer.
- Only the researcher and the researcher's supervisor will have access to these recordings.
- My participation in this research is voluntary and I have the right to withdraw from the research at any time. There will be no repercussions should I choose to withdraw from the research.

_____ _____

Signature Date

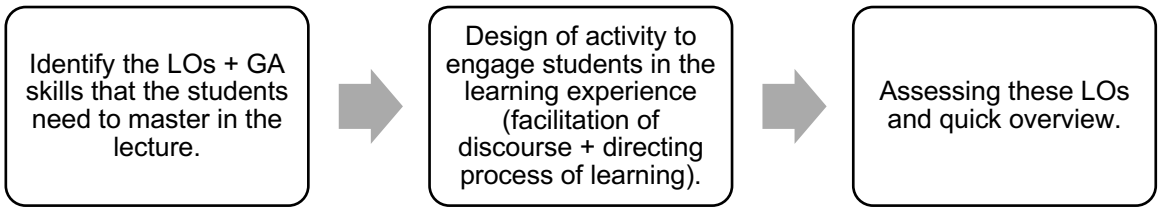
7.5 Annexure E: The design guideline template

Design guideline template to create engaging learning experiences to support the development of 21st century skills.

Module Name:_____

Section to be Covered:_____

Basic Teaching Presence design guideline to each lecture whether synchronous or asynchronous.



1. Identify the Learning Objectives (LOs): Describe what the student is expected to achieve when performing the task. (What do they need to know or do?). This includes outcomes related to supporting the development of 21st century graduate attributes (GA).

_____

_____

_____

_____

2. Determine the activity/ task or set of activities/ tasks that will allow the student to engage with the necessary learning to achieve the learning outcome. (How will they learn it?)

Follow a list of 16 questions to check whether the learning experience incorporates these pedagogical elements.

2.1. How do you plan to establish an authentic relationship with your students in this session? How are you creating a conducive environment to encourage engagement from the students in a respectful manner?

2.2. Have you incorporated an authentic, relevant activity? An application-based activity? A critical thinking or analytical activity within the set of activities?

2.3. Have you included a fun/ stimulating or triggering aspect at the start of an activity?

2.4. Have you included a combination of individual and collaborative, group activities. This is to encourage peer-to-peer engagement for the co-construction of knowledge and an opportunity to self-reflect in the individual tasks.

2.5. Have you included some activities in which the students must respond in writing?

2.6. Are there intentional scaffolded questions that move from the lower-order to the higher-order thinking within the activities? (Refer to Bloom's digital Taxonomy)

2.7. If there is a set of activities, have these been scaffolded from the concrete to the abstract or from the foundational to the more advanced? (Refer to Bloom's digital Taxonomy)

2.8. Have you considered when you should model certain behaviours to show students self-regulated behaviours from their side?

2.9. Are the instructions for the activity clear and explicit?

2.10. Have you considered multiple ways that the students can engage in the learning process and with the resources?

2.11. Have you considered how they will respond to the activity? Is there an opportunity to allow them to select their own ICT in the form of feedback?

2.12. Have you considered how and when you will facilitate the feedback to these activities? Do you need to consider real-time feedback to encourage the immediacy of feedback?

2.13. How will this feedback be supportive to develop the confidence within your students?

2.14. Does the choice of technology support the ease in which both you and your students are able to engage real-time where possible? Refer to the digital Bloom's Taxonomy guide.

2.15. Have you arranged the resources within the online platform in a structured and organised manner?

2.16. Have you communicated clearly to the students what needs to be done and how?

3. How do you measure this (these) LO(s)? How do you close the gap in knowledge?

(If there isn't clear understanding, is there another activity/task that can direct this understanding?)

3.1. Are there any other activities/ tasks that will allow for consolidation of work (within the synchronous or asynchronous platform)?

Once the design is complete, you need to consider the two other sub-components: the facilitation of discourse and direct instruction. Direct Instruction takes the form of simplifying difficult concepts, diagnosing misconceptions or misunderstandings, and providing both direction in discussions and feedback (Richardson et al., 2012; Vaughn et al., 2013; Zhang et al., 2020). The balance between the two sub-components is key.

The aim is to develop authentic relationships with your students to create a safe and approachable environment to support the development of conceptual understanding, skill sets and the necessary graduate attributes within your students.