

A SOCIAL REALIST ANALYSIS OF PARTICIPATION IN
ACADEMIC PROFESSIONAL DEVELOPMENT FOR THE
INTEGRATION OF DIGITAL TECHNOLOGIES IN HIGHER
EDUCATION

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ABSTRACT

The introduction of digital technologies at the Durban University of Technology (DUT), in keeping with higher education institutions globally, has had a significant impact on the learning environment at the institution. Despite this the anticipated demand for academic professional development (APD) did not materialise at DUT. Using Margaret Archer's Realist Social Theory (1995) this single-institution case study offers a critical examination of cultural, structural and agential conditions that enable and constrain academic professional development (APD) for the integration of digital technologies in teaching–learning interactions at a higher education institution in South Africa. Archer's (1995) morphogenetic approach enabled an investigation of the interface between the conditions encountered by the academics (at macro, meso and micro levels), in order to theorise about the material, ideational and agential conditions that obtained and which in turn influenced the decision to participate or not participate in the APD programmes.

This longitudinal study from 2012 until 2016 traced the APD related changes following the decision to promote the implementation of digital technologies in teaching–learning interactions as an institutional imperative. The theoretical framework allowed for an examination of the interpretation of the conditions experienced by academics, either as compatible or contradictory to their individual or collective concerns. It further provided an insight into their evaluation of the legitimacy and value of the APD programmes. The study examined the impact of the provision of resources for APD on the nature of the use of digital technologies in teaching–learning interactions at the site of the case study, the Durban University of Technology in South Africa.

The analysis of academic reactions to the changes instituted at both the meso (institutional) and micro (academic professional development) levels revealed that the changes produced conditions that resulted in limited morphogenesis. In particular, it seems that the disruption brought about by the introduction of the technology imperative was accompanied by conditions

resulting in further diversification of academic capacities at the institution. This study advances concrete propositions about the conditions that influenced the APD related responses of the academics to the institutionalisation of e-Learning.

The research adds to knowledge through insights into the process theory approach to causation, which recognises that structures, mechanisms and events produce unique effects and that the same mechanisms at times produce different events. This study argues that understanding what underlies a certain course of events may enable informed interventions to create better correspondences between APD and the introduction of digital technologies in higher education. Further, this study has generated insights into the importance of taking into consideration the discipline-related knowledge structures in the design and provision of academic development programmes. It is proposed that the incorporation of organising principles of knowledge practices within the academic professional development programme design would earn value and legitimacy for the programme, and promote participation by academics in digital technology-related academic professional development. In summary, the research contributes to an understanding of why it has been that, even with many first order barriers – such as digital access and infrastructural limitations – reduced, the uptake of digital technologies and participation in related academic professional development programmes by academics in higher education has yet to initiate a move beyond doing what is familiar in a digitally-mediated learning environment.

TABLE OF CONTENTS

Abstract	i
Table of contents	iii
Acknowledgements	viii
List of tables	x
List of figures	xi
List of acronyms	xii
CHAPTER 1: ORIENTATION TO THE STUDY	1
1.1 Background	2
1.2 Motivation	4
1.3 Context of the study	7
1.4 Research approach	9
1.5 Research question	10
1.6 Terminology	10
1.7 Outline of chapters	13
CHAPTER 2: THEORETICAL FOUNDATIONS AND CONCEPTUAL FRAMEWORK	16
2.1 Introduction	16
2.2 Critical realism	16
2.2.1 <i>Stratification of reality</i>	17
2.2.2 <i>Transitive and intransitive dimensions of knowledge</i>	18
2.2.3 <i>Emergence</i>	19
2.2.4 <i>Causation</i>	20
2.3 Realist Social Theory	22
2.3.1 <i>Structure and agency</i>	23
2.3.2 <i>Analytical dualism</i>	23
2.4 The morphogenetic framework	25
2.4.1 <i>Structural conditioning and cultural conditioning: T1</i>	28
2.4.2 <i>Social interaction and socio-cultural interaction: T2–T3</i>	29
2.4.3 <i>Structural and cultural elaboration or reproduction: T4</i>	34
2.5 Mediation through human agency	37

2.6	The three orders of reality	39
2.7	Legitimation Code Theory	40
	2.7.1 <i>Specialisation codes of legitimation</i>	41
2.8	Conclusion	43
CHAPTER 3: METHODOLOGY AND RESEARCH DESIGN		45
3.1	Introduction	45
3.2	Methodological implications of a CR study	45
	3.2.1 <i>A process theory approach to causation</i>	46
3.3	Case study research	47
3.4	Participant selection	49
3.5	Generating data	51
	3.5.1 <i>Document-based data gathering</i>	51
	3.5.2 <i>Designing the interview questions</i>	53
	3.5.3 <i>Conducting the interviews</i>	55
3.6	Data Analysis	57
	3.6.1 <i>Categorising strategies</i>	57
	3.6.2 <i>Connecting strategies</i>	59
	3.6.3 <i>Integrating categorising and connecting strategies</i>	60
	3.6.4 <i>Using qualitative data analysis software</i>	62
3.7	Enacting Legitimation Code Theory	63
	3.7.1 <i>Enacting LCT(Specialisation) codes of legitimation</i>	64
	3.7.2 <i>Degrees of code match and code clash</i>	66
3.8	Ensuring the value of the research process	69
	3.8.1 <i>Generalisability</i>	69
	3.8.2 <i>Validity</i>	70
	3.8.3 <i>Confidentiality</i>	75
3.9	Conclusion	75
CHAPTER 4: SYSTEMIC CONDITIONS – MACRO LEVEL		77
4.1	Introduction	77

4.2	Structural conditioning at T1	78
4.2.1	<i>Introduction</i>	78
4.2.2	<i>Globalisation and internationalisation</i>	79
4.2.3	<i>The dilemma of justice</i>	82
4.2.4	<i>South African higher education policies and the introduction of digital technologies</i>	84
4.2.5	<i>The South African higher education system and digital technologies</i>	87
4.2.6	<i>Digital technologies related academic professional development in South African higher education</i>	91
4.2.7	<i>The Universities of Technology</i>	93
4.2.8	<i>Academic professional development at Universities of Technology</i>	99
4.3	Cultural conditioning at T1	101
4.3.1	<i>Introduction</i>	101
4.3.2	<i>The cultural system of the university in a digital age</i>	102
4.3.3	<i>The cultural system of academic professional development for the integration of digital technologies in higher education</i>	120
4.4	Conclusion	125
CHAPTER 5: STRUCTURAL AND SOCIO-CULTURAL INTERACTION – MESO AND MICRO LEVELS		127
5.1	Introduction	127
5.2	Institutional context	128
5.2.1	<i>Academic professional development at DUT</i>	130
5.3	Agency: mediating structural inconsistencies (T2–T3) and structural elaboration (T4)	141
5.4	Agency: mediating cultural inconsistencies (T2–T3) and cultural elaboration (T4)	149
5.4.1	<i>Emergence of emotions in the natural order: from fear to excitement</i>	152
5.4.2	<i>Emergence of emotions in the social order: from apprehension to collegiality</i>	154
5.4.3	<i>Emergence of emotions in the practical order: from APD as futile to beneficial</i>	155

5.5	Exploring faculty-based differences in their responses to the provision of APD for the integration of digital technologies	158
5.5.1	<i>Exploring knowledge practices and programme orientations across disciplines</i>	160
5.5.2	<i>Identifying programme code matches and code clashes with the APD programmes</i>	161
5.5.3	<i>UoT programmes and the elite code</i>	166
5.6	Tracing the morphogenesis or morphostasis of APD	168
5.6.1	<i>The disjunction between cultural morphogenesis and structural morphostasis</i>	169
5.6.2	<i>The disjunction between cultural morphostasis and structural morphogenesis</i>	171
5.6.3	<i>A possible conjunction between cultural morphogenesis and structural morphogenesis</i>	173
5.7	Conclusion	173
CHAPTER 6: CONCLUSION		175
6.1	Introduction	175
6.2	Key finding 1: Inconsistencies at the structural systemic level – insufficient investment in APD related human capital	176
6.2.1	<i>Recommendations and possible opportunities for future APD related research</i>	179
6.3	Key finding 2: Exercising agency through participation	181
6.4	Key finding 3: Inconsistencies at the cultural systemic level – absence of discipline-specific relevance of the APD programme design	182
6.4.1	<i>Recommendations and possible opportunities for future APD related research</i>	187
6.5	Final reflections	188
References		191
Appendices		
Appendix 1:	Demographic details of research participants	222
Appendix 2:	Email invitation to participate in academic professional development related research	223

Appendix 3:	Academics' views on what influences their understandings, behaviours and attitudes towards academic professional development for the use of digital technologies (APD_dT) in their teaching–learning interactions	224
Appendix 4:	Consent form	230
Appendix 5:	NVivo coding categories – enabling conditions	233
Appendix 6:	NVivo coding categories – constraining conditions	234
Appendix 7:	NVivo hierarchy chart for constraining conditions	235
Appendix 8:	NVivo hierarchy chart for enabling conditions	236
Appendix 9:	LCT(Specialisation) plane – juxtaposing LCT(Specialisation) codes of academic programmes against LCD(Specialisation) codes of APD programmes	237
Appendix 10:	2013 Institutional e-Learning survey	243
Appendix 11:	Research participant pre-interview survey	244
Appendix 12:	2015 Academic staff to educational technologists ratio	246

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LIST OF TABLES

Table 1:	Three stratified and overlapping domains of reality	17
Table 2:	Logical relationships at the structural and cultural systemic level and the impact of these on the socio-cultural level	31
Table 3:	The emergence of emotions	40
Table 4:	LCT(Specialisation) codes	65
Table 5:	University centres responsible for supporting ICTs in teaching and learning at South African HE institutions	93
Table 6:	Implementation phases of digital technologies and the situational logics at DUT	131
Table 7:	Knowledge code match with software familiarisation for programmes with natural sciences orientation	162
Table 8:	Knower code match with APD Online for programmes with human sciences orientation	163
Table 9:	Knowledge and Knower code clash with relativist code dominant Video Technology programme	164
Table 10:	The disjunctions and conjunction between the cultural and structural domain during the implementation phases of digital technologies at DUT	169
Table 11:	Professionally-oriented programme components	185
Table 12:	APD programme components	185

LIST OF FIGURES

Figure 1:	Structures, mechanisms and events	21
Figure 2:	The three temporally defined phases of the morphogenetic sequence	27
Figure 3:	The morphogenetic sequence of structure and culture	28
Figure 4:	The morphogenetic sequence of agency	38
Figure 5:	LCT(Specialisation) plane	42
Figure 6:	Data sources	51
Figure 7:	Coding categories for the analysis of interview data	52
Figure 8:	Survey question designed to indicate the emphasis of the programme on its knowledge structure (ER) and knower structure (SR)	58
Figure 9:	Survey question designed to indicate the emphasis of the programme on its knowledge structure (ER) and knower structure (SR)	64
Figure 10:	LCT(Specialisation) plane denoting the dominant codes of the APD programmes	67
Figure 11:	LCT(Specialisation) plane denoting a knowledge code match with the software familiarisation training and a code clash with APD Pioneers Online programme for the mathematics programme	68
Figure 12:	Agential mediation of structural and cultural inconsistencies	140
Figure 13:	The interrelationship of the three key issues to support successful introduction of digital technologies in academic programmes	148
Figure 14:	Three orders of reality reflecting a series of continua of emotions related to the use of digital technologies and impacting upon APD	152
Figure 15:	LCT(Specialisation) plane denoting a collated view of code match, code clash and code drift for the programmes in the study sample	166
Figure 16:	APD sequence for knowledge code dominant programme	186
Figure 17:	APD sequence for knower code dominant programme	187

LIST OF ACRONYMS

APD	Academic Professional Development
CEP	Cultural Emergent Properties
CHE	Council on Higher Education
CHED	Centre for Higher Education Development
CR	Critical Realism
CTP	Committee of Technikon Principals
DoE	Department of Education
DUT	Durban University of Technology
ER	Epistemic Relations
FAD	Faculty of Arts and Design
FAI	Faculty of Accounting and Informatics
FAS	Faculty of Applied Sciences
FEBE	Faculty of Engineering and the Built Environment
FHS	Faculty of Health Sciences
FMS	Faculty of Management Sciences
HE	Higher Education
HEQC	Higher Education Quality Committee
HESA	Higher Education South Africa
HoD	Head of Department
ICT	Information Communication Technology
ITS	Integrated Tertiary Software
LCT	Legitimation Code Theory
LMS	Learning Management Software
M/M	Morphogenetic / Morphostatic

MOOC	Massive Open Online Course
NRF	National Research Foundation
PEP	Personal Emergent Properties
SEP	Structural Emergent Properties
SERTEC	Certification Council for Technikon Education
SR	Social Relations
SS	Social Structural
TDG	Teaching Development Grant
TMSA	Transformational Model of Social Action
UoT	University of Technology
VC	Vice Chancellor

CHAPTER 1: ORIENTATION TO THE STUDY

The principal aim of this institutional case study was to gain insights into the professional development of academics in utilising digital technologies for enhancing learning, teaching and assessment at universities. This study set out to understand what influenced the ways in which academics interpreted and gave meaning to academic professional development (APD) for the integration of digital technologies in their teaching–learning interactions¹. At the heart of this study was the range of reactions of academics to digital technologies related APD. Thus what was under investigation were the contextual conditions that influenced the choices academics made with regard to their participation or non-participation in digital technologies focused APD programmes. ‘Participation’ was regarded as taking part in software familiarisation training as well as APD workshops that promoted the use of digital technologies in a pedagogically significant manner. This study endeavoured to make an original contribution to the body of knowledge on professional development by finding causal explanations to understand what it was that enabled and constrained the participation and engagement of academics in APD programmes for the integration of digital technologies in higher education. This understanding of the social conditions of APD could contribute toward the nature and structure of academic development programmes designed to support the use of technological affordances in the teaching and learning environment. The findings from the study may therefore be of interest to academic developers, educational technologists, teaching and learning policy developers and others trying to understand the causal mechanisms, and the ‘constellation of rules, assumptions, practices and relationships’ (Trowler & Cooper, 2002), that enable and constrain participation in APD programmes.

¹ See 1.6 for clarification of terminology

1.1 Background

Whilst there is growing understanding of the uptake of digital technologies by students, (G Conole, De Laat, Dillon, & Darby, 2008; Gráinne Conole & Dyke, 2004; Czerniewicz & Carr, 2011), the perceptions and voices of academics are often not evident (Hanson, 2009; McShane, 2007). Hanson highlights the need for

... research into the lived experiences of academics at institutions where technology is not only transforming access to knowledge, but also influencing the balance of power between academic and student in knowledge production and use (Hanson, 2009, p. 553).

Oliver and Dempster (2003, pp. 142-143) draw attention to the pressure that is placed on academics as a result of the emergence of 'a market ideology in higher education'. They argue that it is these market forces that compel institutions to harness technological affordances to fulfil their strategic mission and provide economic advantage. This places academic developers and educational technologists in the challenging position of ensuring that teaching–learning practices enhanced by digital technologies are guided by 'pedagogy before technology' (Beetham & Sharpe, 2007). The introduction of digital technologies in teaching–learning interactions is necessarily accompanied by changing practice to be effective. However, it cannot be assumed that academics will automatically embrace new technologies (G Conole, 2004; Oliver et al., 2007b). Effective change requires academic practice to be 'adapted, translated and integrated into new disciplinary, pedagogical and institutional contexts through innovation and creativity' (Oliver & Dempster, 2003, p. 143). Globally, a notable issue has been the low level of technology uptake despite a supportive policy environment, systemic commitment and the provision of ready access to technology and connectivity (Perrotta, 2013, p. 316). It is here that participation in APD programmes could potentially play a significant role.

Academic professional development (APD) has been recognised as critical in the process of meaningful integration of digital technologies in higher education, enabling academics to re-imagine their teaching in the new

technology-enriched learning spaces (Clegg, Hudson, & Steel, 2003; Oliver et al., 2007b; Salmon, 2005; Steel & Andrews, 2012). Laurillard (2006, p. 84) recommends the installation of support systems to facilitate the use of digital technologies as part of an educational change process that is 'organic and progressive, adaptive rather than mechanistic' and cautions against the techno-hype that accompanies each new wave of technological innovation. Participation in APD programmes, embedded in the curriculum and contextualised in the local setting, could potentially play a significant role in re-evaluating some of the persistent myths² and rhetoric frequently associated with the use of digital technologies (Brown & Czerniewicz, 2010; Selwyn, Gorard, & Furlong, 2006). Participation could enable exploration of pedagogically sound reasons for augmenting learning with digital technologies. Tynan and Lee explain:

Academic staff need somewhere to turn to seek guidance and assistance in imagining a future, not only with the technical aspects of learning technologies, but also in the way of pedagogical and instructional design strategies and techniques to use in conjunction with the technologies to support and enhance various facets of the teaching and learning process (Tynan & Lee, 2009, p. 104).

However, academics have responded in a range of ways, from enthusiasm to reluctance, to invitations to participate in professional development workshops (Selwyn, 2014c; J. Smith & Oliver, 2000). Issues of institutional imperatives, staff awareness of APD support availability, and mandatory participation are highlighted as contentious issues by Tynan and Lee (2009, p. 106) in their research on the role of academic development in encouraging innovative pedagogy and the use of digital technologies. Their findings reveal that many academics have been critical of the 'limited and limiting approaches' of digital technology focused APD activities. These activities, they explain, are largely restricted to providing orientation, instruction and/or support on how to operate the various software applications without adequate examination of the 'breadth

² See for example the JISC-funded Digital Visitors and Residents project by White, Connaway, Lanclos, Le Cornu and Hood (2012), which indicates the need to eliminate the assumed links between age and skills associated with the use of digital technologies (Prensky, 2001).

and depth of knowledge and skills needed to teach well online' (ibid). According to Laurillard,

Imaginative use of digital technologies could be transformational for teaching and learning, taking us well beyond the incremental value of more accessible lecture presentations. The problem is that transformation is more about *the human and organisational aspects* of teaching and learning than it is about the use of technology. We have the ambition. We have the technology. *What is missing* is what connects the two (2007b, pp. xvi, emphasis added).

1.2 Motivation

The motivation for this study emerged from two distinct experiences. The first was my involvement in the 2011–2016 national research project³ titled 'The interplay of structure, culture and agency: contextual influences on the professional development of academics as lecturers in higher education in South Africa'. The project team was comprised of eighteen researchers from eight different South African universities and included four PhD students, of whom I was one. The national project acknowledged research which has been conducted on the numerous approaches to academic professional development; however it highlighted the need to explore the contextual conditions that enable and constrain participation in professional development programmes. This independent doctoral study, as part of the larger National Research Foundation (NRF) funded national research project, was aligned to the goal of the larger study in its examination of contextual influences on APD in higher education in South Africa. However, as this study was uniquely focused on APD that facilitated the integration of digital technologies in teaching-learning interactions at an institutional level, only some components

³ The national research project comprised of two phases. The first phase from 2011 to 2013 was an investigation into contextual influences on the professional development of academics as teachers in higher education in South Africa. It was based on an analysis of the national context and eight case studies at public higher education institutions. The second phase from 2014 to 2016 provided an opportunity to deepen the analysis of the data collected in the first phase, and to disseminate research findings. This was done via national and international journal publications, a booklet titled 'Learning to Teach in Higher Education in South Africa' and a colloquium titled 'Contextual approaches to professional development with regard to the teaching role'.

of the data collected for the NRF study could be utilised for to this study. Part of my role in the project was to research and produce a case study on professional development opportunities at the Durban University of Technology in South Africa, where I am employed as an educational technologist-cum-academic developer. As a member of the national project team, I learnt that, while the varied responses of students and academics to the introduction of digital technologies in higher education was well researched and documented, it was not so in relation to the participation of academics in digital technologies related academic professional development (APD) programmes. This piqued my interest to better understand the responses of academics to professional development designed to facilitate the integration of digital technologies in teaching–learning interactions.

The second impetus for this study was my experience working with academic staff as an educational technologist-cum-academic developer at the e-Learning unit of the Durban University of Technology (DUT). At the time of this study DUT had 26 935 students, and 530 permanent academic staff, complemented by 508 contract and part-time academics at its seven campuses based in the cities of Durban and Pietermaritzburg, in KwaZulu-Natal. The academic staff (permanent, contract and part-time) to student ratio ranged from 1:12 in one faculty to 1:50 in another faculty (see 5.2). Whilst engaging with DUT academics to establish familiarity with technological affordances and transition to creating online learning opportunities, I became conscious of the need to '[bring] the social into pedagogy' (Leibowitz et al., 2010). Together we experienced the value of collaborative engagement on the re-conceptualisation of our professional identities (McShane, 2007) following the introduction of digital technologies in our teaching–learning interactions via the pedagogically focused Pioneers Online APD programme. At the same time, I became curious to learn about the personal characteristics that enabled some academics to shape the situation according to their preference while others chose to yield to the prevailing context of time-established teaching–learning practices. In my interactions with academics, I learnt that some academics welcome the inclusion of technology as an 'add on' enhancement to their teaching–learning interactions but continue to use the familiar

pedagogical practices without exploring the potential of the 'disruptive technologies' for pedagogic innovation (G Conole et al., 2008). Other academics include digital technology to change their practice in definitive ways, appreciating the impact of technology in transforming access to knowledge, re-defining their roles and relations as academics and students, and re-defining what it means to be knowledgeable (Hanson, 2009). There were also those academics that refused to consider digital technologies in their teaching–learning interactions altogether. It was this variability in openness to ontological and epistemological shifts with regard to the role and identity of the academic following the introduction of digital technologies that I found intriguing and chose to investigate in my research, by selecting the DUT as the site of the study.

In my professional capacity as an educational technologist at DUT I noticed many points of 'connection and disconnection' that could possibly influence academic participation in technology focused APD programmes. Positioned at the 'fault line' (Rowland, 2002) between institutional management and academics, I observed on the part of management that the decision to respond to the global challenge to introduce more innovative ways of teaching was accompanied by the infrastructural challenge of ensuring wireless internet access across the six DUT campuses. In my role as institutional change agent, I noted on the part of some academics the excitement at recognising the potential of a digital learning environment while others were reluctant to engage with the fast-evolving world of digital know-how. Finally, along with project managers and other educational technologists, I shared the vision of pedagogically significant use of digital technologies. However, I also shared with technical support staff the frustrations of infrastructural deficits that defined our reality.

Together, my experience as a PhD student on the research project as well as my interactions with academics at DUT highlighted the need to investigate the cultural and structural conditions that influence the choices academics make with regard to their participation or non-participation in digital technologies focused APD. I learnt that there were differences in the way APD was

envisaged. I assumed therefore that the varied expectations of APD possibly influenced how the implementation of APD at DUT was valued. Of particular interest and forming the core of this study, therefore, were the contextual conditions that influence the ways in which academics give meaning to digital technology focused APD for the integration of digital technologies in their teaching–learning interactions.

1.3 Context of the study

The institution-wide implementation of digital technologies at DUT in 2012 was introduced as a ‘technology imperative’ and marked a shift from the voluntary use of the institutionally-provided learning management system. Given the national goals of social justice and socio-economic upliftment, the decision at institutional management level, to emphatically advocate the use of technology, could be interpreted to align with the national imperatives of widening of access to higher education in South Africa, whilst also entertaining the possibility of global relevance in a digitally focused world. Limited by inadequate infrastructural capacity and insufficient resources, it was hoped that innovative and digitally supported learning would resolve the dilemma of widening access in the midst of the shortcomings. To support the technology imperative at DUT, the e-Learning Project was initiated in 2013. The purpose of the project was to produce a significant change in the use of online teaching–learning interactions and make available the necessary technical and infrastructural requirements, establish support mechanisms and monitor programme level targets against set timelines.

At institutional management level, it was accepted that the change from the optional and voluntary use of digital technologies would require infrastructural and technological preparedness as well as academic professional development to ensure pedagogically significant application of the digital technologies. A software familiarisation training programme was introduced by

the e-Learning unit⁴ at DUT, as a first step to mitigate the differences between those academics new to digital technologies and the technology-savvy academics, familiar with the institutionally-provided learning management system and other digital technologies. The technology imperative, it was hoped, would also be instrumental in facilitating a pedagogical shift from the traditional mode of knowledge transmission to student-centred teaching at DUT (Durban University of Technology, 2013a) .

The existing APD structures within the university were tasked with addressing the digital technology related apprehension amongst some academics. APD structures were potentially well placed to engender and coordinate the activities that could provide the space and environment to collectively consider the pedagogical value of the new technologies, ‘sharing theoretical perspectives and stances’, and facilitating the development of confidence, collegiality and the ‘[development of] an ontological security’ (Unwin, 2007). However, the results of the 2015 institutional survey on e-Learning⁵ confirm that the expectation of a surge in the demand for APD, extending beyond the rudimentary software familiarisation training, to support the increasingly sophisticated use of digital technologies did not materialise during the five-year period of this study (Durban University of Technology, 2015d).

This study focuses on the relatively low participation of academics in APD programmes and asks questions about ‘*what is missing*’ in APD that could, paraphrasing Laurillard (2007b, pp. xvi’, see quote above), connect ‘the ambition’ of institutions and the academics, or student success, to the available technology. The participation (and non-participation) of academics in APD programmes lies at the root of this study, which explores ‘*the human and organisational aspects*’ in APD. The study attempts to uncover what needs to

⁴ The e-Learning Unit at DUT was mandated to support academics and to advance online teaching–learning interactions through the use of the institutionally provided learning management system and other digital technologies.

⁵ 32,5 %, or 338 of 1038 academic staff, participated in the 2015 DUT institutional e-Learning survey. Of the 338 survey respondents, 54% (182 academics) attended formal e-Learning training at DUT or elsewhere, while 77.7% (262 academics) indicated a willingness to enrol in a certificated short-course in e-Learning in the future.

be in place in APD to ensure the pedagogically-led integration of digital technologies in teaching–learning interactions that moves beyond familiar practice and the digitisation of content.

1.4 Research approach

Dissatisfied, as a researcher, with a post-modernist and relativist view, and uneasy with a technological determinist view which ascribes to technology the power to effect social change, I chose Margaret Archer's (1995) social realist approach, which describes both agency and structure as the key components of social change. Archer explains,

It is only through analysing the *processes* by which structure and agency shape and re-shape one another over time that we can account for variable social outcomes at different times (1995, p. 64, emphasis in original).

For this study, the examination of structure and agency enabled me to examine the impact of history and social, political and institutional structures and also to explore the role of human agency in the choices people make. Margaret Archer's (1995) morphogenetic model (M/M) provided the framework for the social realist analysis, which postulates that structural and cultural influences ('the parts') make change possible by shaping the situations that the agents ('people') encounter. Archer describes morphogenesis as 'complex interchanges that produce change in a system's given form, structure or state', and morphostasis, in turn, refers to those processes that ensure that the system remains unchanged (1995, p. 166). This realist study focused on the underlying causal mechanisms and processes that contributed to the choices academics made with regard to academic professional development (APD). The realist approach enabled me to look beyond the empirically observable events related to APD, acknowledging the existence of unobservable social and cognitive processes that contribute to the reality that we experience and the choices that we make. The three-phased morphogenetic sequence, as described in Chapter 2 (see 2.4), enabled me to separately examine, for analytical purposes, the impact of pre-existing structural and cultural conditions

on current social interactions to possibly effect change (morphogenesis) or maintain things as they were (morphostasis).

1.5 Research question

In order to better understand why it was that, after having decided to use digital technologies in their teaching–learning interactions, some academics chose to participate in APD and others did not, this research attempted to answer the following question:

What are the cultural, structural and agential conditions that enable and constrain academic professional development for the integration of digital technologies in teaching–learning interactions at the Durban University of Technology?

The sub-questions supporting this main question were:

1. What are the causal mechanisms and processes that contribute toward the choices academics make with regard to academic professional development for the use of digital technologies at DUT?
2. What influences the ways in which academics interpret and give meaning to academic professional development for the use of digital technologies in their teaching–learning interactions?
3. What must conditions have been like in APD for the integration of digital technologies in learning-teaching interactions to have evolved the way it did at DUT?

1.6 Terminology

Academic professional development

It has been noted that the absence of an internationally agreed upon definition of academic professional development in higher education adds a degree of uncertainty to the role of the professionals working within the field of APD

(Blackwell & Blackmore, 2003; Quinn, 2012b). In this study I use the term academic professional development to denote, following Leibowitz,

... the growth in the understanding of teaching and learning and the growth of capacity to teach, as well as the support for this growth and capacity by others, often professionals who are termed 'academic developers' (Leibowitz, 2016).

In this dissertation, the abbreviation APD is used to represent academic professional development, and particularly digital technology related academic professional development.

Digital technologies

'Technologies have been part of human societies from as far back as archeology can take us' (Nye, 2006, p. 7).

Technological tools have served the purposes of learning in many ways, be it in the form of a pencil or technology-aided interaction. Luppicini describes how modern technology has been used for educational purposes in 'the design, development, utilisation, management, and evaluation of processes and resources for learning' (2005, p. 108). However, the lack of a standardised language in the discourse on the roles of digital technologies in educational settings, referred to as 'The Tower of Babel Syndrome' by Guri-Rosenblit (2009, p. 1), has been the cause of much dissension in terms of role definition for professionals working in the field. In this study the term digital technologies, following Guri-Rosenblit (2009), refers to technologies that are applied in higher education institutions for information retrieval, simulations and multi-media presentations, communications between academics and students in- and after classes, communications amongst students, online exercises, and examinations. The term 'digital technologies', frequently used interchangeably with 'ICTs', represents technologies used for communication for administrative purposes and for the purposes of teaching, learning and research.

Educational technologists

Educational technologists as professionals working within the 'new' field of APD relating to digital technologies in higher education are also subject to uncertainties regarding role definition. Oliver (2002) describes the changing roles and role boundaries as characteristic of the category of 'new professionals' emerging in the field of higher education. Hodgkinson-Williams and Czerniewicz (2007) use the generic term 'educational technologist', acknowledging that many other terms are used in different countries around the world. In a national survey, Beetham, Jones and Gornall (2001, pp. 29-30) identified 11 distinct roles amongst those involved in supporting learning technologies in HE in the UK. Czerniewicz, Ravjee and Mlitwa (2007) point to the close association between educational technology and APD, highlighting that in South Africa educational technology is frequently located in higher education development structures. In this study, I describe the practice of educational technologists as facilitating the interpretation of digital technologies for pedagogical transformation. The practice advances the application of digital technologies in pedagogically significant ways, using an incremental approach which involves 'cautiously enhancing existing practice' (Salmon, 2005, p. 208), providing support to academics to negotiate the transition to digitally-enhanced learning.

e-Learning

e-Learning was introduced at DUT as a 'core teaching and learning practice' in 2013 in response to 'the rapid development worldwide of digital technologies to enhance learning and teaching (web-resources, mobile devices, multimedia)' (Durban University of Technology, 2013b, p. 1). The 2016 e-Learning policy defines e-Learning as 'the delivery of modules using online (virtual) classrooms located within the institutional learning management system (LMS) as part of mixed mode (blended) delivery' (Durban University of Technology, 2016, p. 3). Academics were encouraged to work online 'to create and deliver digital learning materials, conduct assessments, assign grade marks and use social media to communicate with students' (ibid). In this study, eLearning is understood to

... [engage] students in a structured digital ecosystem that fosters graduate attributes such as: a) comprehending the role of technology in society, b) identifying issues in applying relevant technology and c) critically evaluating and engaging with information from a variety of sources, using relevant technology (Durban University of Technology, 2015b).

Teaching–learning interactions

In this study I use the compound term ‘teaching–learning interactions’: this has been borrowed from Ashwin (2009, pp. 2-3), who explains that the term moves away from the idea that teaching and learning are two discrete and separable processes. In this study the use of ‘teaching–learning interactions’ emphasises that teaching–learning interactions are ‘different aspects of the same processes in which students and academics engage together’ (ibid). Teaching–learning interactions are not only focused on face-to-face interactions but also include interactions via digital technologies.

1.7 Outline of chapters

This chapter has explained aims and motivation for the study and described its background and context. I have outlined both local and global deliberations on the dilemma of engaging academics in academic professional development designed to provide support, and pedagogically significant use of digital technologies in teaching–learning interactions. Key to this chapter is the argument for the need to explore both ‘human and organisational aspects’ (Laurillard, 2007b, p. xvi) that would contribute toward the development of APD programmes designed to promote the meaningful integration of digital technologies. I have explained the alignment of the research approach to the research question, highlighting the need for an in-depth exploration of structural and cultural conditions that enabled and constrained academic participation in digital technologies focused APD programmes in the context of the Durban University of Technology at a specific time in history.

In Chapter 2, I present the theoretical foundation and conceptual framework for this study, namely, critical and social realism, and in so doing relate the

ontological and epistemological position of this study. Margaret Archer's (1995) morphogenetic / morphostatic model and her conception of the three orders of reality (Archer, 2000), as well as the specialisation dimension of Karl Maton's (2014) Legitimation Code Theory, are discussed in relation to the exploration of the structural and cultural conditions that influence the ways in which APD is interpreted and valued by academics.

In Chapter 3, I provide a description of the methodology and research design of this study. In this chapter I engage with the methodological implications of the critical realist underpinning of this study, focusing particularly on the process theory view of causation. As this study was focused on establishing causal significance, selecting an 'intensive research design' (Sayer, 1992, p. 163) allowed me to interpret meaning and search for generative causes in context. A single-institution case study research method suited the purposes of this study and was compatible with the theoretical framework selected. Using Maxwell's (2012) categorising and connecting strategies in the analysis of data enabled me to identify regularities and patterns in the data, which were explored further using the specialisation dimension of Maton's Legitimation Code Theory as an additional analytical tool to enable a nuanced analysis of the data.

In Chapter 4, I focus on the first phase of the morphogenetic model. This phase centres on the point of introduction of the institution-wide implementation of digital technologies in teaching–learning interactions at DUT in 2012. In keeping with the methodological framework, I intentionally and separately examine the prevailing structural conditions and thereafter the prevailing cultural conditions emanating from the macro context, that is, at the international and national levels. This enabled me, in the first half of the chapter, to explore the antecedent structural conditions that possibly influenced the management level decision at DUT to introduce the technology imperative, a significant shift in the teaching and learning strategy of the institution. In the second half of the chapter, I examine prevalent cultural conditions via the dominant discourses related to both APD and the university in a digital age.

In Chapter 5, I focus on the second phase of the morphogenetic model. This chapter comprises an examination and analysis of the institutional context at the meso and micro levels. In this section, following the M/M framework, I trace and analyse the pre-existing structural and cultural conditions at DUT. The findings enabled me to understand why APD at the institution evolved in the way that it did. At the micro level, examining and connecting the concerns of the academics to their reactions to APD made it possible to identify distinct patterns in the data. The analysis of these distinct patterns and regularities brought to the fore the relationship between discipline-based knowledge practices and academic preferences with regard to APD programmes.

In Chapter 6, I conclude the dissertation with a synthesis of the findings in relation to the research question and sub-questions. Based on the research findings with regard to conditions that enable and constrain APD, I make suggestions regarding possible systemic-level decisions, transferable to contexts similar and comparable to this case study. These suggestions may contribute to sustainable change management, particularly with regard to the introduction of digital technologies and related APD in higher education. The findings of the study also highlight possible discipline-related factors for consideration in the design of digital technologies focused APD programmes in the future.

CHAPTER 2: THEORETICAL FOUNDATIONS AND CONCEPTUAL FRAMEWORK

2.1 Introduction

In this chapter I introduce the philosophical underpinning, theoretical framework and some of the key concepts used in the study to answer the question:

What are the cultural, structural and agential conditions that enable and constrain academic professional development for the integration of digital technologies in teaching–learning interactions at the Durban University of Technology?

As a social realist analysis, this study is underpinned by Bhaskar's (1998b) critical realist (CR) ontology and draws upon the morphogenetic / morphostatic approach of Margaret Archer's Realist Social Theory (1995) as the primary theoretical influence. I also draw on Archer's (2000) explanation of the three orders of reality, the natural, social and practical, as a second theoretical influence to understand the process of balancing our concerns which shape the choices we make as individuals. The third theoretical influence on this study is the specialisation dimension of Maton's (2014) Legitimation Code Theory to understand the discipline-based influences on the preferences of academics with regard to APD programmes.

I begin with various features of Bhaskar's (1998b) adaptation of critical realism (CR), which provides the meta-theoretical framework for this study.

2.2 Critical realism

In CR, Bhaskar (1998b) presents an alternative view to the social constructionist and postmodernist view of the social world. One of the most fundamental assertions of CR is that the world exists independent from our knowledge about it (Sayer, 2000). Particularly for the social sciences, CR embraces naturalistic explanations with the proviso that, unlike natural entities,

men and women actively change their social world (Harvey, 2002) in the hope of ‘changing unsatisfactory or oppressive realities’ (Benton & Craib, 2001, p. 121). The purpose of a CR study is to understand and provide a possible explanation, given a set of empirical facts regarding a phenomenon and context, why the phenomenon occurred in a given social system (Bhaskar, 2008a).

2.2.1 Stratification of reality

Bhaskar explains that critical realists acknowledge the reality of events and discourses, but emphasises that ‘we will only be able to understand – and so change – the social world if we identify the structures at work that generate those events and discourses’ (2011b, p. 2). Reality, within CR, is stratified into three domains which are loosely nested into one another (see Table 1). At the encompassing level of the real are objects, their structures and liabilities and causal powers, that give rise to mechanisms, which, although not visible, can be inferred through the observation of their effects.

	Domain of the Real	Domain of the Actual	Domain of the Empirical
Mechanisms	X		
Events	X	X	
Experiences	X	X	X

Table 1: Three stratified and overlapping domains of reality (adapted from Bhaskar (1998a, p. 41))

Reality is seen to be far more than the material appearances of the world although these material properties are an essential part of the analysis (Mutch, 2010). At the level of the actual are events that happen when the structures and mechanisms (at the level of the real) are activated (although they may remain inactive when other mechanisms predominate). At the level of the empirical are our observations and experiences. Of significance is the

acknowledgement that our understanding of the empirical is fallible as it is derived from our interpretation of the experience.

In keeping with the stratified or depth ontology of CR, Danermark, Ekström, Jakobsen and Karlsson explain that the method of obtaining knowledge cannot be limited to the observation of a series of events, 'where one thing follows on another with empirically observable regularity' (2002, p. 203). Bhaskar emphasises the importance of considering the deep structures of reality and the *transfactual* conditions; he writes: 'Scientifically significant generality does not lie on the face of the world, but in the hidden essence of things' (2008a, p. 217).

Guided by an understanding of the stratified nature of reality, I began by initially exploring empirically traceable processes and events. These processes and events, according to CR philosophy, are an outcome of the complex interactions in the domain of the real. It is these complex interactions, the causal mechanisms and their outcomes, that have been the focus of this study, using a realist approach in an attempt to reach beyond what is tangible to understand the choices academics at DUT made with regard to participation in digital technology related APD.

2.2.2 Transitive and intransitive dimensions of knowledge

A key feature of CR is the distinction between transitive and intransitive objects. The objects of study, be they physical processes or social phenomena, form the intransitive dimension of science, and the theories formulated about the objects of study form part of its transitive dimension (Sayer, 2000). As stated earlier, one of the most fundamental assertions of CR is that the world exists independent from our knowledge about it. However, according to Danermark et al., the kind of knowledge that is produced depends on what problems we have and what questions we ask in relation to the world around us (2002, p. 26). Emphasising the fallibility of all knowledge, they qualify the transitive dimension of knowledge as 'the best truth about reality we have for the moment' (2002, p. 23), made up of our observations

and theories about reality. Sayer (2000, p. 11), using the example of the shift from a flat earth theory to a round earth theory, explains that when theories (transitive dimension) change, it does not mean that what they are about (intransitive dimension) necessarily changes too.

The distinction between the transitive (*changing*) and intransitive (*relatively enduring*) dimensions of knowledge in CR draws attention to the fact that we should not conflate what can be known about the world with our experience of it. Bhaskar refers to this conflation as the 'epistemic fallacy' (2008b, p. 20). He explains that knowledge of social reality can be attained by looking '*transfactually*' beyond the surface at conditions which operate independent of any particular sequence of events. In the context of this study, the awareness of transitive and intransitive dimensions and the epistemic fallacy was especially valuable during the stage of data analysis, adding importance to the need to look beyond the experiences of the academics as related in the interviews.

2.2.3 Emergence

A concept central to CR is that of 'emergence' in the world, which occurs when 'two or more features or aspects give rise to new phenomena, which are irreducible to those of their constituents' (Sayer, 2000, p. 12). Elder-Vass explains the concept of emergence, using John Stuart Mill's physical example of the emergent properties of water. The properties of water are different from those of its components, hydrogen and oxygen. Water, he explains, thus has emergent properties (2010, p. 5). Emergent powers are powers of the whole and not the sum of its parts. Of particular relevance to this study exploring the reasons underlying the varied reactions of academics to APD is Sayer's explanation that emergence in the social world is frequently relative to the roles and identities of people as well as the accompanying powers attached to their positions, relations and contexts. This adds complexity, particularly as in the social world 'individuals and institutions operate in many different structures which creates difficulties for deciding by virtue of what structure a particular power exists' (Sayer, 1992, p. 81). This will be explored further in the

section on the morphogenetic / morphostatic approach. The next section focuses on the CR concept of causation.

2.2.4 Causation

An understanding of the distinctive view of causation proposed by CR is necessary as a backdrop to this study which explores the generative causes that enable or constrain the engagement of academics in digital technology focused APD programmes. Causation, from a CR view, places emphasis on more than the cause and effect relationship amongst the discrete events. A realist approach to research has as a central purpose, the search to identify and explain the causal forces that operate at the ontological levels of reality. It is argued that although social structure is unobservable it can nevertheless be known to be real and causally efficacious because it makes a difference to perceptible human behaviour. In making this argument CR draws upon the causal criterion for existence, according to which unobservable entities can be known to exist through their impact on observable events (P. Lewis, 2000), by looking beyond appearances and events to understand 'the connections that produce the reality that we experience' (Wheelahan, 2010, p. 98).

Sayer (1992, pp. 78-79) describes how structures, mechanisms and events present in a complex system, and, when activated, produce effects in 'conjunctures' (combination of events) which may be unique, and that these same mechanisms may at times produce different events (see Figure 1). Moreover, the same type of event may have different causes. The events we can observe may therefore be a combination of influences from different mechanisms, some mechanisms supporting each other while others counteract each other's manifestation (Danermark et al., 2002, p. 203).

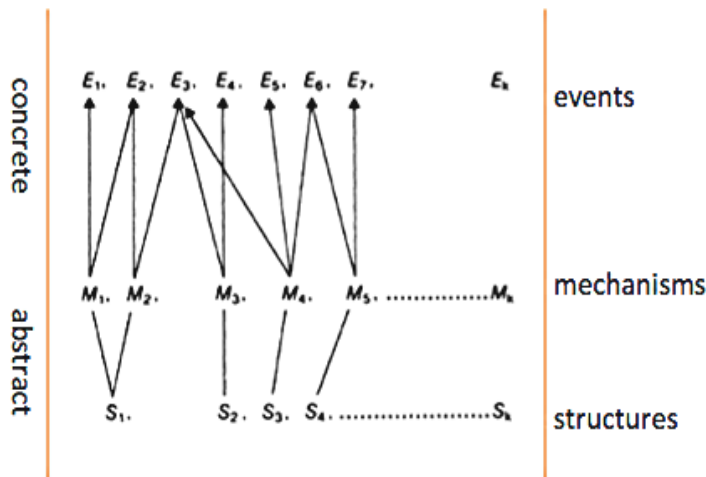


Figure 1: Structures, mechanisms and events (Sayer, 1992, p. 79)

A causal analysis begins with the resolution of the event into component causes which are then theoretically ‘re-described’ (Bhaskar, 2008a) as possible ‘thought experiments’ (Danermark et al., 2002, p. 101) or hypotheses that generate a number of possible causal mechanisms to be either verified by evidence or rejected (2008a). The methodological implication of the variable combinations of mechanisms resulting in empirically-observable events indicates that searching for causation would require more than a search for regularities or a constant conjunction of events.

Using the CR explanation of ways in which ‘causal processes could produce different results in different contexts’ (Sayer, 2000, p. 5) allowed me to accept and engage with the ‘messiness’ that constituted the contexts of the academics in their faculty environs within the university. The CR approach prompted me to identify the conditions necessary, possible as well as potential (Sayer, 2000), and to look beyond a constant conjunction of events to understand the responses of academics to digital technologies focused APD. Moreover, operating within an open system, that is, a system where different generative mechanisms are initiated and differently influence what people do in different or similar situations (see Figure 1), it became clear that it would be more useful to identify tendencies rather than causes that enabled or constrained participation in APD programmes for the integration of digital technologies in teaching–learning interactions at DUT.

The next section focuses on Margaret Archer's (1995) realist social theory, which is underpinned by critical realist philosophy.

2.3 Realist Social Theory

According to Archer, 'what society is held to be serves to regulate how we are enjoined to study it' (1995, p. 14). How society is conceptualised therefore is largely influenced by ontological and epistemological assumptions. While ontological assumptions are concerned with constructions of the nature of social reality, and define what kinds of social phenomena are perceived to exist and include the conditions of their existence, epistemological assumptions are concerned with the kinds of knowledge that are believed possible and how they are recognised and legitimated (Blaikie, 2010). Different conceptualisations therefore engender different research strategies. Empiricists proclaim that knowledge of the world is gained through the senses (Ayers, 2011), hence from a positivist viewpoint human beings build knowledge by observing a constant conjunction of events, while social constructionists understand knowledge to be a construct of the human mind and therefore, in the interpretivist view, knowledge is redefined and limited by cognitive processes which 'impose on the object of knowledge such constraints as time, space, quantity, and cause and effect' (Ayers, 2011, p. 345). Critical realists, in turn, look at knowledge transfactually by examining reality beyond the surface conditions; seek to clarify 'the prerequisites or conditions for social relationships, people's actions, reasoning and knowledge' (Danermark et al., 2002, p. 96); and do not reduce knowledge to knowledge about the directly observable (ibid). As a realist, Archer maintains that '[s]ocial theory has to be useful and usable: it is not an end in itself' (1995, p. 135). She places emphasis on both the theoretical and practical, '*in theory and for practice*' (emphasis in original), to ensure that it is not restricted to either positivist instrumentalism or relativist idealism.

2.3.1 Structure and agency

Archer (1995) describes agency and structure as the two key components of social life. While the two components are clearly related to each other, in order to gain an understanding of the nature and workings of society, the distinction between agency and structure remains an essential precondition (Danermark et al., 2002). Drawing on David Lockwood's (1964) work on social and systems integration, Archer (1996) highlights that a fundamental problem in social theory arises from variously conflating the 'parts' (structural or cultural) and the 'people' (agency). Downward conflationists allow the 'parts' to dominate the 'people', thus human behaviour is perceived to be entirely determined by the social relations they encounter. Upward conflationists allow the 'people' to dominate the 'parts' of society, as such social structure is viewed as inert and a collective consequence of individual activities. Central conflationists, by contrast, are set on the inseparability of the 'parts' and the 'people' and pronounce both to be tightly co-constitutive, such that it is impossible to unravel the influence of the one upon the other, and autonomy is thus withheld from both 'parts' and 'people', as in Giddens' structuration theory (1990).

2.3.2 Analytical dualism

Archer maintains that the principal error with conflationary theorising is that it prevents the possibility of gaining an understanding of interplay between social structures and human agents, inhibiting 'the explanation of cultural dynamics' (1996, p. xix). In contradistinction, Archer introduces the principle of analytical dualism, according to which culture, structure and agency are considered to be analytically distinct, precisely in order to enable examination of the role they play in one another's transformation over time (1995, p. 253). According to Archer (1995), the study of the social world necessarily comprises the analysis of structure, culture and agency. She differentiates the 'parts' into the domain of structure and the domain of culture, and the 'people' or agency as the domain of human action and interaction. Archer denotes structure as representing material interests (Danermark et al., 2002), while culture represents 'a corpus of existing intelligibilia' (Archer, 1996, p. 102) comprising

of ideas, beliefs, values and ideologies. 'Agency' is used by Archer always in the plural. She differentiates between primary agents as 'collectivities sharing the same life chances' (1995, p. 259) who are less likely to articulate or act on their needs; and corporate agents who are capable of 'articulating shared interests, organising for collective action ... and exercising corporate influence in decision making' (Archer, 1995, p. 260). However, she qualifies that a primary agent in one domain may be a corporate agent in another. Significantly, Archer draws attention to the central point that the generative powers of the 'parts' (structure and culture) and the 'people' (agency) are both necessary conditions for change, emphasising the role of an active agent (person) in order to mediate the process. She explains the relationship between the 'people' and the 'parts' in the following way:

... all structural influences work through shaping the situations in which people find themselves. It is the situations to which people respond which are mediatory because they condition (without determining) different courses of action for those differently placed, by supplying different reasons to them (Archer, 1995, p. 201).

In the context of this study, using the principle of analytical dualism and the morphogenetic approach (see 2.4), it was possible, after theoretically separating the 'parts' (structural conditioning and cultural conditioning) during a given period in time, to examine the agential mediation of the structural inconsistencies and the agential mediation of the cultural inconsistencies at DUT with regard to digitally focused APD. Doing so made it possible to trace the nature of change in both the cultural domain and the structural domain (see 4.2 and 4.3). I was then able to assess if the change in both domains was in harmony or at odds and to identify the situational conditions as constraints or enablements to academic participation in digitally focused APD programmes.

In the following sections, I focus on two fundamental theoretical influences on my study. These are firstly Margaret Archer's (1995) morphogenetic / morphostatic (M/M) framework in which she postulates that the shape of society is changed through social relations over time. Thereafter I focus on her

conception of the three orders of reality in which she examines what we care about most and commit ourselves to as individuals (Archer, 2000, p. 249).

2.4 The morphogenetic framework

Contemporary critiques have called attention to the tendency in higher education studies to prioritise either socio-cultural or psychological approaches, assigning the preference to a disciplinary allegiance to either sociology or psychology (Kahn, Qualter, & Young, 2012). Both Haggis (2003) and Ashwin (2008), amongst others, argue in favour of an approach that acknowledges both socio-cultural structure and individual agency in higher education studies. It is this gap that Archer's M/M framework fills in its examination of the interplay between personal and socio-cultural factors over time to determine when things stay as they are or change.

Archer's seminal contribution to the sociological debate on structure and agency is through the morphogenetic approach, a 'practical complement' (1995, p. 15) of social realism that advances a methodological sequence to conceptualise how the interplay between structure and agency can be analysed over time and space. Although the M/M framework was developed for sociological studies, it is increasingly being used in higher education studies as a theoretical and analytical framework that examines both structural and agential conditions, accommodating both the contextual and personal in the study of higher education. In South Africa, Leibowitz et al. (2015) have used the framework to examine enablements and constraints in the development and work of teaching and learning centres in South Africa, while Boughey and Niven (2012) explored conditions that enabled and constrained research production in the field of academic development. Using the M/M framework, Quinn (2012c) examined resistance to engaging in activities aimed at professionalising academic practice, while Ndebele (2014) explored conditions that enabled and constrained the development of academic developers themselves, and Lockett (2012) used the framework to deepen the methodology of academic review on an academic development programme. Internationally, to cite a few studies, Kahn et al. (2012) use the

M/M framework to account for the development of capacity to engage in reflection on professional practice in academic roles, while Clegg (2009b) explores histories and institutional change, comparing the emergence of academic development practice across the Global North and South.

In her theory of social morphogenesis Archer utilises Buckley's ((1967) quoted in Archer, 1995, p. 135) concept of *morphogenesis* as 'those processes which tend to elaborate or *change* a system's given form, state or structure' (Archer, 1995, p. 166 emphasis in original) and *morphostasis*, in turn, is recognised as those processes that *preserve* or *maintain* a system's form, organisation or structure. In her morphogenetic / morphostatic framework, Archer suggests that the shape of society is changed (morphogenesis), through social relations over time (1996), and emphasises the importance of time-based historical and social contexts and events in her examination of patterns of social phenomena. Archer (1995, p. 247) further highlights that the self-same sequence, through which agency brings about social and cultural transformation, is simultaneously responsible for transforming agency, also referred to as double morphogenesis. She describes the emergence of agency as 'the end-product' of the double morphogenesis in which 'collectivities of human beings are grouped and re-grouped' (Archer, 1995, p. 225) as they contribute to the process of change in the structure and culture of society.

Elaborating on Bhaskar's (1998b) transformational model of social action (TMSA), Archer introduces temporality and emergence as fundamental aspects of her morphogenetic / morphostatic framework (1996), both of which are based on two propositions. The first proposition is that social structure, and culture similarly, precede the action which leads to its reproduction or transformation, and the second is that structural and cultural elaboration comes after the actions which create it (Danermark et al., 2002, p. 181). The morphogenetic / static sequence, which is cyclical, occurs in endless three-part cycles that operate over different time periods (Archer, 1995): T1 (conditioning), T2–T3 (interaction) and T4 (elaboration or reproduction). The morphogenetic / morphostatic cycle of this study begins at T1 in 2012 and continues until T4 in 2016. The sequence is illustrated in Figure 2 (see page 27).

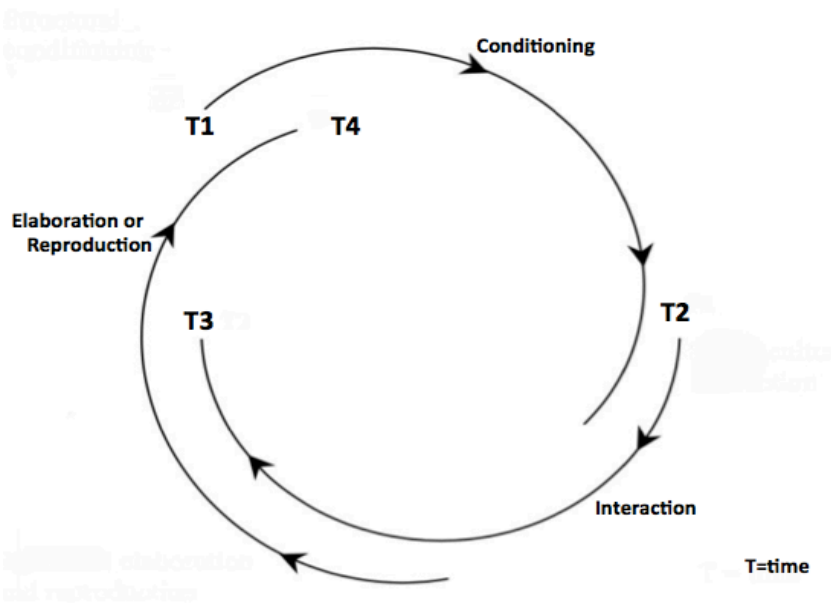


Figure 2: The three temporally-defined phases of the morphogenetic sequence (adapted from (Archer, 1995, p. 76; Crawford, 2009, p. 25)

According to Archer (1995), society is made up of structural and cultural emergent properties (SEPs and CEPs), or material and ideational emergent properties, that are mediated by people through their personal emergent properties (PEPs), and thus have causal powers. As mentioned earlier (2.2.3), while these emergent properties cannot be disaggregated to their constituent parts, they can be explained in terms of the distinction between internal and external relations (Sayer, 1992). Sayer explains:

Where objects are externally or contingently related they do not affect one another in their essentials and so do not modify their causal powers, although they may interfere with the effects of the exercise of these powers ... In the case of internally related objects ... emergent powers are created because [it] modifies their powers in fundamental ways (1992, pp. 80-81).

As structure, culture and agency are examined together within the same conceptual framework it is possible to analyse their relationship, which enables the researcher to determine when one exerts more influence over the other, and to account for how and why things have either elaborated (changed) or reproduced (stayed the same) in a particular context and within a given time frame. For the purposes of analysis, Archer's morphogenetic

framework enabled me to separately examine the impact of structural, cultural and agential conditioning (T1), as well as the social and socio-cultural interaction (T2–T3) and elaboration or reproduction of APD (T4) following the institution-wide introduction of digital technologies in the teaching–learning interactions at DUT. The following sections on the morphogenetic sequence (see Figure 3) detail the theoretical basis for tracing ‘the analytical histories of emergence’ (Archer, 1995, p. 194) via the three temporally-defined phases of the morphogenetic cycle, that is:

1. structural conditioning and cultural conditioning or T1,
2. social interaction and socio-cultural interaction or T2–T3, and
3. structural elaboration or reproduction and cultural elaboration or reproduction or T4 (see Figure 3).

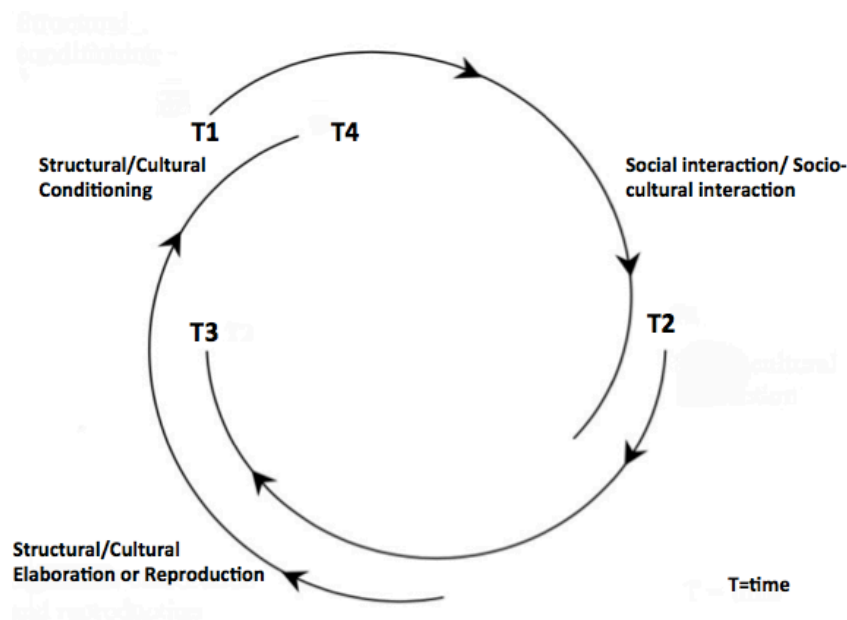


Figure 3: The morphogenetic sequence of structure and culture (adapted from (Archer, 1995, p. 193; Crawford, 2009, p. 25))

2.4.1 Structural conditioning and cultural conditioning: T1

The first phase of the morphogenetic cycle, or T1, is seen as ‘aggregate consequences of past actions’ (Archer, 1995, p. 90), a set of pre-existing structures and also shared meanings (Sayer, 2000) which effectively account for how the pre-existing structural and cultural influences shape the situations in which people (agents) find themselves.

Archer introduces the term *involuntaristic placement* to describe pre-existent systemic conditions, such as the position into which one is born or into which one enters, to explain how structure and culture condition or shape social contexts and thereby 'impinge upon us without our compliance, consent or complicity' (1995, p. 200). Moreover, conditioning takes effect through associating bonuses or penalties with different courses of action. In this study, the use of the institutionally-provided Learning Management System (LMS) was encouraged through the provision of incentives and other bonuses (see 5.2.1.1).

The morphogenetic approach guided me, as a researcher, to examine at T1, as the starting point of the study, the pre-existing conditions which were an outcome of past actions (Archer, 1995), by uncovering the foundational conditions behind the actual historical events (see Chapter 4). This helped me to examine and understand the prevailing structural and cultural conditions at DUT, from macro to micro contexts, that influenced agential actions, especially with regard to the introduction of digital technologies in the HE learning environment and the responses of academics to the institutionally-provided technology focused APD.

2.4.2 Social interaction and socio-cultural interaction: T2–T3

Social interaction and socio-cultural interaction, also referred to as T2–T3, is the second phase in the morphogenetic cycle. Archer explains how the prior distribution of life chances, resources and vested interests mediated to agents situationally at T1 impact on the decisions and actions taken by agents during the phase of social interaction. All interactions are thus 'processes of exchange and power [and] involve the use of resources, namely political sanctions, liquid assets and expertise' (Archer, 1995, p. 297). This varied distribution of vested (material) interests creates hierarchies of power. Archer presents three propositions relative to interaction and maximum access to the aforementioned resources (also referred to as first-order distribution of resources), enabling those in highly ranked positions generally to introduce the majority of changes. The three propositions are:

1. agents with low access to all resources will be in the weakest bargaining position;
2. agents with differential access to the various resources will be in a stronger bargaining position;
3. agents with high access to all resources will be in the best bargaining position (1995, p. 300).

Examining the interactions as processes of exchange and power, in this study, and tracing the bargaining power of those with access to resources proved useful in understanding how those in managerial and leadership positions at DUT were in the strongest bargaining positions to initiate change with regard to the institution-wide implementation of digital technologies and the containment of contradictions at DUT. By comparison, many academics responded involuntaristically, as primary agents, to the institution-wide introduction of digital technologies, while others, as corporate agents, although fewer in number, engaged in the decision making and implementation procedures within their areas of influence at DUT. Archer distinguishes between corporate agents as those who actively articulate their interests and negotiate societal transformations, and primary agents as those who show no capacity to organise strategically to bring about societal change, but 'rather [are] objects to whom things happen' (Archer, 1995, p. 260).

2.4.2.1 Situational logics

According to Archer, the cultural system at any given moment is the product of 'historical socio-cultural interaction' (2000, p. 173), and, as an emergent entity, it has properties of its own which have causal influence. Just as the social structure (described above) stands in a certain relationship to social interaction through external (contingent) or internal (necessary) relations, so too does the cultural system, which, as a 'property of the world of ideas' (Archer, 1995), places holders of different ideational positions in logical contradiction or complementarity to others. These relationships create four possible situational logics (see discussion of each and Table 2 on page 31) which predispose agents, by shaping their decisions and actions, to serve their interests through

different modes of interaction (protection, correction, opportunism or elimination) with other groups.

Archer particularly draws attention to the different ideational positions in contradistinction to the pervasive belief that culture is that which we hold in common, what she terms the ‘myth of cultural integration’ (1995, p. 214). Archer firstly differentiates between the logical relations of contradiction or complementarity of ideas, beliefs, values, and theories to those (ideas, theories, beliefs, etc) of others. In addition, she distinguishes between the logical relationships at the structural and cultural systemic levels, and highlights the impact of these at the level of socio-cultural interaction (see Table 2 below). In specific contexts, these relations and interactions make it possible for the researcher to uncover how the socio-cultural interaction has contributed to cultural stability and/or change. When there is a high degree of integration, morphostasis (stability) is likely, and when there is ‘mal-integration’, there is a higher tendency for morphogenesis (change) (Archer, 1995).

The four possible situational logics (each discussed briefly below), are invoked in a particular context and as such become the generative mechanisms for change (morphogenesis) or reproduction (morphostasis). The conditions for morphogenesis or morphostasis are explored further in chapter 5 (see 5.6).

	Contradictions		Complementarities	
	<i>Necessary</i>	<i>Contingent</i>	<i>Necessary</i>	<i>Contingent</i>
<u>Situational logic</u>	<u>Correction</u>	<u>Elimination</u>	<u>Protection</u>	<u>Opportunism</u>
CEPs: Cultural system	Syncretism	Pluralism	Systematisation	Specialisation
CEPs: Socio-cultural interaction	Unification	Cleavage	Reproduction	Sectionalism
SEPs: Structural system	Compromise	Competition	Integration	Differentiation
SEPs: Social interaction	Containment	Polarisation	Solidarity	Diversification

Table 2: Logical relationships at the structural and cultural systemic level and the impact of these on the socio-cultural level (adapted from (Archer, 1995, p. 303).

2.4.2.1.1 Opportunism – Contingent complementarity

A situation of contingent complementarity arises when the logical relations of two cultural ideas, beliefs, values and ideologies (for the purposes of clarity, A and B) are compatible but not dependent upon one another. Archer explains that these conditions ‘increase the opportunity for cultural free play’ (1995, p. 244) which results in cultural change and ideational innovation, presenting a situational logic of opportunism. In the context of this study, for example, the early volunteer phase of the Pioneers Online programme occurred in a situation of contingent complementarity. The absence of digital technology related institutional rules and requirements presented the volunteer academics with an unconstrained environment, unaffected by competition or existing ideas for the introduction of innovative teaching–learning practices at DUT. The result was that there were more choices, alternatives and ‘ideational opportunities’, creating systemic diversity and thus an environment conducive to morphogenesis, as discussed in 5.6.1.

2.4.2.1.2 Protection – Necessary complementarity (concomitant complementarities)

When the cultural elements (A and B) are in in a relation of necessary complementarity they are ‘mutually reinforcing, [and] mutually invoke one another and work in terms of each other’ (Archer, 1995, p. 219). Archer explains this as a relationship of high systemic integration which creates a *situational logic of protection*, creating a context in which everyone has something to lose from disrupting the existing flow within the cultural system. An environment focused on protecting the pre-existing relations is given to ‘ideational systematisation’ (Archer, 1995, p. 236). Moreover, because the existing relations are not challenged, the situation does not engender noteworthy ‘intellectual elaboration’ (Archer, 1995, p. 236). Archer uses the term ‘cultural embroidery’ (1996, p. 158) to describe the small variations that remain within the mainstream of ideas existing within the cultural system, effectively reducing systemic diversity. The resulting socio-cultural uniformity is conducive to morphostasis. Using the morphogenetic approach in this study, it was possible to identify a situational logic of *protection* in the established

volunteer phase of the introduction of digital technologies at DUT, as discussed in 5.6.2.

2.4.2.1.3 Correction – Necessary contradiction (constraining contradictions)

A situation of necessary contradiction arises when the relation between two elements within the cultural system are both necessary but are inconsistent. The situation necessarily requires a resolution through some type of correction, achieved through the redefinition of one or both cultural elements (A and B). Correction can thus take one of three paths toward sinking the differences (syncretism). First, B agrees to a correction so that it becomes consistent with A; second, A agrees to a correction so that it becomes consistent with B; and third, both A and B agree to correction so that they become mutually consistent. The analysis of data in this study indicated that there were two attempts to sink the differences between the institutional goal of a student-centred and innovative teaching and learning environment and the reluctance of academics to participate in APD for the integration of digital technologies in the teaching–learning interaction. These are discussed in 5.6.2.

2.4.2.1.4 Elimination – Contingent contradiction (competitive contradictions)

A situation of contingent contradiction occurs when the cultural elements (A and B) share the logical property of inconsistency and therefore cannot be upheld at the same time. However, as A and B are contingently related, and not dependent on each other, at the socio-cultural level it effectively presents a logic which forces people 'to make choices, by accentuating differences, by undermining indifference and by making the question of alignment problematic' (Archer, 2000, p. 176). The situational logic therefore is inclined toward elimination, particularly as the target of each element is to discredit the incongruent viewpoint and remove the inconsistency. During the early institutionalisation phase, in this study, a contingent contradiction was notable between those who were willing to participate in APD and others who were opposed to change.

2.4.3 Structural and cultural elaboration or reproduction: T4

Structural and cultural elaboration or reproduction, also referred to as T4, is the third phase in the morphogenetic cycle. As mentioned before, because structure, culture and agency are examined within the same conceptual framework, that is the M/M framework, it becomes possible for the researcher to ascertain whether the change (morphogenesis) or stability (morphostasis) characterising the structural and cultural domains are in agreement or at variance with one another (Archer, 1995). Furthermore, to avoid reification, Archer (1995) emphasises that, since it is agents that are the mediators of change and stability, it would be essential to understand the impact on agency of the possible conflictual or orderly relationship between the structural and cultural domains.

Regarding the interplay of structure and culture, as the cycles are relatively autonomous from one another, it is possible therefore that one domain may be advancing morphogenesis whilst another morphostasis (Archer, 1995). Following Lockwood (1964), Archer explains that, when there are discontinuities between the M/M cycles in the structural and cultural domains, while reciprocally influential, one domain is found to be more dominant than the other. Exploring the conditions under which the one domain exerts more influence than the other, Archer (1995) writes that there are four 'pure' combinations of conjunctions and disjunctions between the structural and cultural domains, although there is a greater possibility of cases that occupy in-between positions with regard to the combinations. In the next section, I briefly describe the four 'pure' combinations, which are elaborated upon and applied in the context of the study in 5.6.

2.4.3.1 The disjunction between cultural morphogenesis and structural morphostasis

The disjunction in this configuration, according to Archer (1995), presents a discontinuity between one powerful structural agent confronting a number of

corporate agents who have become culturally differentiated. In this particular combination, cultural morphogenesis is already underway while structure continues to remain morphostatic by resisting the attempts at changing the status quo, at first. However, given the relative autonomy of the cultural and structural domains, the ideational diversification continues with the development of new interest groups resulting in the elaboration of either pluralism or specialisation, which has an impact at the level of socio-cultural interaction. This differentiation and re-differentiation, a consequence of cultural change, effectively results in structural elaboration by giving rise to group differentiation. At the point of intersection between the structural and cultural domains, the 'established' corporate agents have the opportunity to evaluate the opportunity costs of retaining their past ideational commitments in the light of the presenting cultural alternatives, or pluralism. In the context of this study this is seen in the changes supportive of APD introduced by senior management at DUT (see 5.6.1).

2.4.3.2 The disjunction between cultural morphostasis and structural morphogenesis

In the event of a disjunction between cultural morphostasis and structural morphogenesis, Archer (1995) explains, the discontinuity is between, on the one side, a single powerful cultural agent and, on the other side, a number of corporate agents whose material interests have become structurally diverse. The cultural system remains highly systematised and protected by cultural power while, at the level of socio-cultural interaction, the absence of ideational opposition results in the reproduction of ideas amongst a unified group, retaining its culturally morphostatic character (Archer, 1995). By contrast, the structural system in this situation of disjuncture proceeds, independently of what happens in the cultural system, in the direction of change (morphogenesis) for a variety of reasons (be it for economic efficiency, survival, redress, amelioration, etc.). While those that are culturally powerful may initially try to hold sway and resist the structural changes, they often give in to the negotiating strength accompanying the material interest and status of

the powerful structural system. However, if the contradictions in the cultural system are discovered, the new interest group may work toward its counter-actualisation, presenting a competitive contradiction. The outcome is a new situational logic of elimination, with each side searching for a source of legitimation. Cultural elaboration will ensue, especially as the negative opportunity costs associated with the maintenance of the cultural status quo become apparent. Archer (1995) explains that, in this particular disjuncture, structural elaboration presents a stronger influence upon cultural elaboration than vice versa. However, she clarifies that, even when there is a stronger influence of structure on culture, there is always also a cultural influence on structure at the intersection of the structural and cultural systems. In the context of this study, this disjuncture is discussed in 5.6.2.

2.4.3.3 The conjunction between cultural morphogenesis and structural morphogenesis

In this configuration, both cultural morphogenesis and structural morphogenesis occur at the same time, although it is more likely to have commenced in the one domain before a morphogenetic change sets in in the other domain. This conjunction occurs through a 'high level of interaction between differentiated interest groups, seeking structural and cultural advancement respectively' (Archer, 1995, p. 319). The mutual influence across the intersection and the alignment of the cultural diversification with the structural differentiation, both of which are morphogenetic, reinforce one another. Thus the social interaction at the social systemic level and the socio-cultural interaction at the level of the cultural system reinforce one another, after a phase of intense competition, diversification and reorganising in both domains. The outcome, according to Archer, is 'dependent on the resources and the relations of the social groups in the interaction' (1995, p. 322), as well as the ideas endorsed by the successful groupings and effecting a particular situational logic that will impact on the subsequent morphogenetic cycle. A conjunction of this nature in this study is detailed in 5.6.3.

2.4.3.4 The conjunction between cultural morphostasis and structural morphostasis

According to Archer (1995), the conjunction between cultural morphostasis and structural morphostasis is dependent upon specific states occurring simultaneously in both cultural and structural domains. On the one hand, when there is ideational systematisation and the hegemonic reproduction of ideas at the cultural systemic level, this is evidenced in the reproduction of ideas at the socio-cultural level, also referred to as cultural morphostasis. Structural morphostasis, on the other hand, is the outcome of a powerful form of social organisation with access to adequate resources to curb opposition, thus making it possible for the social structure to be perpetuated. The mutual influences of the two domains, Archer explains, is one of complete reciprocity, effectively working toward the maintenance of the status quo in both domains. Although the conjunction of structural morphostasis and cultural morphostasis is conducive to maintenance in both fields, it does not necessarily mean that morphostasis is eternal, but rather that change would eventuate after a longer period of time with the eventual emergence of disjunctions in the two domains.

In the next section I focus upon agential mediation of the presenting situational logics in both the cultural and structural domains.

2.5 Mediation through human agency

Archer explains that the morphogenetic cycles which intersect at the middle element, that is at the level of social interaction and socio-cultural interaction also referred to as T2–T3, are interrelated precisely because ‘all generative mechanisms are only influential through people’ (Archer, 1995, p. 193). She writes:

...it is by virtue of the relationship of compatibility or incompatibility between the ‘projects’ [goals / specific agential enterprises] of the people and the generative powers of the ‘parts’, which make up their environment, that the latter exerts a conditional influence upon the former (Archer, 1995, p. 198).

In the context of this study, examining the agential mediation of structural inconsistencies (see 5.3) and cultural inconsistencies (see 5.4) related to the institutional goals enabled me as researcher to identify conditions that contributed to the same learning environment being experienced by some academics as enabling and by others as constraining. These conditions could be traced to have evoked particular situational logics that possibly shaped the decisions and actions of the academics with regard to their decision to engage in digital technology focused APD at DUT.

As mentioned earlier, Archer describes the emergence of agency as ‘the end-product’ of the double morphogenesis in which ‘collectivities of human beings are grouped and re-grouped’ (1995, p. 225) as they contribute to the process of change in the structure and culture of society. Also, to repeat, Archer makes a further distinction between corporate agents, who actively articulate their interests and negotiate societal transformations, and primary agents, who show no capacity to organise strategically to bring about societal change, but ‘rather [are] objects to whom things happen’ (Archer, 1995, p. 260). The process which increases the number of corporate agents (see Figure 4) is influenced by the conjunctions and disjunctions between the morphostasis and morphogenesis in both the structural and cultural domains, as described above (see 2.4.3).

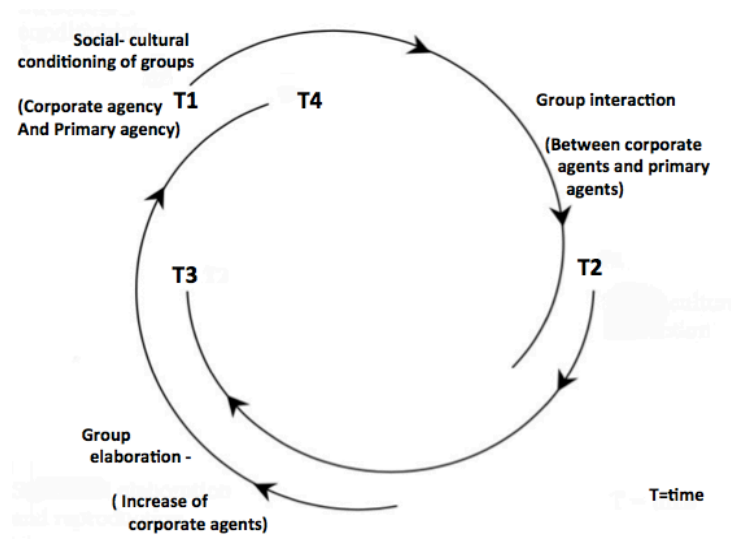


Figure 4: The morphogenetic sequence of agency (adapted (Archer, 1995, p. 264; Crawford, 2009, p. 25))

The next section focuses on the second theoretical influence on this study, Margaret Archer's (2000) conception of the three orders of reality.

2.6 The three orders of reality

According to Archer, our commitments are 'constitutive of who we are, and an expression of our identities' (2000, p. 4). Moreover, it is our 'inner conversation' (Archer, 2000, p. 318) that is central to who we are and the choices we make with regard to our ultimate concerns.

In this study I used Archer's (1995) morphogenetic sequence of agency, which focuses on the social identity of agents and examines their contribution as social beings to social reproduction or transformation, as well as her explanation of the three orders of reality, which examines what we care about most and commit ourselves to as individuals (Archer, 2000, p. 249). According to Archer, the emergence of the personal identity (PI) of agents is derived from their interactions with the world, and its natural, practical and social orders (2004). The PI is shaped by the balance that is struck (in each of the three orders simultaneously, as discussed below) between our concerns and the unpredictable reality (natural, social and practical), as our way of living in the world, or *modus vivendi* (2000, p. 238). A different type of concern arises from each of the three orders of reality (see Table 3). While concerns in the natural order are about physical well-being and our relations with the natural world, concerns in the social order are about self worth and our relations with others, and concerns in the practical order are about performative competence (Archer, 2000).

Archer's (2000) explanation of the three orders of reality helped me to categorise and understand the 'ultimate concerns' of the academics and how they prioritised certain concerns over others in the choices they made regarding their participation in technology focused APD. Archer explains:

...it is ultimately the person who determines where the self-worth, that he or she derives from their social roles, stands in relation to their other commitments in the world as a whole (2000, p. 12).

ORDERS	CONCERNS	EVALUATIVE IMPORTS	EMERGENCE FROM
Natural order	Physical well-being	Visceral	Body-environment relations
Social order	Self worth	Normative	Subject-subject relations
Practical order	Performative achievement	Competence	Subject-object relations

Table 3: The emergence of emotions (adapted from (Archer, 2002; Williams, 2012))

Using Archer’s proposition of ‘emotions as commentaries on human concerns’ (2000, p. 193), I examined the interview data to trace the ‘ultimate concerns’ (Archer, 2000, p. 230) of the research participants in a set of three continua of emotions. In the context of this study, in the natural order of reality, a continuum of emotions from fear to excitement linked to concerns about physical well-being; in the social order of reality, emotions ranged from apprehension to collegiality; and in the practical order of reality, concerns that reflected the competence value of the APD programme ranged from futile to beneficial. This is discussed in greater detail in Chapter 5 (see 5.4).

The examination of personal concerns and choices of the academics using the three orders of reality provided clarity on the personal choices of the academics with regard to their participation in digital technology focused APD. The data analysis using the both morphogenetic framework and the three orders of reality indicated significant patterns of preferences and distinct trends in the choices made by the academics at DUT.

2.7 Legitimation Code Theory

A third theoretical influence, introduced later in the course of the study to enable a fine-grained analysis of the significant patterns of preferences with regard to APD that emerged in the findings, was the specialisation dimension of Maton’s (2006) Legitimation Code Theory (LCT).

As described earlier (2.2.1), a realist view of knowledge holds that knowledge can be studied and analysed, and its effects on social reality can be explored by looking '*transfactually*' beyond the surface at conditions which operate independent of any particular sequence of events. Maton (2014, p. 2) draws attention to the knowledge paradox in contemporary society. Although knowledge is acknowledged to be central to modern societies, most explanations of social change, he argues, lack a theory of knowledge. Similarly, sociological research on education is often focused on the processes of learning, leaving the forms of educational knowledge, and their possible impact on educational experiences and outcomes, largely unexamined. This shortcoming, in Maton's words, has resulted in a 'knowledge-blindness'. Recent research examining differences between technology integration in subject areas revealed that existing studies predominantly focused on pedagogical beliefs, content knowledge and teaching strategies, overlooking significant differences in the forms of knowledge between the subject areas (Howard, Chan, Mozejko, & Caputi, 2015).

LCT diversifies the theories within the sociology of education by analysing both 'relations to' knowledge practices (such as gender, social class, ethnicity) and 'relations within' knowledge practices (examining the intrinsic features of knowledge practices), and provides a conceptual toolkit that can be used in research to look beneath the surface features of empirical situations to explore the properties, powers, and different forms of knowledge structures and their organising principles.

2.7.1 Specialisation codes of legitimation

According to Maton, the concept of specialisation codes is based on the premise that 'practices are about or oriented toward something and by someone' (2014, p. 12). Maton draws and builds on Bernstein's (1999) concepts of horizontal and hierarchical knowledge structures, and proposes that for every knowledge structure there is also a knower structure (2014, p. 72). Maton also extends Bernstein's (1999) concepts of classification,

denoted as +C/-C for strong or weak boundaries, and framing, denoted as +F/-F for strong or weak locus of control. In LCT, knowledge structures refer to stronger or weaker relations between practices and their object or focus, as in classification. This is denoted as stronger or weaker epistemic relations (ER+/-). Knower structures refer to stronger or weaker relations between knowledge and its authors or subjects, as in framing. This is denoted as stronger or weaker social relations (SR+/-) in LCT. Maton explains that the two co-existing but analytically distinct sets of relations 'enable knowledge practices to be seen, their organising principles to be conceptualised, and their effects to be explored' (2014, p. 3). Intellectual fields can thus be represented not only by hierarchical and horizontal knowledge structures, but also by hierarchical and horizontal knower structures. These can be mapped onto a cartesian plane to represent the four specialisation codes of legitimation. These are: knowledge code (ER+,SR-), knower code (ER-, SR+), elite code (ER+, SR+) and relativist code (ER-, SR-), as can be seen in Figure 5. Maton refers to these knowledge-related practices as claims. These claims, he writes, can be portrayed as 'languages of legitimation' as they 'represent the basis for competing claims to limited status and material resources within education' (Maton, 2010, p. 37).

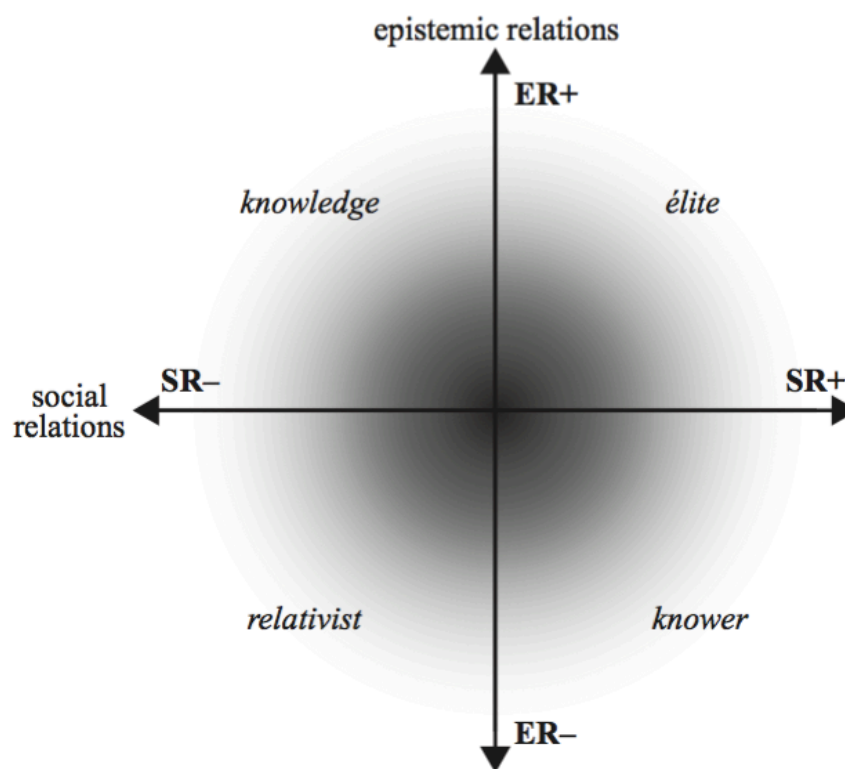


Figure 5: LCT Specialisation plane (Maton, 2014, p. 30)

LCT(Specialisation) provided the conceptual tool to examine the generated data (see 3.7) to identify the different knowledge and knower structures of the practices of the research participants in their academic disciplines. An emphasis on discipline-specific knowledge as the basis of achievement was identified as a *knowledge code* (ER+/SR-), and an emphasis on the attributes of the knowers as the measure of achievement was identified as a *knower code* (SR+/ER-). An emphasis on both discipline-specific knowledge and the right kind of disposition and attributes was identified as an *élite code* and, where neither the right kind of knowledge nor disposition was emphasised as the basis of achievement, a *relativist code* was identified. Comparing the specialisation codes of legitimation of the disciplines with the specialisation codes of the APD programmes equipped me to identify code matches and code clashes, which are discussed further in the analysis of findings (see 5.5.2) and provide possible suggestions for the design of APD programmes in the future (see 6.3).

2.8 Conclusion

In summary, I selected as the analytical foundation for this case study Archer's (1995) morphogenetic approach, concurring with her emphasis on *verstehen* or understanding rather than prediction. Archer explains that:

... in the open system, which is society, the reason why things are so and not otherwise can rarely be answered by reference to the untrammelled workings of some generative mechanism. If by chance this is the case on one occasion, then the chances are very high that it will not be on the next, which is why sociology should cede claims to prediction (1995, pp. 326-327).

In this chapter I have discussed key aspects of Archer's social realist theory and outlined the morphogenetic approach which I used as an analytical tool to understand, for the given time-period of the study, the cultural, structural and agential conditions that enabled or constrained lecturers' participation in technology focused APD at DUT. Archer's morphogenetic framework, underpinned by the stratified ontology of critical realism, and the tenet of analytical dualism of Realist Social Theory, provided me with a framework to

examine the underlying, often invisible, causal structures contributing to the participation or lack of participation by academics in institutionally-provided APD programmes.

The morphogenetic framework guided the examination of conditions that enabled and constrained APD for the integration of digital technologies at DUT, in the first place exploring, at the level of first-order emergents, the distribution of resources, social structures, institutional systems and roles. In the second place, the situational logics (at the societal level) and the three orders of reality (at the individual level) facilitated the analysis of cultural and structural relations of compatibility or incongruence resulting in either frustrating or rewarding experiences for the academics. Finally, it enabled advancing possible reasons for the change or reproduction in APD by investigating the impact of the conjunctions and disjunctions between the cultural and structural domains on the choices academics made with regard to digital technology focused APD at DUT.

The addition of LCT(Specialisation) as a further analytical tool enabled a fine-grained analysis of patterns in the data. The LCT(Specialisation) concept of knowledge and knower structures was used to identify the discipline-specific knowledge organising structures, and facilitated the identification of the basis of achievement in the different disciplines as well as the APD programmes.

CHAPTER 3: METHODOLOGY AND RESEARCH DESIGN

'Method' suggests a carefully considered way of approaching the world so that we may understand it better (Sayer, 1992, p. 8).

3.1 Introduction

In this chapter I describe the methodology and research design for my study. As explained in the previous chapter, CR serves as the meta-theory for this study, which examines what it is that enables and constrains APD for the integration of digital technologies in teaching–learning interactions at DUT. I begin by focusing briefly on the methodological implications of the CR underpinning of this study and then detail the research design.

3.2 Methodological implications of a CR study

To review briefly, Danermark et al. explain that adopting a CR view of a stratified social reality implies that the events we can observe are an outcome of 'a complex combination of the influences from different mechanisms, some reinforcing each other while others counteract each other's manifestations' (2002, p. 203) (see Figure 1 in Chapter 2). To understand what it is that produces social phenomena (events), that is, to develop a causal analysis, requires looking beyond appearances and events. This is done via 'thought experiments' (2002, p. 204), or conceptual abstractions through different modes of inference (explored below), and data-supported evidence to understand what it is that produces the reality we encounter. Danermark et al. (2002) argue that the main task of social research is the explanation of social phenomena by bringing to light the causal mechanisms which produce them.

A realist approach has made this study different from traditional educational technology related research that has largely relied on empirical research focused on technology utilisation as a tool for addressing challenges in teaching and learning (Culp, Honey, & Mandinach, 2005). This research is often reliant on periodic and large-scale surveys (Cuban, 2001). While surveys generally provide statistical data which indicate, amongst other things, levels of technology utilisation or underutilisation, they do not examine how things really

are at a deeper level, exploring the interaction between structures that are capable of producing certain events (Bygstad & Munkvold, 2011). Research on educational technology has been known to concentrate largely on successful and proficient users rather than the majority who do not use technology (Zhao & Cziko, 2001). There are also many studies that explore the future 'potentials' of internet-based education in higher education (Selwyn, 2010b). The research perspectives described above focus largely on the measurable and explicit, or the futuristic and predictive. In contrast, the aim of my study was to identify underlying, often invisible, causal mechanisms that explain an existing phenomenon, the conditions that enabled or constrained APD.

3.2.1 A process theory approach to causation

Maxwell (2004; 2012, p. 34) identifies two distinct views of causation, the variance theory approach and the process theory approach. The regularity view of causality, involving precise measurements of differences and correlations, is characteristic of the variance theory of causation. This view concurs with the Humean perspective that, if two events occur in sequence regularly, then the one is said to account for other, also referred to as a 'constant conjunction' of events. By comparison, the process theory view of causation concurs with a critical realist approach to causation (detailed in Chapter 2), and deals with events and processes that connect them, and is based on an analysis of the processes by which some events influence others causally.

The research design of this study was guided by Maxwell's (2012) process theory approach to causal explanation. This approach was suited to this single case study as it justifies identifying causation without the need for control groups or formal pre/post comparisons. Essentially, it promotes identifying causal mechanisms that go beyond association and are supported by evidence. Losifides describes qualitative methods as 'methods of *intense engagement* with social reality' to identify the workings and interplay of causal powers through 'the *“art” of connecting rather than conflating*' (2011, pp. 12, emphasis in original).

In planning the gathering, generating and analysis of data for this study, I took particular note of Maxwell's (2012) advice that the observation and analysis of social processes requires a skilled analysis of 'rich' data, which is detailed and varied, in order to provide a substantive and perceptive picture of what is going on both physically, psychologically and socially. Maxwell explains that 'for the social sciences, the social and cultural contexts of the phenomenon studied are crucial for understanding the operation of causal mechanisms which produce them' (2012, p. 40).

Because CR is compatible with a variety of research methods (including empiricist methods), the choice of research method is dependent on the nature of the object of study (Sayer, 2000). As this study was focused on causal significance as opposed to statistical significance, it was better suited to what Sayer describes as an '*intensive research design*' (1992, p. 163), which has interpreting meaning in context as its main purpose. This approach tends to be very time-consuming, and is therefore necessarily limited to a small number of cases. In the next section, I focus on the qualitative case study method.

3.3 Case study research

The study took the form of a single-institution case study. Yin describes case study research as an empirical inquiry which acknowledges contextual conditions. A case study focuses on a contemporary phenomenon within a real-life context, and the boundaries between the phenomenon and its context are not clearly evident (2003, p. 18). Moreover, the case study research method recognises intensive descriptions and analyses of phenomena in their natural settings for scientific purposes (Flyvbjerg, 2011). I selected this research method because it allowed me as researcher to get a 'close and detailed view of the social phenomenon' (Blaikie, 2010, p. 196). It allowed me to uncover causal processes through the collection of data involving multiple sources of information. Furthermore, the case study approach was compatible with the theoretical framework for this study. It enabled me to gather data, and analyse and understand the interplay of the parts (structural and cultural) and the people (agential) in an attempt to identify the causal generative mechanisms at work that enable and constrain academic staff participation in

digital technology focused APD. While the case study research method has been recognised for its capacity to cope with the 'complexity and embeddedness of social truths' (Cohen, Manion, & Morrison, 2007, p. 256), it has also been criticised for its findings not being generalisable and its susceptibility to observer bias. Both these criticisms are dealt with later in this chapter (see 3.8: Ensuring the value of the research process).

Easton's (2010) three-stage guideline to a critical realist case method was influential in the design of this study. The first stage focuses on the development and identification of a research phenomenon of interest in terms of discernible events, and asks what causes the events associated with the phenomenon to occur. For this study, I identified the research phenomenon of interest as the participation (and non-participation) of lecturers in APD programmes for the integration of digital technologies in teaching and learning interactions. The unit of analysis for the case study thus was academics at DUT.

The second stage, according to Easton, concentrates on identifying the key entities that characterise the phenomenon being studied, 'their powers, liabilities, necessary and contingent relationships' (2010, p. 128), and constantly asking 'what caused the events associated with the phenomenon to occur' (2010, p. 123). For this study, key entities comprised of the research site, the Durban University of Technology (DUT), the e-Learning unit, and purposively selected academics from the six academic faculties situated across the multiple campuses of the university. Participant selection and data gathering began following the approval of the research proposal at Rhodes University and approval to conduct the research at DUT.

Easton (2010) describes the third stage in the case study process as 'data collection', highlighting the importance of variety in the types of data collected. The next section details the selection of research participants, followed by a description of the gathering, generating and capturing of data related to ongoing and past events, followed by data analysis.

3.4 Participant selection

Participant selection for this study was purposive. Maxwell (2009) cautions against making sampling decisions in isolation from the rest of the research design. While my position as educational technologist engaging in research at my own institution presented methodological and ethical challenges (see 3.8.1.2), it also enabled me to identify possible research participants representative of the diversity in responses and attitudes toward APD for the use of digital technologies at the institution. I began by requesting from the educational technologists at DUT (where I am one of three educational technologists) the names of at least four possible participants from each of the six academic faculties at DUT.

I selected maximum variation sampling which would 'ensure that the conclusions adequately represent the entire range of variation rather than only the typical members or a subset of this range' (Maxwell, 2009, p. 235). Maximum variation sampling allowed me to include both extreme and typical cases with regard to levels of participation in APD programmes (see Appendix 11). This information was gained via an online survey that was administered to the set of twenty four possible participants as recommended by the three educational technologists. It was also fundamentally important to ensure that academics from all six faculties at the university were equally represented (see demographic details of participants in Appendix 1).

Deciding on the appropriate number of research participants was difficult at first. There were two influential factors that helped me arrive at a decision with regard to the number of participants. Firstly, Mason (2010) explains that, in a qualitative study in which the focus is more on 'making meaning' rather than generalised hypothesis statements, one occurrence in the data set is potentially as significant as numerous occurrences. A second influential factor was that of data saturation in qualitative research, which is explained as having reached a point in data generation where you are hearing the same information over again (Maxwell, 2009). I therefore selected a first group of twelve academics, with a proviso that a second group of twelve academics

would be contacted and interviewed, pending the absence of data saturation in the preliminary analysis.

I telephonically contacted twelve academics [two academics from each of the six faculties: the faculty of arts and design (FAD), the faculty of accounting and informatics (FAI), the faculty of applied sciences (FAS), the faculty of engineering and the built environment (FEBE) the faculty of health sciences (FHS) and the faculty of management sciences (FMS)]. I provided a brief description of the study in our conversation, explained the anticipated role of the participants and concluded by requesting their permission to send to them, via email, further details and an invitation to participate in the study (Appendix 2). I took special care in explaining the purpose of the study as an exploration of the conditions that enabled and/or constrained their participation in APD programmes, and emphasised that the purpose was not an evaluation of the e-Learning focused APD programmes offered by DUT. Following the confirmation of their interest in participating, I conducted, via the institutional learning management system, a preliminary survey of participant details, which enabled me to record the necessary demographic details (Appendix 1) and particulars regarding their familiarity with and use of pedagogically-focused digital technologies. The survey included details of their participation in professional development opportunities. Subsequent to this, a mutually agreeable time was arranged for a sixty-minute interview.

In addition to the twelve academics, research participants at the level of senior management at DUT⁶ included the Vice Chancellor and Deputy Vice Chancellor (academic), The Director of the Centre for Excellence in Learning and Teaching, and the e-Learning project manager. Two of the three educational technologists and the learning management system administrator from the e-Learning unit at DUT were also interviewed.

⁶ As this study was part of an eight-institution study on APD, funded by the National Research Foundation, the dataset for this study included the transcriptions of interviews conducted with members of senior management in November 2012 for the institutional case study on APD.

3.5 Generating data

This section details the kinds of data included in this study, as well as methods of collecting, recording and reducing data. Generating data for this study, I followed Yin (2003), who emphasises the need for meticulous data collection with carefully articulated steps, the use of multiple sources of evidence, an information database, and the maintenance of a chain of evidence as critical facets of a well planned case study. Data for this case study was gathered and generated primarily from institutional data and interviews, as is detailed in Figure 6 below.

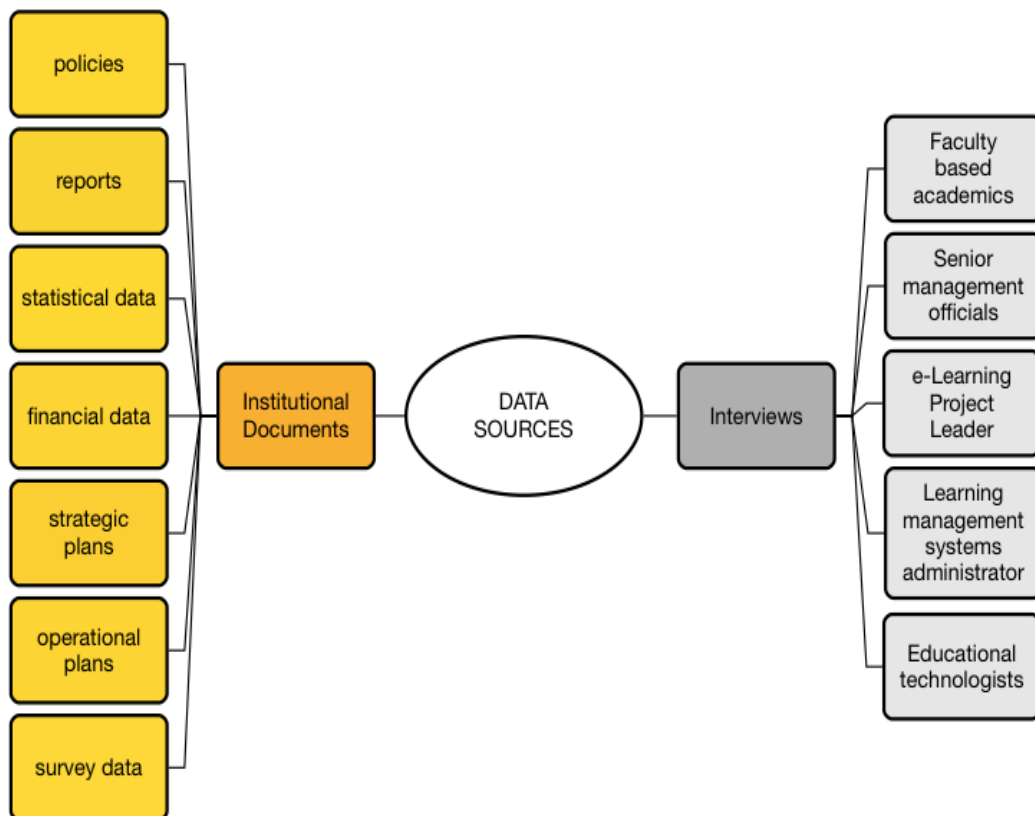


Figure 6: Data sources

3.5.1 Document-based data gathering

In gathering document-based data, Prior encourages researchers to see documentation as ‘a key component of dynamic networks’, rather than the conventional understanding of document-based data gathering as sources of social scientific evidence, and ‘receptacles of inert content’ (2008, p. 821).

Significantly, document-based data gathering provided a means of improving my understanding of the situational context by making it possible for me to compare the research participants' interpretations of events with those recorded in documents. Similarly, Corbetta describes documentary data as a 'trace of [that] culture' (2003, p. 296) that enables the researcher to situate contemporary accounts within a historical context, while May describes documents as comprising of information regarding social relationships and positions of influence and power in the period to which they refer (2011).

I began by gathering institutional data for the purpose of learning about the historical and current cultural and structural conditions that continue to influence the decisions of academics regarding participation in APD (see Figure 7 below). Data was gathered from institutional documentation including surveys and policies relating to academic staff development for the use of digital technologies at DUT. I selected a range of relevant institutional policies, and institutional strategy documents related to the introduction of digital technologies in teaching and learning as an institutional imperative. Also included were institutional surveys conducted to determine the status of e-Learning as well as faculty-based professional development needs analysis surveys (in some faculties), which provided valuable data and a strong basis to acquaint myself with the situational context. A selection of council communiques as well as the Vice Chancellor's email communications to the academic community at DUT were also included as part of the data collection.

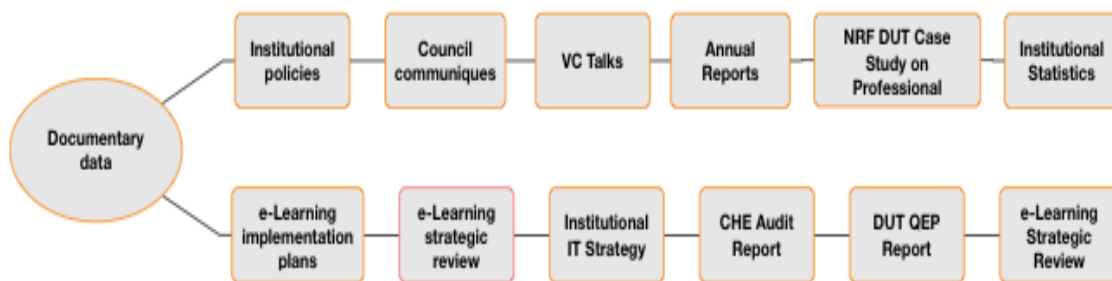


Figure 7: Institutional data gathering

The sampling and selection of documents is highlighted by Flick as 'constructing a corpus of documents' (2009, p. 259). The documents selected

in this study represented a unique ‘version of realities constructed for particular purposes’ (ibid), and were seen as a way of contextualising information. As this study followed the institution-wide introduction of digital technologies as a teaching and learning imperative, the institutional documents provided insights into the ‘structures and processes’ set in place to reinforce certain routines and practices and legitimise certain shifts in practices. In following Flick’s (2009) advice on the practicalities of using documents as data, I was aware not only of the presence or absence of certain documents, but also of who produced a particular document, the purpose it was meant to serve, and who used the documents in their original context.

The examination of powers, liabilities, and necessary and contingent relations, as mentioned previously by Easton (2010) (3.3 above), was made possible via the examination of institutional documentation in conjunction with the data generated via interviews conducted with administrators, managers, academics, educational technologists and technical support staff at DUT. The following section focuses on generating data via individual interviews (see data sources, Figure 6 above).

3.5.2 Designing the interview questions

According to Smith and Elger (2014), for interviews to ‘yield insights’ into the questions posed by the study, the interchange between the interviewer and interviewee needs to be guided by an analytical framework. The framework, they explain, should guide questions and suggest probes and directions for further discussion to ‘enhance the depth, texture and complexity of the accounts being developed’ (2014, p. 15). The interview questions for this study (see Appendix 3) were structured and analysed following the five principles of tracing ‘the different layers of social reality’ suggested by Pawson and Tilley (1997, p. 64). The principles (described on page 54) helped me to explore, following Archer’s (1995) morphogenetic sequence (see Figure 3, Chapter 2), the interplay between structural, cultural and agential conditions which enabled or constrained APD for the integration of digital technologies in teaching–learning interactions at DUT. Questions were designed to enable the exploration of:

1. *Embeddedness* – eliciting responses that would provide data regarding in-built assumptions about a wider set of social rules and institutions. Pawson and Tilley (1997) explain that the causal powers reside not so much in the object, e.g. the Learning Management System, but in the social relations (such as the learner and academic relationship) and organisational structures (such as the structure of the learning institution). They explain that one action leads to another because of their accepted place in the whole.
2. *Mechanisms* – looking at the stratified layers of reality to identify the generative mechanisms by looking ‘beneath their surface (observable) appearance and delving into their inner (hidden) workings’ (Pawson & Tilley, 1997, p. 64); and looking beyond variables and correlations of a regular occurrence, within ‘the wider network of social processes’ to explain how the ‘association itself comes about’ (Pawson & Tilley, 1997, p. 67).
3. *Contexts* – exploring a number of hypotheses which would assist in assessing which of the pre-existing structures either enable or constrain the change that is preferred and promoted.
4. *Regularities* – developing propositions, albeit fallible, about the interplay of structure, culture and agency, resulting in non-predictable but explicable outcomes of a particular mechanism and context that could possibly cause the regularity.
5. *Change* – examining the mechanisms of change, focusing on how they counteract existing social processes, if at all.

As an interview technique, I selected semi-structured depth interviewing as it allowed me to ‘[make] meaning with another ... listen intently and hear meaning in another’s words, silences, and postures’ (Mears, 2009, p. 20). This enabled me to better understand the experiences and thinking of others with regard to the point of interest of my study. Wengraf describes the semi-structured interview as ‘a type of conversational face-to-face interaction’ (2001, p. 5) in which a number of questions are planned in advance and are designed

to be 'sufficiently open' to allow the interviewer to improvise further questions following the responses of the interviewee 'in a careful and theorised way' (ibid).

While designing interview questions I was cautious about leading questions that could possibly contaminate the responses of interviewees. I was vigilant about not communicating my preferences and expectations to the research participants. To test for a logical connection between research questions and interview questions in the design of the research questions, I requested the help of an academic, to participate in a pilot-test interview and to share her experience of the interview with me as a critical friend. This was a useful exercise following which I was able to make numerous changes in my approach as interviewer.

The face to face interviews with five members of senior management at DUT, which included the Vice Chancellor, the Deputy Vice Chancellor (academic), the Director of the Centre for Excellence in Learning and Teaching, and the Deans from two academic faculties, were conducted in 2012 as part of the national study on professional development, which this study is part of (see 1.2, Chapter 1). The interviews with twelve academics, two educational technologists, the LMS systems manager and the e-Learning project co-ordinator, which lasted between 60 to 80 minutes each, took place between November 2014 and April 2015. These were audio-recorded and later transcribed, some with the help of a transcriber. In the next section I describe key issues anticipated and encountered during the interviews. How the interview data was analysed will be discussed in more depth hereafter in 3.6.1 and 3.6.2 (below).

3.5.3 Conducting the interviews

Conducting research at the same institution where I am employed as an educational technologist raised numerous ethical issues. While the ethical issues are discussed later in this chapter (see 3.8.1.2), in this section, I describe the measures taken prior to the interviews with work colleagues to reduce the effects of my position as 'insider researcher' (Trowler, 2011) and

the possibility of 'informant bias' (Mercer, 2007a). Following a few moments of 'small talk' to relieve the pre-interview apprehensiveness, I requested that as far as possible, for the duration of the interview, my identity as a colleague and educational technologist be secondary to that of researcher. It was hoped that this might help to mitigate against the possible effects of the interviewees being aware of my preferences and inclinations, advocating the use of digital technology in higher education, and tailoring their responses accordingly. I further highlighted the study as an exploration of the conditions that enabled and/or constrained their participation in the institutionally-provided APD programmes, stressing that it was not an evaluation of any institutional APD programmes they may have participated in. The research participants were reminded that they were at liberty to choose not to answer a question and, should they so wish, they could disassociate themselves from the study, without fear of consequences. This was reinforced by the necessary formality of requesting their permission to audio-record the interview and signing the consent form following a brief explanation of the purpose of the study. I reassured interviewees that I would take greatest care to ensure that their contributions would not be traceable back to them (see consent form, Appendix 4). I explained that I would send to them via email a copy of the findings (with relevant sections highlighted) which could be edited to meet with their approval, as respondent validation (Maxwell, 2009) or member checking (Lincoln & Guba, 1985).

A second anticipated concern was that of 'consistency of [the] process' (Seidman, 2006, p. 115). I began each interview with the same point of departure, referring to the information shared with me electronically by the participant via the preliminary survey of participant details. The first question was by design one that participants could answer easily to establish a relaxed and conversational atmosphere. It was anticipated that with some questions probes would be needed when more depth or detail was required. A further challenge was to ensure that all the questions were dealt with, maintaining a conversational mode, in the time allocated for the interview. Although I had designed an interview schedule (see Appendix 3), which included an approximate guideline of time to spend on each question, this was not easily

achieved. Particular care had to be taken to keep 'on track' and to ensure that participants were politely returned to the research issues during the interview. I concluded the interviews with expressions of gratitude and requested permission to contact the participants via email should there be need for clarification or more information.

3.6 Data analysis

Maxwell (2009) advises that decisions regarding data analysis planning 'should influence, and be influenced' by the rest of the research design. As a realist study, data was understood to be

... usefully seen, not simply as 'texts' to be interpreted, or as the 'constructions' of participants, but as *evidence* for real phenomena and processes that are not available for direct observation. These data [could be] used to make *inferences* about these phenomena, which [could] then be tested against additional data (Maxwell, 2012, pp. 103, emphasis in original).

Data analysis for this study began with a 'soft-focus [wide-angle] analysis ... to allow data to speak on its own terms' and allowed me a space for early-researcher insights (Maton, Martin, & Matruglio, 2016, p. 103).

3.6.1 Categorising strategies

Next, I began by open-coding the interview transcripts. Maxwell (2009) proposes three types of categories during coding, that is, organisational, substantive and theoretical, to enable 'a categorising analysis'. The categorising is understood to allow comparison between things in the same category and between categories, and to generate themes. For data categorisation of interview data, I created several *organisational categories* (see Figure 8: Coding categories created in NVivo). Guided by the research question, the two dominant organisational categories were: constraining conditions and enabling conditions with regard to APD.

- Name ^
- Causation
 - ▼ ● Conditions
 - ▶ ● Constraining Conditions
 - ▶ ● Enabling conditions
 - Personal reasoning and decisions
 - Social relationships
 - ▶ ● Technology and pedagogy
 - ▶ ● DUT
 - Emergence
 - Events
 - Interplay
 - LCT
 - ▼ ● Morphogenesis_Morphostasis
 - ▶ ● Agency
 - ▶ ● Culture
 - ▶ ● Structure
 - ▶ ● Pawson's five principles
 - ▶ ● situational logic
 - T Academic Staff
 - ▶ ● XManagement
 - ▶ ● Y Ed Technologists and Technical Support

Figure 8: Coding categories for the analysis of interview data

The organisational categories helped me to sort the data systematically. This was especially useful during analysis in enabling retrieval of data which was non-linear and occurred simultaneously with data collection over an extended period of time. *Substantive categories*, such as APD design, negative sentiment, voluntary participation, and others which are contextually-based and primarily descriptive, emerged (as in open-coding) during the process of coding (see Appendix 5 and Appendix 6 for an extended list of NVivo nodes). In this category I was able to code data related to the participants' impressions and beliefs regarding APD, infrastructural concerns, etc. Key to the analysis were the *theoretical categories* such as morphogenesis and morphostasis, as well as agency, culture and structure, which are discussed in more detail in the next section on connecting strategies of data analysis.

3.6.2 Connecting strategies

Maxwell explains that connecting strategies of data analysis ‘attempt to understand the data in context’ (2009, p. 238) rather than fracturing the data as in categorising strategies, which are frequently decontextualised. To ‘connect’ the data, that is the interview transcripts and the institutional documents, I used Fairclough’s (2001) critical discourse analysis (CDA) as an analytical tool. Fairclough explains that texts are involved in processes of ‘meaning making’ through which texts bring about changes in our knowledge, beliefs, attitudes and values (2011). He identifies languages as social structures, and texts as social events, while the language aspect of social practices is referred to as an ‘order of discourse’ (2011, p. 120).

Instead of a close scrutiny of texts, as in discourse analysis, for the analysis of interview data I concentrated on dominant, different and competing discourses, and on connecting these to events and processes described in the institutional documentation. I was then able to explore these as possible causal mechanisms enabling or constraining the participation of academics in APD for the integration of digital technologies in teaching–learning interactions in higher education. This was done using CDA to consider questions (adapted from Fairclough, Jessop, & Sayer, 2004, p. 31) such as:

- Which discourses are prevalent in digital technology related APD for the integration of digital technologies in teaching–learning interactions in higher education?
- Why are certain discourses privileged over others in APD?
- How does the structure and culture of the institution influence which discourses are privileged and which are not?
- How do the discourses of agents in positions of power in the institution influence discourses?
- How are some of these discourses inculcated as identities of social agents (e.g. ways of talking)?

- Why and how are discourses used for interpreting events, legitimising actions, and representing social phenomena?
- How are some of these discourses objectified in the built environment and technological infrastructure?
- How are some of these discourses enacted, e.g. in institutional, faculty or departmental procedures?

In the next chapter, I explore these discourses, looking particularly at the cultural system of the university in a digital age (see 4.3.2) and the cultural system of APD for the integration of digital technologies in higher education (see 4.3.3).

3.6.3 Integrating categorising and connecting strategies

An insight into the causal impact of the conditions that enabled and constrained APD in the context of DUT, underpinned by CR philosophy, necessitated a search for ‘connections and relations, not directly observable’ (Danermark et al., 2002, p. 91). This was done using a process of redescription and recontextualisation of ‘the phenomenon in the frame of a new set of ideas’ (Danermark et al., 2002, p. 91) by integrating the categorising and connecting strategies. I began firstly by searching for resemblances and common features, or similarity, and secondly by identifying the influence of one thing on another and seeking actual connections between things. Because the data for this study included mental phenomena and processes that were not visible, it was necessary to engage in inferencing techniques or reasoning strategies (Danermark et al., 2002) to develop hypotheses that would be confirmed or refuted by additional data. I chose abduction and retroduction, two predominant modes of inference, as analytical tools.

3.6.3.1 Abduction

Danermark et al. (2002) and Blaikie (2010) explain abduction as the re-interpretation of phenomena by developing alternative, and possibly deeper,

conceptual frameworks of the everyday activities of research participants by searching beyond the predictable to arrive at novel insights into the phenomenon / event being studied. Abduction allows the researcher to re-describe the observable events in a manner that makes it possible to discern regularities and patterns which, when combined with an identified theory, allow the researcher to construct plausible explanations of the causal mechanisms of the event (O'Mahoney & Vincent, 2014). Abductive reasoning enabled me to re-contextualise the attitudes and preferences of the academics, and recognise trends in the different faculties toward APD. This was facilitated by identifying the relevant theories, that is Realist Social theory (see 2.3), the morphogenetic framework (2.4) and the specialisation dimension of LCT(Specialisation) (see 2.7). The re-description or re-contextualisation enabled me to interpret the event (or non-event) in more depth to identify possible causal mechanisms for the participation or non-participation of academics in APD programmes at DUT.

3.6.3.2 Retroduction

Retroduction is described as a critical methodological step in CR studies (Mingers, Mutch, & Wilcocks, 2013). In order to identify the generative mechanisms, some of which may be non-material and unobservable, Danermark et al. explain that CR researchers

... endeavour to speak of the mechanisms that produce courses of events and go beyond more superficial and accidental circumstances, including ideologically conditioned understandings of various kinds (2002, p. 37).

An important aspect of the retroductive process is the formulation of hypotheses, although it is noted that hypotheses do not prove by themselves that the mechanisms exist. Therefore, the next phase in the retroductive process, using transcendental argumentation ('What properties must exist for X to exist and to be what X is' (Danermark et al., 2002, p. 97)), is to proceed to either consolidate or refute certain hypotheses with supportive evidence that would account for the phenomena being observed (Blaikie, 2004; Mingers et al., 2013).

In the course of data analysis for this study, I examined the interview-generated data to identify regularities and observed patterns of behaviour with regard to the participation of academics in the APD programmes. Following the retroductive process, I began by connecting accounts of the research participants' experiences of and attitudes toward APD, as reflected in the interview data with the contextually-relevant institutional documentation. Emerging patterns in the data helped in the formulation of hypotheses as possible explanations for these patterns of behaviour and required me to return to the data set to search for evidence to support the hypotheses.

3.6.4 Using qualitative data analysis software

I used NVivo® qualitative data analysis software (Version 11.3.1) to organise and navigate, as well as reduce and store the data in a convenient and easily accessible system. All the sources of data collected – the institutional documentation, audio-recordings and transcripts of interviews, and survey responses, as well as participant demographic details – were uploaded into NVivo. This made it possible for me to use the software tools to ask questions of the data-set, enabling me to shift between the categorising and connecting strategies adopted. Particularly useful was the visible display of codes created into discrete 'nodes'⁷ which could then be manipulated to create 'links' and theoretical categories which were derived from the research question, in particular the nodes under which the enabling conditions and the constraining conditions were collated. These nodes were also linked to the theoretical and conceptual framework of the study. Maxwell (2009) highlights the value of theoretical categories in large data-sets which necessarily require a formal organisation and retrieval system. Also useful in the analytical process in this study were the visual displays, which made it possible to think about relationships in the data by making 'ideas and analyses visible and retrievable' (Maxwell, 2009, p. 239). Using the hierarchy chart within NVivo (see Appendix 7), I was able to effortlessly compare the density of coding at the nodes (the box area for the nodes on the chart was determined by number of coding

⁷ Nodes are described as containers for your themes, people, places, organisations or other areas of interest.

references) and identify prominent themes within the densely-coded nodes. This allowed me to use the connecting step to ask the transcendental question, 'what else must be present for X to be such as it is' (Archer, 1995, p. 177) and identify areas that needed further exploration and analysis. These preceding steps made it possible to develop hypotheses, to ask questions of the data, and to 'move' back and forth between the connecting and categorising steps to support or reject the hypotheses.

Whilst using Margaret Archer's (1995) morphogenetic framework, possible discipline-related patterns emerged during data analysis with regard to the APD preferences of academics. In search of causal mechanisms, I then proceeded to closely examine the patterns and regularities using Maton's Legitimation Code Theory (see 2.7 in chapter 2) as an analytical tool, which is described in the next section.

3.7 Enacting Legitimation Code Theory

Legitimation Code Theory (LCT) is described as an explanatory framework that 'enables knowledge-building by bringing theory and data into genuine dialogue' (Maton, Hood, & Shay, 2016, p. 6). The specialisation dimension of LCT allowed me to look beyond the empirical level to explore the criteria by which achievement within the different disciplines was measured. Cognisant of the 'knowledge-blindness' tendency (see 2.7), in this study it became important to establish whether the digital technology focused APD programmes recognised and acknowledged the organising principles underlying the practices of the range of academic disciplines. As mentioned in the previous chapter, the organising principles provide insights into the legitimising claims of the disciplines, or simply into what is valued and considered as a measure of success. Enacting LCT(Specialisation) enabled me to juxtapose the legitimising claims of digital technology focused APD programmes against the legitimising claims of the different disciplines to understand the varying perceptions of APD that were prevalent during the period of the study.

3.7.1 Enacting LCT(Specialisation) codes of legitimation

To enact the specialisation dimension of the LCT, I used the data generated from participant responses to address one of the survey questions (adapted from Maton, 2006, p. 56), in which research participants from the faculties were asked what their students needed to be 'good' in the subject or course that they taught. The question required them to select only one of the four options in the question below (Figure 9; the tags pairing the specialisation codes with the options were not included in the question for the participants).

The figure shows a survey question interface with four radio button options. To the right of the options is a vertical label 'REQUIRED' and a coding key with four entries, each connected to an option by an orange line.

Option	Code
<input type="radio"/> Anyone can do it, nothing special needed	relativist code (ER-/SR-)
<input type="radio"/> You need to learn special skills and specific knowledge	knowledge code (ER+/SR-)
<input type="radio"/> You need to have a 'natural ability' or 'feel' for it	Knower Code (ER-/SR+)
<input type="radio"/> Only people with natural ability can learn the special skills required	élite Code (ER+/SR+)

Figure 9: Survey question (adapted from Maton, 2006, p. 56) designed to indicate the emphasis of the programme on its knowledge structure (ER) and knower structure (SR).

The responses to the survey question provided information, following Bernstein, on the relative strength of classification (+/-C) and the relative strength of framing (+/-F). This data was then coded, using a stronger or weaker epistemic relation (ER+/-) or a stronger or weaker social relation (SR+/-) per programme, to identify as dominant either knowledge codes, knower codes, élite codes or relative codes as per the specialisation codes of legitimation (see Table 4).

LCT (Specialisation) Code	Epistemic Relation (ER+/ER-)	Social Relation (SR+/SR-)
knowledge code	ER+	SR-
knower code	ER-	SR+
élite code	ER+	SR+
relativist code	ER-	SR-

Table 4: LCT(Specialisation) codes

By mapping onto the specialisation plane (see Figure 5, in previous chapter) the strength or weakness of the programme's epistemic relation (ER+ / ER-), that is the relation between the object and the knowledge claim, against the strength or weakness of its social relation (SR+ / SR-), or the relation between the subject and the knowledge claim, I was able to identify the specialisation code for the particular programme. In essence, the code provided insights into the configuration of legitimacy for a particular programme, that is, whether it depended on explicit knowledge, skill and procedures, indicating a greater emphasis on epistemic relations (ER), or into the dispositions of knowers, indicating a greater emphasis on social relations (SR). In the process of determining the dominant relation, I remained mindful that in every discipline there is always knowledge and there are always knowers. This means that it is the relative strength or weakness of each relation, epistemic relation (ER+/-) or social relation (SR+/-), that signals whether the programme places emphasis on teaching specific knowledge or developing specific knower dispositions as a priority (Vorster & Quinn, 2012). In the next section, using LCT, I describe how the data was analysed to reveal the connection between what is considered as the basis of legitimation in the academic programmes and the responses of the academics to the APD programmes.

3.7.2 Degrees of code match and code clash

Research undertaken by Dong, Maton and Carvalho (2015) revealed that, in situations such as multi-disciplinary research teams or, as in this study, APD for faculties, where different modalities of legitimation codes come into contact, there are likely to be 'code clashes' should there be fundamentally contrasting views about legitimacy as defined by the dominant code. On the other hand, a 'code match' is also possible when the bases for achievement are common between the fields or disciplines.

Having identified the specialisation code characterising each programme (represented by the research participants in the sample) I proceeded to trace the dominant code for the two institutionally-provided digital technology focused APD programmes at DUT. Mapping the epistemic relations and social relations of the two APD programmes onto the specialisation plane (see Figure 10), it became clear that:

- The pedagogy focused Pioneers Online Programme, with a stronger emphasis on the attributes of knowers as the measure of achievement, was indicated as (ER-/SR+), a dominant knower code, and
- The technology/LMS procedure focused software familiarisation training, with a stronger emphasis on the specific knowledge as the measure of success, was indicated as (ER+/SR-), a dominant knowledge code.

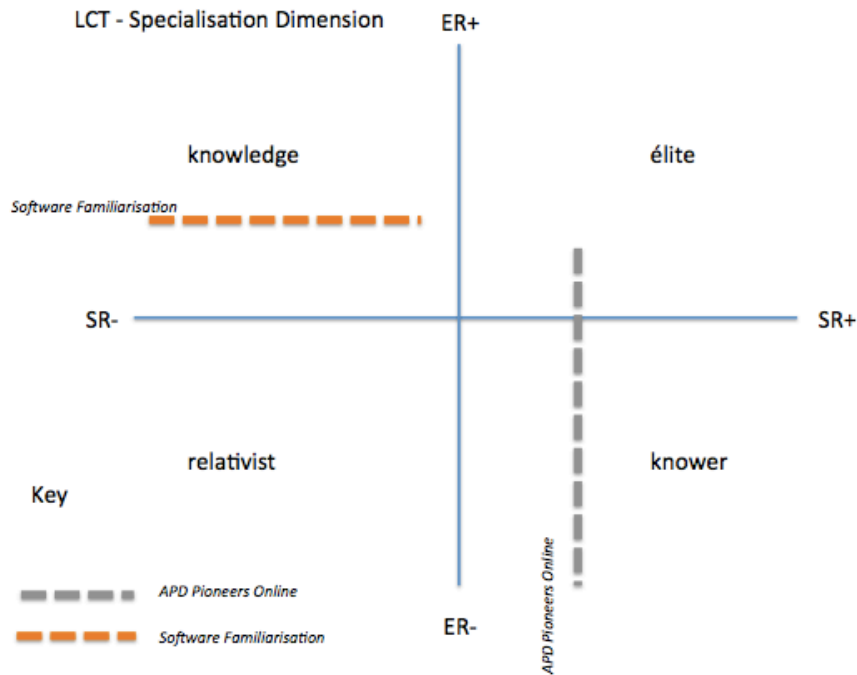


Figure 10: LCT(Specialisation) plane denoting the dominant codes of the APD programmes

With a complete set of programme-specific dominant codes for each research participant as well as the dominant codes of the two APD programmes identified, it was possible, using the LCT(Specialisation) plane, to juxtapose the specialisation code of each programme (organising principles underlying practices) against the specialisation code characterising both the APD Pioneers Online programme and the software familiarisation training, to establish a code match or a code clash, as can be seen in the example of the code match / clash of the mathematics programme with the APD programmes in Figure 11. A diagrammatic representation of the code match or code clash of each programme with the APD programmes is included in Appendix 10.

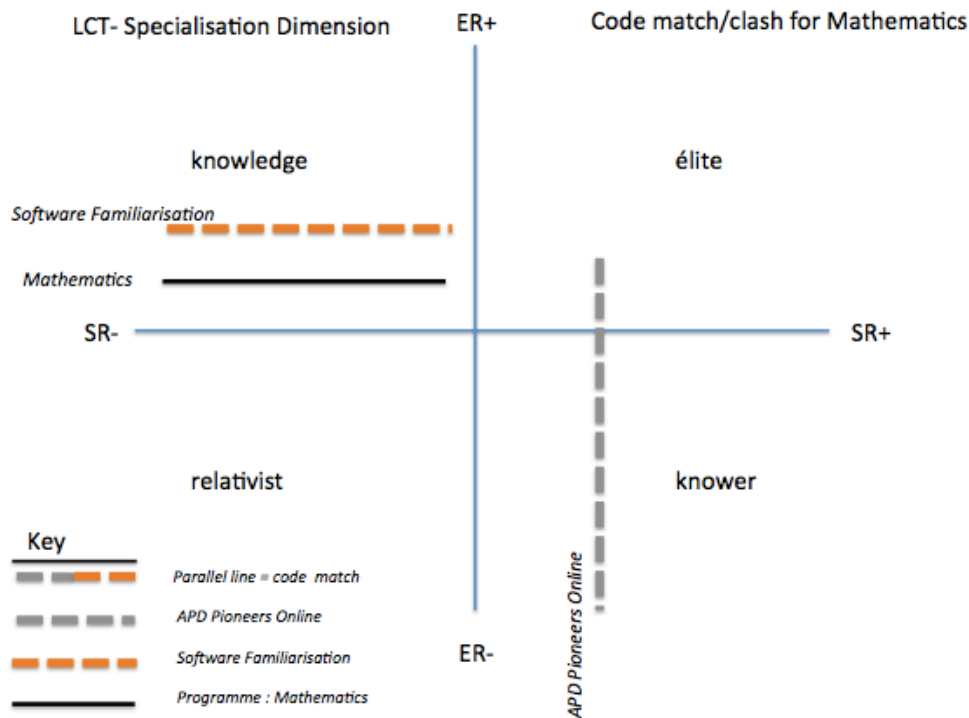


Figure 11: LCT(Specialisation) plane denoting a knowledge code match with the software familiarisation training and a code clash with APD Pioneers Online programme for the mathematics programme

Two key questions that emerged following the identification of code matches and code clashes between academic disciplines and the APD programmes were:

- In what ways do the knowledge and knower structures in the different academic disciplines influence the preferences of the academics with regard to APD programmes?
- In what ways do the designs of the APD programmes take into consideration the knowledge and knower structures of the discipline?

The above questions relating to the significance of the code matches and code clashes as a possible causal explanation for the choices academics made with regard to their participation in the APD programmes are discussed in the analysis of findings (see 5.5.1). Possible suggestions for research on the design of APD programmes in the future are presented in the concluding chapter (see 6.3).

3.8 Ensuring the value of the research process

As mentioned earlier, CR's unique view of causation has been fundamental to this study (2.2.4 and 3.2.1). To review briefly, positivist approaches to research assume that causation is a matter of regularities in relationships between events and allows for the measurement of observable and measurable facts, which facilitates statistical significance, generalisation and validity. A qualitative and process theory approach to causality, as is adopted in this study, places emphasis not on assessing the regularities, but on the causal powers which may or may not produce regularities in specific contexts (Sayer, 1992). Following this approach in this study, the research concepts of validity and generalisability, as valuable research criteria, were considered in accordance with research underpinned by critical realist understandings.

3.8.1 Generalisability

It needs to be acknowledged that the findings of this study, as a single-institution case study, are not 'representative' of the larger population-set of higher education institutions. However, at the same time it is also recognised, following Maxwell (2012), Pawson and Tilley (1997) and others, that qualitative research studies facilitate analytic generalisation, expanding the findings to generalise theories, and not statistical generalisation, and exploring the data for numeric frequencies. Yin (2011) argues that theoretical generalisation is to case study research what statistical generalisation is to scientific research.

It has been noted that perspectives on generalisation are strongly influenced by the epistemological and ontological orientations of researchers (Ritchie & Lewis, 2003). Although generalisation is conventionally understood as 'the extent to which one can extend the account of a particular situation or population to other persons, times or settings than those directly studied', Maxwell emphasises that it needs to be reviewed for the role it plays in qualitative research (1992, p. 293). Whereas quantitative researchers seek prediction and generalisation of findings, qualitative researchers seek 'understanding and extrapolation to similar situations' (Hoepfl (1997 in Golafshani, 2003, p. 600). While I accept that the findings of this study may not

be statistically and universally generalisable, as prescribed by the conventional positivist view, they are 'transferable', although this would be dependent on the degree of similarity between the setting where the research has been conducted and the setting where the research is potentially applied or 'transferred' (Lincoln & Guba, 1985; Ritchie & Lewis, 2003).

As a realist study focused on developing explanations about the deep structures of reality, this study adopts the view of generality as looking beyond the factual event at the causal processes necessary for X to be what it is. Danermark et al. explain:

If we know what underlies a certain course of events we can also – this is the assumption – intervene and direct future courses of events and make them correspond better with our intentions and purposes in various ways. Alternatively, if we find that we cannot influence the course of events, we can still, by predicting it, better adjust accordingly (Danermark et al., 2002, p. 52).

In keeping with CR underpinning, the intention of this study was not to generalise findings through statistical inference from a single higher education institution case-study to a larger set of higher education institutions, but to use the understanding of causal conditions at play in the given setting to obtain insights that contribute to the development of a theory of the processes involved. Following Maxwell (2012), the theory, when applied to other settings, may result in different outcomes when the contextual influences differ. Easton (2010) explains that the causal explanations arrived at in a particular study can be generalised to similar cases, and in so doing may contribute toward the refinement of an existing theory or the development of a new theory.

3.8.2 Validity

Validity is not a commodity that can be purchased with techniques ... Rather, validity is like integrity, character and quality, to be assessed relative to purposes and circumstances (Brinberg & McGrath, 1985, p. 13).

Maxwell (2012) explains that the experiences as accounted by the research participants are central to a qualitative study. A realist approach to validity, therefore, pertains to the accounts or conclusions reached, and its relationship

to those things that it is intended to be an account of. Greater emphasis is placed on the validity of the 'accounts or conclusions' reached in a study than the careful application of procedures or the data. Atkinson and Hammersley (2007) argue that 'data in themselves cannot be valid or invalid, what is at issue are the inferences drawn from them' (Atkinson & Hammersley, 2007, p. 177).

My experience as researcher in this study leads me to agree with Maxwell and Miller that it is 'overly simplistic to describe global qualitative criteria for validity' (2012, p. 127). While there are many suggested approaches to ensuring validity in qualitative research, for this study I focused on Maxwell's (2012) categorisation of validity as descriptive, interpretive, and theoretical. However, because the distinction between the three categories is 'not an absolute one' (Maxwell, 2012, p. 134), and not easily distinguishable in practice, in the next section I loosely describe my attempts at ensuring the validity of the research process for this study.

3.8.1.1 Descriptive validity

Maxwell (2012) characterises descriptive validity as a 'primary understanding' of observable behaviour that the researcher reports as having seen or heard. To ensure, as far as possible, accuracy of representation in the transcription of the interviews, I followed Mauthner and Doucet (2003), who recommend a minimum of three readings of the interview text, one of which included reading whilst listening to audio-recorded interview to check for accuracy of transcription. In addition, an electronic chain of evidence of the research process was maintained from the beginning, and included not only the raw data but also evidence of how the data was reduced, analysed and synthesised using NVivo. An electronic journal detailing researcher ideas, opinions, reflections and development over the research period was part of the data-set.

3.8.1.2 Interpretive validity

Respondent validation is considered to be an effective way of ensuring that the interpretation of data is true to what has been said and intended (Maxwell,

2005, 2009). Respondent validation is also effective in identifying researcher bias or misunderstanding of what has been observed. In this study I proceeded to test for interpretive validity through respondent validation, also referred to as 'member checks' (Lincoln & Guba, 1985). This was done by sharing with the research participants via email relevant chapters, in which research participant specific sections were individually highlighted for ease of identification, and to save time. The email communication included an explanation of the purpose of 'member checks' and an assurance that any misrepresentation would be amended upon notification. It was also reiterated that, as research participants, they were entitled to to alter, elaborate, change or prohibit the use of any information shared in the interview. In addition, the participants were reminded of their right to withdraw from participation in the research with no negative consequences.

A second validity check, in keeping with the SR research process of hypothesis testing, was the active and deliberate search for 'deviant cases' (Marvasti, 2004, p. 114): searching for evidence that challenged the explanation or hypothesis formulated. Maxwell (2004) highlights that researchers often unconsciously focus on supporting instances and ignore instances that go against the patterns identified. In this study the hypothesis testing process was enhanced by introducing the specialisation dimension of the Legitimation Code Theory (LCT) as an additional analytical lens (as described in 3.7 above), which also necessitated an examination of the design of APD programmes that possibly invited disfavour amongst some academics.

The practice of engaging in research at your own institution, 'researching knowledge created in the context of application' (Costley & Gibbs, 2006, p. 91), is recognised as contributing toward improving higher education practice. Whilst it enables distinctive access into the world of the academics, it also presents a complex set of ethical and methodological challenges for the researcher (ibid). As an 'insider researcher' (Trowler, 2011), variations in the levels of my interactions across faculties and departments sometimes gave me the status of more insider, less outsider, and at other times, more outsider, less insider. Mercer (2007b) similarly describes the 'insiderness' and

'outsiderness' as more a continuum with multiple dimensions than a single dichotomy. As mentioned earlier, I was particularly concerned that, as a friend and work colleague, the research participants may be aware of my alignments and leanings as educational technologist and researcher, and that this may result in 'informant bias' (Mercer, 2007a, p. 7). Williams (2009, p.211) writing about the research practice of educational development practitioners, affirms its value in informing theory and interventions in higher education, and simultaneously cautions about the ethical complexity and methodological challenges of 'researching in your own back yard'. In an attempt to mitigate against the aforementioned bias, the first few moments prior to the interview were spent discussing my role as independent researcher, inviting candid responses to the questions.

Addressing the challenges accompanying 'work-based, practitioner-led research', Costley and Gibbs (2006) propose the adoption of 'an ethic of care', through which the researcher undertakes research not just to prevent harm to others, but to do good by connecting a concern for well-being to intellectual goals. This implies that to establish trust by affirming the moral obligation would require more than the conventional consent form and the clarification of my research intention. In keeping with the realist position, and following Costley and Gibbs, I undertook

... a 'real-world' consideration of [my] interaction with others, and an examination of the context of the research which informs and constructs the social realities of the situation and the identities of the practitioner-researcher and researched (2006, p. 96).

Researcher subjectivity was a cause for concern at first. However, this was allayed by Maxwell (2012), who explains that, while the positivist view considers researcher subjectivity as a bias to be controlled, the CR perspective, by contrast,

... requires researchers to take account of the actual beliefs, values and dispositions that they bring to the study, which serve as valuable resources, as well as possible sources of distortion or lack of comprehension (2012, p. 97).

According to Maxwell (2012), as researchers we are part of the social world we study and are thus able to influence the context and be influenced by it. He argues that the attempt to exclude subjective and personal goals is not only impossible in practice but also detrimental to good research practice. The failure to acknowledge researcher perspectives and motivations may obscure the influence that these may have on the research process and conclusions. Addressing the issue of researcher subjectivity, Mauthner and Doucet propose reflexivity in qualitative data analysis as a means of exploring ontological and epistemological assumptions. They emphasise the importance of the 'reader-response' element in which 'the researcher *reads for herself* in the text' (2003, pp. 419, emphasis in original). Adopting this approach, I placed myself (as researcher), and my experience in relation to the interviewee, and read the interview transcription *on my own terms*. Following Mauthner and Doucet's (2003) 'worksheet technique', I began by placing the research participant's words in one column and, where necessary, my reactions and interpretations (as researcher) in an adjacent column. This enabled me as researcher to be conscious of the effect and influence of my assumptions and experiences on my interpretation of the transcribed account of the research participant's relation of his or her internal conversation with regard to issues surrounding participation in APD.

3.8.1.3 Theoretical Validity

Theoretical validity, according to Maxwell (2012), is similar to what is generally referred to as construct validity. He explains that the theoretical validity refers to 'an account's function as an explanation' (2012, p. 140) which frequently incorporates both descriptive and interpretive understanding. This study, as a social realist analysis exploring the causal mechanisms underlying the APD choices of academics, needed to look beyond concrete descriptions and interpretations. It brought to the fore the theoretical constructions that emerged as an explanation of the phenomenon of interest, that is, the participation or non-participation of academics in APD. In this study, the exploration of the postulated relationship between on the one hand the APD related choices of academics, and on the other hand the agential choices of the academics in

mediating the prevalent structural and cultural enablements and constraints at the site of the study (which included the presence or absence of discipline specific organising principles in the design of APD programmes), provided the basis for establishing the theoretical validity and in so doing presented the opportunity to propose or develop a potentially generalisable theoretical explanation.

3.8.3 Confidentiality

Bresler (1996) explains that confidentiality refers to more than protecting the identity of the researched via anonymity, and extends to the accuracy of verbal reporting of information that the researcher has learned through observation and interview. As a researcher, it was important that I honoured my undertaking to protect the rights and welfare of the respondents and the institution, ensuring that they would not suffer any harm, be it reputational or otherwise, as a result of the research. To this end, once ethical clearance was received from Rhodes University, I then submitted a request to the research committee at the Durban University of Technology and was granted permission to conduct research at the institution. My interactions with colleagues needed to convey trust, respect and beneficence, enabling them to share specific events, situations, actions, and decisions, as well as perceptions, thoughts and emotions, with me during the interview. This required more than the formal process of a signature on an informed consent form and self-selected pseudonyms. Pseudonyms were used to protect the identity of the research participants who were interviewed. In addition, member checking or respondent validation was requested from each participant at the conclusion of the study, and special permission was sought from those participants highlighting the possibility of a role-related traceability risk.

3.9 Conclusion

In this chapter a comprehensive account of the philosophy, methodology and analytical processes of the study has been presented. In order to address the research questions and develop a causal explanation of conditions, albeit potentially fallible, that enabled and constrained academic participation in

digital technology related APD at the site of the study, a qualitative study underpinned by a realist philosophy was undertaken. Throughout the chapter, the compatibility of the theoretical framework and the research design decisions, such as the selection of an intensive research design using case study research, has been emphasised. The impact of the critical realist ontology and interpretivist epistemology on both the research design decisions and the data-analysis strategies was highlighted. The facilitative role of qualitative data analysis software in integrating the categorising and connecting strategies adopted during data analysis was described. In this chapter I have discussed how using abduction and retroduction made it possible to look beyond a superficial level to gain an understanding of the often invisible causal mechanisms, at the structural, cultural and agential levels, that contributed to the decisions of the academics to participate or not participate in APD. I further explored the trends emerging from the data with regard to discipline-related APD preferences was facilitated by enacting LCT(Specialisation). Finally, I have described the measures adopted to ensure the quality of the research process, addressing issues of generalisability, validity and confidentiality in keeping with the qualitative research paradigm.

In the next two chapters, using Margaret Archer's (1995) morphogenetic / morphostatic framework, I present and discuss the research findings and analysis. The following chapter provides a historical account of circumstances leading up to T1, detailing the structural and cultural conditions that prevailed at the macro international and national level at the time of the introduction of digital technologies as an institutional imperative at DUT.

CHAPTER 4: SYSTEMIC CONDITIONS – MACRO LEVEL

4.1 Introduction

The focus of this chapter is the first phase of the M/M cycle, referred to as T1. Guided by a realist understanding of the social world, in which phenomena are examined in order to gain an understanding of the causal processes at various levels of the social world, the first phase examines the material and logical relationships between the components of the structural and cultural systems at the macro level (international and national) influencing academic professional development and digital technologies in the HE system. For the purposes of this study, the T1 phase allowed me as researcher to identify the '*generative powers*' of the pre-existent structures, emergent from previous morphogenetic cycles that shaped the situations encountered by the academics at the time of the introduction of digital technologies as an institutional imperative at DUT. The conditions are described as shaping but not determining the different choices that academics make (Archer, 1995, p. 172).

Following Archer's non-conflationary principle of analytical dualism (see 2.3.2), I begin by separately describing and analysing in the next section the structural conditions and cultural conditions, or '*parts*', at T1. The examination of antecedent circumstances and events provided insights into the decision at management level to introduce a significant shift from lecturers' voluntary use of digital technologies to the institution-wide implementation of eLearning at DUT and its impact on academic professional development (APD). Archer foregrounds time in the M/M model to understand the effects of the *parts* mediated to the *people* by moulding the situations in which they find themselves (1995, p. 196). An examination of the pre-existing systemic conditions at T1 provides a perspective of the structures and cultures that impinge upon the academics and students within the South African HE system. Archer explains that, given the pre-existence of the structural and cultural conditions, the results of past actions shape the social environment that is encountered at T1. The results of past actions are 'deposited in the form of current situations' (Archer, 1995, p. 201) that we experience as

'involuntaristically situated beings' (Archer, 1995). According to Archer (1995, p. 293), the conditional influence of society, be it the structures into which we are born and/or the cultures which we inherit, arrange the life chances which are dealt to us at birth. As such we are *involuntaristically situated beings*. In the context of this study, some conditions are experienced as enabling and some as constraining for different academics in relation to their participation in academic professional development for the integration of digital technologies. It is these enabling or constraining relations that I focus upon, firstly looking at the pre-existing structural shaping influences and thereafter the cultural shaping influences to answer the key research question of this study which was: What must conditions have been like in APD for the integration of digital technologies in learning-teaching interactions to have evolved the way it did at DUT?

4.2 Structural conditioning at T1

4.2.1 Introduction

For the purposes of analysis I have selected to begin with an examination of existing social structural (SS) conditions, using the tool of analytical dualism, because, as Archer explains, social structures are relatively enduring and they are ontologically prior to and independent from the people encountering them. Drawing on literature on higher education and national and institutional policies, as well as published reports and journal articles by international and South African researchers, I examine firstly the structural conditions at international and national levels, before proceeding to examine the cultural conditions that either enabled or constrained academics from engaging in academic professional development designed to facilitate the integration of digital technologies to enhance the learning experience.

I begin this section focused on macro level structural conditions by looking particularly at globalisation and internationalisation, exploring key considerations that possibly influenced the management-level decision in 2011 regarding the institution-wide implementation of digital technologies at DUT.

This is followed by an analysis guided by a social realist understanding of South African HE policies related to the introduction of ICTs and its impact on APD. The focus is on the pre-existing enabling and constraining structural conditions. In this section I also present a brief overview of the differentiated South African HE system, looking in particular at Universities of Technology (UoTs) to understand the conditions that either enable or constrain APD for the integration of digital technologies in the teaching–learning environment.

4.2.2 Globalisation and internationalisation

Globalisation emerged from the growth of an integrated world economy and an international knowledge network enabled by information and communication technologies (Altbach, Reisberg, & Rumbley, 2009). While globalisation is seen to be beyond the control of academic institutions, internationalisation, comprising of a variety of university policies and other mechanisms to enable students and academics to work and study overseas, to promote international linkages and research projects, and to facilitate entrepreneurial ventures such as the setting up of satellite campuses in other countries, is seen as the strategic response of universities to the globalisation phenomenon (Altbach et al., 2009).

Internationalisation was one of several contributing factors in the decision regarding the introduction of the technology imperative at DUT. The impact of internationalisation on universities in Africa has included several opportunities as well as some potential risks. One of the recognised benefits has been the opportunity to enhance research capacity via international cooperation, enabling researchers to participate in international and inter-institutional research networks, including intra-African university partnerships (Jowi, Knight, & Sehoole, 2013; Twinomugisha, Martin, & Kondoro, 2010; Wilson-Strydom & Fongwa, 2012), and establishing international research communities working toward social, cultural and economic development and helping to meet the

millennium development goals (Knight & Sehoole, 2013).⁸ It has also been noted however that, while the intention to work in partnership with emerging nations to build capacity where needed may be altruistically inspired, the unequal relationship works against the principle of a reciprocal global engagement (Marginson & Van der Wende, 2007). The international collaboration presents a paradoxical situation, a necessary contradiction, on the one hand emanating from the need to promote socio-economic and human capital development in developing countries but on the other hand carrying at the same time the risk of continuing unequal relationships, with universities in the Global North dominating those in the South (Jowi et al., 2013, p. 26).

Internationalisation in higher education is often described as ‘Janus faced’, particularly given the rise of the global knowledge economy and accompanying transactional spaces (Mthembu, 2009) within HE. In developing countries, internationalisation carries both ‘the perils and the promises’ (Naidoo, 2007), possessing the potential to strengthen local capacity as well as the danger of human capital flight (Mohamedbhai, 2013), and extending long-standing asymmetries of power in international partnerships (Singh, 2010, p. 269). The use of digital technologies in the learning environment, facilitating satellite campuses and flexible, asynchronous access, and enabling distance courses to reach academic participants across the globe, is seen as a key strategy for universities competing in the global HE marketplace (Bawa, 2000; Smith & Oliver, 2000). However, concurring with Williams (2012, pp. 298, quoting Singh, 2001), in this study I argue that, while the globalisation debate may be similarly framed around concepts such as transformation, widening access and public and private good, the socio-cultural contexts of developing countries are significantly different from those in developed countries. Managing change across time and space (Leibowitz, 2013) in the ‘geopolitics of universities’ (Holmes & Manathunga, 2012, p. 194), by balancing the drive to be part of the

⁸ The drive amongst African institutions to be instrumental in the development of knowledge-based societies and economies through the harmonising of university degrees has been attributed by many writers to the influence of the internationalisation agenda of the Bologna Process and the UNESCO-backed 2014 Addis Convention. This incentive began with the joint Africa–EU Strategic Partnership and subsequent Lisbon declaration (2007).

knowledge-based societies and economies against the potential risks of extending the asymmetries of power as well as exploring ways in which internationalisation could be accommodated within the African identity (Bawa, 2012b; Quinn & Boughey, 2009), is a monumental challenge confronting South African HE.

Drawing on the now-famous 'I am an African' speech of Vice President Mbeki in 1996, Bawa (2012b) highlights the tension between the tendency amongst academics in South African HE to re-establish linkages with institutions predominantly in the Global North, after the lifting of the academic boycott in 1990, and the African Renaissance project, prompting the emergence of a discourse on indigenous knowledge and indigenous knowledge systems. Resonating with the 2015–2016 student protests, calling for the decolonisation of the curriculum, is his description of 'the continuing distrust of a higher education system in which the knowledge enterprise is [so] heavily dominated by white intellectuals' (Bawa, 2012b, p. 685). The result of this has been suspicion of a system in which the dominant intellectual paradigms are Western (Mamdani, 2011; Shay & Peseta, 2016) and which has not, as yet, recognised 'the knowledge embedded in the local context and local social systems' (Bawa, 2012b). These arguments are pertinent to the current study, as they highlight the risks of universities in developing countries becoming consumers of knowledge (knowledge importers) produced in developed countries (knowledge exporters). The arguments also caution against institutions becoming disembedded from their local context (Blade Nzimande speaking at the UNESCO Higher Education Conference in 2009, Gray, 2009); (Blade Nzimande speaking at the UNESCO Higher Education Conference in 2009 MacGregor, 2016; Singh, 2010).

Writing on the challenges of global competitiveness and the dynamics of change in South African HE post 1994, both Kraak (2001) and Badat (2009) highlight the tension between two equally significant transformation-oriented initiatives, the first initiative being social equity and redress in higher education and the second, economic development and quality. Both writers note an increasingly neoliberal leaning with a 'high skills thesis', underpinned by the

belief that economic development is contingent upon a highly skilled workforce. Evidently this thinking has influenced policy decisions on higher education, reflected in a growing emphasis on skills development and the preparation of students as productive workers for the labour market, contributing toward a growing economy, and a 'rewriting of education according to a very narrow economic script' (Allais, 2014, p. 186). In a similar vein, Bawa (2000) and Subotsky (2003) draw attention to the increasing commodification of knowledge, supported by the technological revolution and the rise of the knowledge economy. Significant for this study is the caution raised by Ravjee (2007) regarding the assumption that increasing the use of ICTs would unproblematically facilitate access to HE or that it would by itself improve the quality of learning and teaching. I argue that the prevalence of this assumption highlights the need to debate and problematise, amongst other issues, the relationship of ICTs to higher education transformation in South Africa, keeping in mind the enabling and constraining effects of 'the power dynamics of digital divides, the political economy of e-learning, and the cultural politics of higher education' (Ravjee, 2007, p. 28).

4.2.3 The dilemma of justice

A second key issue for consideration by the senior administrators at DUT, prior to the introduction of the institutional technology imperative, would have been 'the dilemma of justice' (Broekman et al quoted by Brown & Czerniewicz, 2010), or the fairness and readiness of the full spectrum of staff, students and the learning environment for the implementation of digital technologies. Bozalek and Ng'ambi (2015) draw attention to two important issues: firstly, to the conundrum facing South African HE regarding the implementation challenges of constantly-evolving digital technologies and secondly, to participatory parity as a critical issue in South African HE. At the same time they caution against ignoring global trends and the opportunities provided by digital technologies in HE. Examining the issue of inclusivity and participatory parity in South African HE, Bozalek and Boughey (2012), using Fraser's (2003, 2008) normative framework on social justice, highlight the disjuncture between

policy and the experiences of students and staff, and emphasise the need to identify the underlying social structures, in the economic, cultural and political spheres, that generate the inequities as a whole and impede transformation in the HE sector. The issue of participatory parity is singled out in the findings of a number of studies researching privilege and marginalisation in terms of digital access and digital literacy amongst higher education students in South Africa (Boughey, 2012; Kajee & Balfour, 2011; Oyedemi, 2012; Rohleder, Bozalek, Carolissen, Leibowitz, & Swartz, 2008). The findings indicate that only an elite minority have multiple access options to digital technologies in their socio-cultural environments, whilst a less-privileged majority are from socio-cultural circumstances where digital devices are unaffordable and access is unevenly distributed (Kajee & Balfour, 2011), thus replicating the patterns of social and economic inclusion and exclusion prevalent in the country (Lelliott, Pendlebury, & Enslin, 2000; Oyedemi, 2012; Seymour & Fourie, 2010).

Concurring with Bozalek and Ng'ambi (2015) and the other researchers mentioned above, in this study I argue that the dilemma regarding participatory parity would certainly have been recognised by DUT administrators as a significant constraint, although prevalent at the same time was the un-problematized and naive perspective that viewed the introduction of digital technologies as a solution to the challenge of widening access in South African HE. Technology presented a means of reducing lecturers' time spent in the classroom, rather than as a means of enhancing the learning experience (Van Der Merwe et al., 2015). It was seen as potentially providing relief to academics from the increased teaching loads that resulted from the high student–staff ratio. This seemingly contradictory mix of ideas and beliefs, and socio-economic realities, related to the integration of digital technologies in the South African HE context, will be focused upon in the section on cultural conditioning at T1. Drawing on the data, it is my contention that the challenges identified highlight the need for responsive professional development strategies that problematize the techno-centric view of technology, noted in the discursive understandings of the role of digital technologies in the teaching–learning environment at DUT.

In summary, the challenges and concerns mentioned above are considered to have been fundamental concerns, amongst others that also needed careful consideration in conjunction with South African HE policies, in the decision to introduce digital technologies in the teaching–learning interactions at DUT. These other concerns will also be dealt with in more detail, examining the interplay of cultural and structural conditioning at the meso and micro levels (see Chapter 5, section 5.1). In the next section I examine policies related to the introduction of digital technologies in South African HE.

4.2.4 South African higher education policies and the introduction of digital technologies

As mentioned previously, South African higher education policy makers have, since democratisation in 1994, been confronted by two competing imperatives (Badat, 2009; Lockett, 2010): equity and access competing against innovation and economic development. The equity and access imperative has assigned prominence to national issues such as redress, equity and democratisation: a redistributive–transformative discourse. The imperative of innovation and economic development has advocated effectiveness, efficiency, and competitiveness: a market-driven discourse (Cloete & Maassen, 2006; Higher Education South Africa, 2014; Mlitwa, 2005; Muller, 2003; Subotsky, 2003). These twin imperatives were evident in the 1997 White Paper on Higher Education (Department of Education, 1997), which proposed widening access and the massification of higher education, and simultaneously called for the development of a knowledge economy and proposed the use of new technologies in response to globalisation and labour market needs (Bozalek & Boughey, 2012, p. 692).

Recognition of the role of digital technologies (often used interchangeably with ICTs) as an important factor in widening participation, and in contributing to the economic growth and development of South Africa, has been acknowledged in South African policy documentation (Department of Communications, 2013; Department of Education, 2001; Department of Higher Education and Training, 2014) and included as such in the 1997 White Paper on Higher Education and

the 2003 draft White Paper on e-Education, as well as the 2004 ICT charter. The implementation of ICTs could be seen as more practicable when compared to expansive social transformation goals. However, the lack of a national vision for ICTs in South African HE, underpinned by an overarching national coordinating structure with sound implementation strategies, monitoring and evaluation, was a critical shortcoming (Cross & Adam, 2007; Moll, Adam, Backhouse, & Mhlanga, 2007, p. 20). This omission allowed for some key concerns to be overlooked while other relevant issues were foregrounded (Czerniewicz, Ravjee, et al., 2007). Notably, ICT-related matters were mentioned in policy documents 'in *ad hoc*, limited ways' (Czerniewicz, Ravjee, et al., 2007, pp. 55, emphasis in original), or not mentioned 'beyond a cursory statement in the introduction' (Bawa & Mouton, 2006, p. 200), in the National Plan for Higher Education (2001). Significantly, Cross and Adam draw attention to the need for government coordination and steering with regard to the expansion of ICTs in South African HE. They emphasise the need for issues of broader transformation and social responsibility to be fundamental in the planning, and caution that the absence of this would contribute to social and economic distress (2007). Both the Higher Education South Africa (HESA)⁹ task team on post-school education (2011) and Bunting and Cloete ((2008), quoted by Gibbon, Muller, & Nel, 2011) comment on the capacity of universities to cope with the projected demand for post-secondary HE, and highlight that the issue is not isolated to widening access to universities, but is also one of human resources. Of particular relevance to this study is their assessment of a critical shortage of appropriately-trained and experienced academic personnel to service the expanding university sector.

Concurring with the view that the above-mentioned policy gaps regarding the implementation of digital technologies in HE resulted in major constraints, in the timeline of the present study it is noted that by 2012 (T1), despite the acknowledgement in national policies that ICTs have the potential to become indispensable in South African universities as they are worldwide (Department of Higher Education and Training, 2013, 2014), the processes that would

⁹ Higher Education South Africa (HESA) has had a name change to Universities South Africa (USAF) since July 2015

enable their fair and equitable presence in HE still needed to be put in place (Department of Communications, 2013, p. 24; Department of Higher Education and Training, 2014; Mlitwa, 2005). At DUT, and in keeping with the findings of the Council on Higher Education¹⁰ report titled '*ICTs and the South African Higher Education Landscape*' (Czerniewicz, Ravjee, & Mlitwa, 2006), it was evident that, while the lack of national and institutional policy frameworks and directed support or funding did not negatively impact on individual academic enthusiasm for experimenting with e-Learning and digital technologies, it can be considered a constraint. The absence of such policies adversely affected the sustainability of the new eLearning initiatives, which remained largely at the level of pilot or small-scale projects that were not necessarily aligned to the strategic goals of the institution. Working in my capacity as an educational technologist / academic developer at DUT, it is evident that the absence of a comprehensive guiding framework for infrastructural and other support structures presents constraints; this is particularly evident in the limited human resource capacity of the eLearning unit (see 5.3) as well as the inadequate provision of digital access for students (Dark, 2012). From the interview data it appears that both deficiencies were seen by academics as major disincentives for the adoption of digital technologies and related APD.

Critically at T1 (2012) in this study, the absence of earmarked funding and limited institutional support at management level made it difficult to provide necessary access and student support, thereby limiting the engagement with digital technologies as an 'additional extra' for the eLearning enthusiast. These persistent constraining conditions also communicated to the academics the limited value assigned to the potential capabilities of digital technologies for teaching–learning interactions in DUT context. However, a possible change of direction was signalled in late 2012, when the status of eLearning at DUT was the object of a commissioned strategic review to inform management-level decisions regarding the introduction of an institutional technology imperative. This will be dealt with in more detail in the section which is focused on

¹⁰ The South African Council on Higher Education (CHE) was established as an independent statutory body to advise the Minister of Education on all matters related to higher education policy issues and assume executive responsibility for quality assurance within higher education and training.

structural conditioning at the meso level (see Chapter 5, section 5.2). The prevailing conditions, however, impacted deeply on the recognition of and need for APD for digital technology integration which, at the time prior to the institutional technology imperative, was available to the academics as a voluntary option. This will be examined in more detail in the sections on cultural conditioning and socio-cultural interaction (5.2.2.1). In the next section, I continue by examining digital technologies / ICTs within the South African higher education structure.

4.2.5 The South African higher education system and digital technologies

The 1997 Higher Education Act set in motion a series of structural changes, a structural morphogenesis, culminating in the new emerging institutional landscape characterised by institutional mergers and closures, and the development of new institutional forms (DoE, 1997). In particular there was a reduction from the 36 apartheid era HE institutions to 23 (now 26) public HE institutions, differentiated as eleven research-intensive universities, six comprehensive universities and six universities of technology. Leibowitz et al. (2015) describe the present HE system as hierarchical, with the highest level assigned to the research-intensive universities, followed by the comprehensive universities offering a mixture of traditional and vocational programmes and placing emphasis on mass higher education, and the universities of technology (UoTs) focusing on the acquisition of technology-based qualification. Given the legacy of unequal access to education under the apartheid regime, the goal of equitable access to HE and the massification of education was welcomed as a means of achieving social transformation, a change symbolising democratisation (McKenna, 2012). South African HE policy documents advocated increased participation through an expansion of student enrolments, or massification¹¹ of HE: promoting universities as a public good by making the acquisition of knowledge accessible to more people, and promoting social justice, equity and redress as well as institutional sustainability and contribution to national economic development through skills development.

¹¹ Both the National Development Plan 2030 and the Green Paper for Post-school Education and Training envisage an increase in university enrolments to 1.5 million by 2030.

However, commenting on the widespread expectations post 1994 of fundamental social and economic change, as well as the nature and pace of the HE transformation process, Subotsky argues that, while the government had committed itself '*symbolically*' to reducing inequalities, it had failed to set in place '*substantive* structural changes' (emphasis in original) that would broaden access and reduce poverty (2003, pp. 164-165). I turn my attention next to the presence or absence of the structural changes within South African HE as enablers of constraints to APD for the integration of digital technologies.

In their examination of the South African HE landscape post 1994, both Quinn (2012c) and Badat (2009) draw attention to the residual effects of the apartheid legacy in the form of 'historically advantaged universities' and 'historically disadvantaged universities', most evident in the differences in terms of human and financial resources, which continue to influence the pace of institutional change. Bozalek and Boughey explain that, under the apartheid government, budgets for the historically disadvantaged universities were strictly controlled and involved gaining approval for expenditure from the controlling government department and requiring the unspent funds to be returned at the end of each financial year. As a consequence, the historically disadvantaged HE institutions were not able to build financial reserves, nor did the restrictive situation allow for the development of the capacity to plan and handle financial resources (2012). In post-apartheid times, the absence of financial reserves continues to hamper attempts at modernising and equipping the poorly-resourced historically disadvantaged universities to cater for the increase in student intake. Moreover, the 2004 revised funding formula for HE focused on throughput and outputs in teaching and outputs in research, which once again did not favour the historically disadvantaged universities, given that they were more likely to attract black working-class students and students from rural areas characterised by impoverished schools, with educational experiences characteristic of apartheid (Jinabhai, 2003). The lack of resourcing and financial struggle over a protracted period of time has been noted by Boughey and McKenna (2011) as having negatively influenced staff morale and

commitment to teaching, and, I argue, reduced the incentive to embrace the opportunity to explore innovation and change, presenting a constraint to APD.

Notable and particularly relevant to this study is the impact of the historical legacy on the degree of integration of digital technologies within core academic functions (Mlitwa, 2005), which by necessity is dependent on the degree of physical access to the ICT tools and resources for students and academics. Although most South African universities have both a dedicated information technology department and a centre dedicated to the support of eLearning, Czerniewicz et al. (2006) highlight a disparity in that some centres provide basic ICT training for lecturers while others have sophisticated research operations that work in tandem with support programmes designed to assist academics in the development of eLearning. Undeniably the successful integration of digital technologies would have considerable human and financial resource implications, especially so for institutions with large enrolments of students from poor socio-economic backgrounds (Bawa 2011) with limited or no access to digital devices. The paradox, however, is that these institutions are themselves poorly resourced given their status as historically disadvantaged universities. Although access to computers is reported to be limited across the South African HE sector, with existing laboratories, both open and department based, utilised to capacity, Czerniewicz, Ravjee et al. highlight that the assessment of 'adequate access' is variable too (2007). Moreover, the issue of access is exacerbated by outdated, slow network connections and a lack of broadband access in some geographical locations particularly. Together these are seen as formidable constraints to the adoption and implementation of digital technologies and subsequently affecting the need for APD. Given the backlog of government allocation for ICT infrastructure and related support as well as the increase in student enrolments, South African HE institutions remain considerably constrained by an under-resourced technological environment, especially when compared to the developed world (Czerniewicz & Brown, 2009). More recently though, the introduction of wireless network technology has significantly pared down infrastructural costs and simultaneously helped with increasing bandwidth. However, the initial installation requires a substantial financial investment. The wireless network

enablement at the seven campuses of DUT has had important implications for this study.

Internationally and nationally, there is growing awareness of local realities that make access to ICTs accessible to some and inaccessible to others, often referred to as digital divides, which emerge from existing socio-economic and other divides (DiMaggio, Hargittai, Celeste, & Shafer, 2001; Hargittai, 2008; Margaryan, Littlejohn, & Vojt, 2011; Molina, 2003).

The examination by Brown and Czerniewicz (2010) of 'digital apartheid' in a predominantly resource-constrained South African HE highlights an environment characterised by inequalities and disparities in terms of ICT access. Concerned with the impact of the disparities resulting from varying levels of access and digital skills on the teaching and learning choices that academics may make, they ask, 'how do educators and learning designers leverage the opportunities of ICTs for education?' (2010, p. 364). Based on the results of their study on mobile phone ownership, which showed mobile ownership amongst South African students to be placed at 98.5% in 2007, Brown and Czerniewicz (2010) present an apparent 'solution' to the above-mentioned predicament of equitable digital access in HE via the ubiquitous and fairly accessible mobile phone. However, they caution that, while their study encapsulates the access to and skills in using mobile technology, it does not examine the calibre and depth of their technology use. The findings and recommendations of their study highlight the need for APD and the examination of 'contemporary literacies' as ways in which mobile technology can support learning and teaching (Brown & Czerniewicz, 2010, p. 367).

The spectrum of reactions from academics in South African HE to APD, which will be focused upon in the T2–T3 phase of the study (5.2.1), following the introduction of digital technologies in teaching–learning interactions seems quite understandable given the above-mentioned disjuncture between the increase in student enrolment and the lack of support, as well as infrastructural, financial and human resource constraints presenting additional challenges. Following Archer's M/M model, the emerging necessary contradictions (2.4.2.1.3) indicate a situational logic of correction, the reactions to which in the

interplay of structural and cultural conditions will be explored further in the analysis of the T2–T3 phase.

Given the importance assigned to the role of ICTs in HE both nationally and internationally, many South African HE institutions initiated eLearning projects using institutional funding. In the next section I focus on structural conditions impacting on the nature and provision of APD for the integration of digital technologies at the institutional level.

4.2.6 Digital technologies related academic professional development in South African higher education

The lack of a standardising national policy framework (4.2.4) has had both an enabling and a constraining impact on APD. In the absence of the above-mentioned framework, Czerniewicz et al. note an array of institutional approaches to ICT implementation and APD, varying from formal policies with strategic plans and regulatory procedures to a significant lack of ICT related policies. They argue that the use of digital and other technologies is defined by the nature of the institution and emerging practice and not policies (2006). Their research findings indicate that, while there has been a substantial growth in the up-take of ICTs, it is uncoordinated and lacking in a shared vision regarding the utilisation of digital technologies in HE. The fact of varied and localised institutional approaches, policies and guiding strategic documentation presents a significant constraint to APD in terms of influence and authority. This, in combination with the allocation or non-allocation of state-aided or institutional financial resources, has influenced the presence (or absence) of eLearning related units. Also evident are the disparities (noted earlier) in the nature of APD implementation across HE institutions in South Africa. From another point of view, Czerniewicz et al. highlight the possibility that the absence of the imposition of an overarching national framework, frequently accompanied by additional regulations and minimum requirements, on change-weary academics may be enabling, allowing the emerging practice to be directed by and responsive to local context and need.

The presence and location of organisational structures are seen to communicate how institutions interpret the nature and role of digital and educational technologies in relation to teaching and learning, and with it the significance and value attached to APD. From an institutional management perspective, APD with a digital technology focus is frequently aligned as a support mechanism to projects, such as the introduction of an institutional learning management system, directed at ameliorating issues arising from large student intakes without parallel adjustments in human and infrastructural provisioning. In an international study examining ICTs and higher education in Africa, Czerniewicz, Ngugi et al. (2007), writing about organisational structures supporting APD across HE institutions in South Africa, reports that all South African universities have a dedicated information technology department as well as a centralised eLearning support centre (see Table 5), although there are very few dedicated individuals assigned to these centres. Some institutions have two structures, with teaching and researching frequently recognised as academic whilst support and development are assigned a non-academic role. Noting the associated tensions arising from the division of labour, and the lack of coordinated and integrated work required of ICTs, Czerniewicz, Ravjee et al. (2007) posit that it may indicate a need for higher level management and possibly also reflect long-standing tensions between the 'craft knowledge' of practitioners in support posts and the discipline-based knowledge of traditional researchers.

Traditional universities	
University of Cape Town	Centre for Educational Technology, Centre for Higher Education Development
University of Fort Hare	E-learning Section, Teaching and Learning Centre
University of the Free State	Centre for Higher Education Studies and Development
University of KwaZulu-Natal	Centre for Information Technology in Higher Education
University of Limpopo	Academic Computing Support Section
North-West University	Academic Support Services
University of Pretoria	Department of Telematic Learning and Education Innovation
Rhodes University	Academic Development Centre
University of Stellenbosch	Centre for Teaching and Learning
University of the Western Cape	Teaching and Learning Technologies Unit E-Learning Division
University of the Witwatersrand	Centre for Learning and Teaching Development
Comprehensive universities	
University of Johannesburg	Centre for Teaching, Learning and Assessment
Nelson Mandela Metropolitan University	Centre for Teaching, Learning and Media
University of South Africa	Institute for Curriculum and Learning Development
University of Venda	Department of Information Technology Services
Walter Sisulu University for Technology and Science	Situation unclear in current merger context, but an academic development unit at Border Technikon (one of the merging institutions) seems to facilitate web-supplemented courses
University of Zululand	ICT Department (includes an 'electronic classroom' for training lecturers in online applications)
Universities of Technology	
Cape Peninsula University of Technology	Fundani Centre (teaching, learning and academic support) Centre for e-learning
Central University of Technology	Centre for e-learning and Educational Technology
Durban University of Technology	Centre for Higher Educational Development
Tshwane University of Technology	Department of Telematic Education
Vaal University of Technology	Department of Teaching and Learning, Centre for Institutional Development

Table 5: University centres responsible for supporting ICTs in teaching and learning at South African HE institutions (Czerniewicz, Ngugi, et al., 2007, p. 101)

Based on the data gathered, Czerniewicz, Ngugi et al. (2007) highlight that the existing trend of locating eLearning support units within centralised teaching and learning support centres communicates an enabling evaluation of digital and other educational technologies with a teaching and learning focus rather than a purely technological focus.

In the next section I proceed to focus particularly on Universities of Technology (UoTs) within the South African HE system.

4.2.7 The Universities of Technology

In this section I examine APD related structural enablements and constraints within UoTs, with three primary areas of focus. Using Winberg's reflection on the 'continuities and discontinuities' (2005) in the three phases defining the

progression from technikon to UoT journey, I examine firstly the link that UoTs have with industry, and its impact on the institutional identity and the teaching–learning interaction. Secondly, I look at the emergence and position of UoTs in the South African HE landscape and thirdly, I examine how technology is ‘re-defined’ at UoTs and why it is understood in the way that it is. I finally explore the reactions of academics to the introduction of digital technologies and related APD in the UoTs.

Winberg identifies the first phase as ‘Educating for the needs of industry’, as is echoed in du Pré’s description of the purpose of the newly emerged UoTs:

The main focus [of UoTs] is on creating a learning organisation through engagement with business and industry. UoTs serve as a learning laboratory for experimenting with new approaches and practices for the design and delivery of learning and research initiatives. The focus of these institutions would be to deliver on-site education and research enriched by industrial and business experience (2009, p. 19).

Historically, as technikons were established in response to industry needs for technically skilled personnel, many teaching staff were recruited from industry to teach on the certificate and diploma programmes. It is commonly held that UoTs, having emerged from the former technikons¹², continue with vocationally oriented programmes to provide the labour market with highly skilled graduates, contributing to the social and economic development goals of the country. However, Winberg et. al argue that ‘competent practice [also] implies knowledge about, and knowledge within, the field of practice’ (2013, p. 115), adding that the purpose of UoTs would therefore be to ensure that ‘work ready’ UoT graduates be schooled in ‘disciplinary knowledge to enable cumulative theory building and the progression of the field of practice’ (ibid). Similarly, Gamble (2003) highlights the inherent flaw in the interpretation of technological education as the practical application of theory. She explains, drawing on the work of Layton (1993), that innovation and adaptation, fundamental characteristics of technological education, are conditional on the opportunity for the conceptual or theoretical knowledge to be ‘reworked’ in practice and

¹² A technikon was a non-university post-secondary institution, in South Africa, focusing on vocational education.

thereby to advance the familiar. This will be explored further in the discussion on different knowledge structures and APD (5.5.2).

Significant to this study, in particular the examination of how APD is constructed by academics at UoTs, is Winberg's finding that most lecturers are shaped by a professional identity more strongly established in the field of industry than in higher education (2005). Drawing on this finding, in this study I argue that, to improve adoption of digital technologies and confidence in the supporting APD, it would be necessary for academic developers and educational technologists to engage with academics from a particular discipline by taking into consideration the embedded rules of their discipline to establish the legitimacy of APD. This will be explored further in relation to the organising principles underpinning the knowledge practices (6.3).

The legacy of the curriculum process that originated during the technikon years presented a challenge to the development of the UoT academic role and identity and influenced the construction of the teaching–learning interaction. In the past, to counteract the shortage of pedagogical expertise amongst industry-recruited staff at the technikons, advisory committees and a Certification Council for Technikon Education (SERTEC) were established to regulate programme development and at times the delivery of programmes as well. A convenorship system of curriculum development was adopted for programme development whereby the responsibility for developing a curriculum was assigned to one institution; the approved curriculum was then shared for 'delivery' with other institutions offering to same programme. The establishment of the convenorship system put in place what is described by Boughey as a 'culture of compliance' enforced by complex policy frameworks in an attempt to manage teaching and learning and regulate all aspects of academic life (2010b). Remarkably, there was no outcry against the bureaucratic processes and 'over-regulation' (Council on Higher Education, 2010, p. 150) that challenged academic freedom and constructed quality as efficiency and compliance, differing from disciplinary notions of quality (Boughey & McKenna, 2011) or an understanding of quality as 'fitness for purpose' (Boughey, 2011). The shared curriculum accompanied by the 'culture of compliance' resulted in

an understanding of teaching as 'delivery' of programmes, rendering academics as unquestioning implementors of the approved curriculum, with a proviso introduced in 1986 that allowed institutions to adapt 30% of the curriculum to accommodate local content (Council on Higher Education, 2010). The programmes offered were frequently 'content heavy', resulting in formidable teaching loads (Boughey, 2010b) and leaving little room for research, project work or 'debate and reflection' (Winberg, 2005, p. 199). These structural conditions, I argue, continue to act as constraints to APD post 1994, and will be returned to in the section on cultural conditioning at T1(4.3.3.1).

The second phase identified by Winberg (2005) is titled 'Imitating the Universities'. As mentioned previously, the South African HE system, a single, diversified and co-ordinated system, according to the 1997 White Paper on Higher Education, was purposefully differentiated to serve the interests of an inclusive society, envisaged 'as a key allocator of life chances, an important vehicle for achieving equity in the distribution of opportunity and achievement among South African citizens' (Department of Education, 1997, p. 7). However, the process of re-designing the institutional landscape in HE resulted in tensions, especially with regard to the role of the technikons and the nature of the divide between the technikons and universities. Leaders in the technikon network were advocating the re-designation of technikons to the internationally accepted 'university of technology', on the premise that the uniquely South African term 'technikon' was not globally recognisable and presented a barrier to membership of international university associations and professional bodies (Du Pré, 2009). It became evident that the clear distinctions and boundaries between the academic and career/vocational programmes and the institutions within which these programmes were offered, which were a result of the binary divide set prior to 1994, were beginning to blur (Cloete, 2006c). This shift has been variously described as having resulted in 'policy oscillation between differentiation and isomorphism' (Cloete, 2006a, p. 4) and 'an easing of boundaries' (Department of Education, 1997, p. 24) between institutional types, resulting in 'academic drift' (Boughey & McKenna, 2011; Kraak, 2009, p. 961) on the side of both the comprehensive universities and the UoTs.

It is notable however that, more than a decade after the introduction of UoTs into the HE structure in 2003 (Gillard, 2004), the nature and purpose of UoTs remains a contentious issue. While the purpose of this study does not require an analysis of the institutional restructuring and differentiation within South African HE (for more on the restructuring of the South African HE landscape see Kraak, 2012 and Cloete and Fehnel, 2006), suffice it to say that the decision to change the technikons to universities of technology was the result of intense political lobbying rather than a rational process of policy development (Kraak, 2012). Of relevance to this study is the impact of this process of change on the institutional identity and the role of the academics in the UoTs, given what was believed at the time, and the deficit in terms of capacity to undertake research and to offer post-graduate programmes (Kraak, 2009/ quoting from RSA. DoE, 2001b, p.17). Reacting to this shortcoming, and as part of the general need for enhancing performance across the HE system, the government introduced 'goal oriented' funding (Boughey, 2013) in the form of teaching development grants (TDGs) to improve teaching capacity. Winberg (2005) explains that research at UoTs was conceptualised as a staff development issue to encourage academics who did not have post-graduate qualifications to register for postgraduate study to the level of Masters and Doctorates. However, it has been noted that the discourse of performativity accompanying the restructuring of the HE system in South Africa has at times resulted in some academics participating in APD activities or pursuing further qualifications to satisfy policy requirements (Quinn, 2012c), rather than advancing professional capacity. Examining both the issue of academic qualifications and the issue of compliance at UoTs, Boughey (2010b), referring to Muller (2008), points out that academics with strong academic identities firmly established in their foundational discipline and supported by the authority of an accepted body of professional knowledge are better able to question and challenge change which they perceive as unsuitable. She argues further that better qualified staff who research in their disciplinary areas have the capacity to contribute to institutional autonomy, thereby affirming its status as a UoT (Boughey, 2010b).

Significantly, most academics, when given the option of enhancing personal qualifications, have registered for advanced studies in their disciplinary fields as opposed to undertaking a teaching qualification (Van Schalkwyk, Leibowitz, Herman, & Farmer, 2015). This may be attributable to the fact that academic appointments are largely not incumbent upon pedagogical qualifications at UoTs. The emphasis on improved disciplinary qualifications, research and publication has been identified in this study as a constraining contradiction (see 2.4.2.1.3), presenting in the form of added pressure and competing priorities for academics already burdened with substantial teaching workloads caused by the increased student intake and poor staff–student ratios, and thus leaving little room for APD and the pedagogically meaningful incorporation of digital technologies into the curriculum and teaching repertoire.

Winberg (2005) identifies the third phase as ‘Rediscovering technology’. She describes the changeover from technikon to UoT as a ‘propulsion’ (2005, p. 196) forcing the institutions to reconsider their educational and research missions and inevitably their conceptualisation of technology. Notable and frequently occurring in discussion and official documents (Committee of Technikon Principals, 2004; Council on Higher Education, 2010; Du Pré, 2009) during the changeover were the terms ‘technological innovation’ and ‘technology transfer’, representing a distinctive strategic and applied research role envisaged for UoTs working in close collaboration with the needs of industry. Kraak (2006), referring to the Committee of Technikon Principals (CTP) document (2004, p. 21), explains technological innovation as the different steps from the creation of new ideas to successful marketisation and technology transfer: as the formal transfer of new discoveries resulting from research and development at universities to the commercial and industrial sectors.

Clearly, the shift from technikon to UoT required a concerted change in learning, teaching and research. In principle, therefore, a fundamental aspect of the UoT educational mission should be for academics to ensure that students are not only familiar with practical skills and technical knowledge, but also aware of related social and ethical issues and critically aware of the social,

cultural, ecological and political issues related to the use and propagation of technology (Boughey, 2010b). Recognising the work to be done in this regard, Winberg argues for an 'epistemology of technology' (2005, p. 198), a space for debate and reflection, within and across departments, to foster reflective practices in both applied and strategic research projects. Highlighting the need for institutional structures enabling the emergence of discursive spaces, she writes:

Creating such a strategic site of enquiry will enable universities of technology to analyse the various discourses: scientific, sociological, economic, and political and the clashes between them, which constitute different conceptions of technology. In such an in-between space 'technology' can be constructed and deconstructed, discussed and debated by practitioners of the multiple disciplines and fields that are involved in its conceptualisation and practice (Winberg, 2005, p. 198).

In the next section, I look at APD as a UoT structure responding to the need for discursive spaces, examining both enabling and constraining conditions that impact on the presence or absence of vibrant academic debate and scholarly examination of the academic endeavour in conjunction with the everyday needs of academics at UoTs.

4.2.8 Academic professional development at Universities of Technology

The 'continuities and discontinuities' (Winberg, 2005) resulting from an amalgamation of established practices and the emergent / disruptive changes following the change from technikons to UoTs have been demanding on academics at UoTs. They have been presented with the opportunity to shift from the convenorship system of the technikons to engaging in the tussle between the neoliberal and liberal discourses emerging in the various stages during the redefinition of the identity of a UoT in South Africa. However, Boughey (2010b) notes a persistent tendency amongst academics at UoTs to remain unreservedly compliant with national policy and other regulatory mechanisms and ascribes this response to a manifestation of the historical legacy of the bureaucratic tradition of the technikons. Especially relevant to this study is her recommendation that designers of APD in UoTs

... need to create the time, the capacity and the culture for staff to engage with the development of curricula which can produce the kinds of graduates envisaged in policy and other documents ... they need to foster creative thinking and reflection on the use, meaning and teaching of technology in a developing country in a globalised world (2010c, no page).

In addition, Winberg (2005) suggests that academics at UoTs need to remain conversant with both the developments in the disciplinary communities studying the relevant area of technology (e.g. health sciences, engineering, etc.) and the professional communities applying the technology. This dual focus on the discipline and specific disciplinary practices requires a criticality sensitive to the scientific, economic, political, sociological and ethical considerations in constructing and deconstructing technology, its conceptualisation and its practice. It also entails a reassessment of curricula as well as teaching and the learning activities designed for students in relation to the capacities and attributes required of graduates in their work environments.

The absence of this type of critical construction and deconstruction of technology may frequently result in technology being viewed as neutral and an automatic good. In addition, and guided by Boughey (2010b) who highlights the risks of adopting an asocial view of students, I argue that the combination of a deterministic view of technology and an asocial perspective of students, if unchallenged, may contribute toward the understanding of digital technologies in the teaching–learning interaction as a problem-solving appendage to familiar teaching practices. It is my contention that this perspective results in the tendency to focus not on the potential of digital technologies to enhance the learning experience, but on the convenience of digital technologies – often presenting the digitisation of content as ‘innovative teaching’. This could clearly have profound implications for how APD is constructed and is explored further at the T2–T3 level of this study.

Following Archer’s principle of analytical dualism (2.3.2), in this study I explore the interplay of structural and cultural conditions that impact and influence the choices made with regard to APD for the integration of digital technologies in teaching–learning interactions, especially at the site of this study, the DUT. The

next section focuses particularly on the cultural conditioning that influences academic decisions regarding APD for the integration of digital technologies in their teaching–learning interactions.

4.3 Cultural conditioning at T1

4.3.1 Introduction

The definition of culture amongst qualitative researchers is problematic, especially the ‘uncritical’ adoption, across the disciplines, of the traditional definition of culture as the shared beliefs and practices of members of a particular society or social group (Maxwell, 2012). Critical realists, by comparison, include the significance of the physical context in the conceptualisation of culture, as it has causal influence on the beliefs and perspectives held. The meanings, beliefs and attitudes are thus influenced both by the material circumstances in which they exist and by the cultural resources that provide us with ways of interpreting and making sense of the situations (Sayer, 1992, p. 149). Archer holds that ‘culture as a whole is taken to refer to all intelligibilia, that is to any item which has the dispositional capacity of being understood by someone’ (1995, p. 180). A cultural system therefore refers to relations of complementarity or relations of contradiction between the components of culture. Mutch explains that ‘ideas, once produced, form bodies of interrelated propositions that stand in relations of contradiction and complementarity to each other. Such bodies of propositions then form “situational logics” for particular episodes of social interaction’ (2010, p. 516).

To gain an understanding of the cultural conditions shaping the institutional decision to promote ‘e-Learning and its associated pedagogy [a]s a major university strategic goal’ (Durban University of Technology, 2014b, p. 31) at DUT, in this section of the chapter I examine how cultural systems condition higher education internationally and nationally, particularly with regard to the role of APD for the use of digital technologies in enhancing the student

experience in a digitally-mediated HE learning environment. While structural emergent properties (SEPs) and cultural emergent properties (CEPs) may impinge upon us by shaping the situations in which we find ourselves, presenting as constraints and enablements, their activation remains dependent on the mediation of agency, be it individual or collective (Archer, 1995).

4.3.2 The cultural system of the university in a digital age

A key driver of change both internationally and nationally is the belief amongst institutional leaders that technology presents an uncomplicated solution to the challenges that beleaguer massified higher education systems. Given the complexity of society, the possibility of a single idea of a university is problematic. A fundamental challenge accompanying the arrival of mass higher education is that there are many different kinds of institutions that bear the name of 'university', which gives rise to different conceptualisations of what it is to be a university (Barnett, 2011). For the purposes of this study I examine the competing ideas within the discourse on the university in a digital age, predominantly regarding the influence of globalisation and the hype, hope and fear (Selwyn, 2014b) accompanying the introduction of digitisation in the twenty-first century university. In this section, I briefly present both utopian and dystopian views of the 'changing technoscape' (Robins & Webster, 1999, p. 1) in HE.

Discourses, as previously discussed (3.6.2), convey culturally- and historically-located meanings that construct and represent the social world, 'maintaining the parameters or what is and what is not seen as preferable and possible' (Selwyn, 2014c, p. 129). Fairclough explains discourses as social practices that are seen as articulations via action and interaction, social relations, beliefs and attitudes, as well as material objects and instruments for 'meaning making' (2011, p. 121). This articulation is made through our interpersonal exchanges, communicating agreement and contestation, and including the negotiation of norms and values conveyed through meaning making and the language associated with a particular social field or practice. In this study, I looked

particularly at 'discursive formations' that revealed the 'naturalised' (Fairclough, 1995), established and dominant discourses within the cultural system of the university in a digital age, which included:

- Globalisation discourses (a cultural viewpoint);
- Discourses on knowledge and the technological (r)evolution;
- Discourses on the role of government, industry and university in the knowledge economy;
- Discourses on 'useful knowledge' and modes of knowledge production;
- Discourses on curriculum, disciplinarity and technology integration;
- Discourse on the changing role of the academic in a digitally mediated learning environment; and
- Discourse on the generational divide.

I focus firstly on the cultural system of the university in a digital age and thereafter proceed to examine the cultural system of APD for the integration of digital technologies in HE at both international and national levels.

4.3.2.1 Discourses on globalisation

The process of globalisation and the advent of digital technologies, as mentioned previously, has had a significant impact on the way the university is conceptualised. In this section, I focus briefly on the cultural impact of the universalising tendencies (Giddens, 1990) attributed to globalisation and the 'reconfiguration of pedagogical practices' (Edwards & Usher, 2008) on the academe. Czerniewicz and Brown (2009) draw attention to the frequently-twinning concepts of globalisation and ICTs in the discourse of the 'new world order' of social and economic transformation, variously referred to as the 'knowledge society', the 'informational economy' and the 'information age'.

While the impact of globalisation facilitated by technology in reshaping the university (Barnett, 2005) is acknowledged, there are competing and at times contradicting ideas and beliefs regarding the relationship between globalisation and the university. Marginson (2010, p. 24) highlights three contrasting perspectives. The first he identifies as 'global triumphalism' or

'global alarmism' which ascribes all social change to unobserved universal global forces. The second is the opposite of the first, which refuses to accept that a particular shift in behaviour or thinking may be attributable to globalisation. The third view focuses only on economic relationships and remains blind to changes that are cultural, technological and political, and does not acknowledge agency (ibid). Of particular concern in this study are the 'totalising meta-narratives of globalisation' (Clegg et al., 2003, p. 44), evident in education policies internationally and through global rankings of universities which fail to assign importance to local context. It has been noted that universities, in their role as knowledge producers in the digital age, are irrevocably bound to the logic of competition and drawn to the possibilities of technology which demand responsiveness and innovation as a measure of success (Clegg, 2011). Many researchers (for example Lawson, 2004; Oliver, 2011) argue that studies on the educational uses of technology frequently place far too much emphasis on the influence of technology. Challenging the technological determinist tendency, they draw attention to the social construction of technology, highlighting that 'technologies, far from being neutral devices necessitating social change, are always themselves socially shaped' (Clegg, 2011, p. 176). Undeniably, the impact of digital technologies is noted in the speed of production and distribution of knowledge, evidenced in the increase in publications and patents as well as a growing trend of media-enhanced 'collaborations and convergence of academic practices' (Guri-Rosenblit, 2009, p. vii). The new technologies present new challenges to higher education institutions worldwide, inviting a review and at times a redefinition of time-proven research and teaching practices (Säljö, 2010). Globalisation and internationalisation have created a faster and more complex academic environment, foregrounding certain academic attributes such as those related to technological competence, communications and linguistic competence (Marginson, 2010) and thereby increasing the day-to-day pressures of academic life. Marginson writes:

For universities and for individual academics, the question posed by globalisation is not simply one of response. It is more than a matter of becoming competent in the terminology of a new environment and in a few new technical tricks. Globalisation

poses the question of how to orientate to that new environment in a proactive and strategic sense ... there are new potentials for educational activity, new criteria for success and new pressures to perform and succeed. (2010, p. 26)

Of particular significance to this study is the principle that an understanding of the relationship between digital technologies and the 'reshaped' university, such as the UoT in South Africa, requires both contextual awareness and an appreciation of wider societal shifts (Selwyn, 2014a). I argue that the varied perspectives on the impact of globalisation on knowledge production, and the purpose of the university in a digital age, frequently result in differing beliefs and views on the shape and value of APD and present a constraining contradiction (2.4.2.3.1) to APD. This will be dealt with in more detail in the T2–T3 section of the study, which focuses on the interplay of structural and cultural conditioning (see Chapter 5) .

On the side of cautious optimism, the introduction of online courses, open educational resources (OERs) and the more recent and fiercely debated introduction of the Massive Open Online Courses (MOOCs)¹³, enabled through the use of digital technologies, are presented as potentially inexpensive means of bringing education to the masses. While MOOCs may be seen by some as 'game changers' (Koller, Ng, Do, & Chen, 2013; Marginson, 2012; Sachs et al., 2015) in the future of higher education, others have raised concern about the cultural dominance of Western knowledge systems and methodologies being further entrenched across education systems worldwide (Czerniewicz, Deacon, Small, & Walji, 2014). The origin and development of MOOCs, in particular, have been recognised as primarily 'American-led' with content comprising largely of the American or European academic experience. In an online blog titled 'MOOCs as Neocolonialism: who controls knowledge?' Altbach cautions that:

The implications [of the cultural dominance] for developing countries are serious. MOOCs produced in the current centres of research are easy to gain access to and inexpensive for the user, but may inhibit the emergence of a local academic culture, local

¹³ MOOCs are online courses available via the web for large-scale participative learning.

academic content, and courses tailored specially for national audiences (2013, no page).

It has been noted that presently many MOOCs are designed for consumption and not adaptation and are furthermore coupled at times with complex copyright and commercial rights issues (Alzouma, 2005; Czerniewicz et al., 2014). Writing about the de-territorialising 'pedagogies of (dis)location', Edwards and Usher (2008, p. 132) echo the concerns raised earlier about the effects of globalisation on developing countries that may be prone to becoming 'importers' of knowledge (4.2.2).

In the context of this study and from the perspective of APD, I argue that the field of digital technologies in HE is strewn with many controversial issues and accompanied by a range of constantly-evolving digital technologies that 'reformat' the learning environment through structural and cultural changes. Given these changeable conditions many academics feel more secure in the stability of familiar and time-honoured pedagogical practices, and consequently respond by resisting change (Ertmer, Gopalakrishnan, & Ross, 2001). This level of uneasiness and non-participation presents as a constraint to APD that is focused on enhancing the capacity to critically evaluate the educational potential of digital technologies.

In the next section, I continue my examination of the cultural system of the university in a digital age and focus on knowledge and the technological (r)evolution discourse, with the discourse of knowledge production and the role of government, industry and university in the knowledge economy as sub-discourses.

4.3.2.2 Discourse on Knowledge and the technological (r)evolution

Jean-Francois Lyotard, writing about knowledge in computerised societies thirty years ago, declared as inevitable a shift in the nature of knowledge 'as societies enter what is known as the postindustrial age and cultures enter what is known as the postmodern age' (1984, p. 3). This is elaborated upon in

2009 by Presner in the Digital Humanities Manifesto 2.0: A Report on Knowledge as ‘the twenty first century cultural wars which are largely defined, fought, and won by corporate interests’ (2010, p. 13). Lyotard anticipated the ‘miniaturisation and commercialisation of machines [as] changing the way in which learning is acquired, classified, made available and exploited’ (1984, p. 4). More importantly, he wrote about the commodification of knowledge, where knowledge would cease to be an end in itself and instead would be produced in order to be sold and consumed. In addition he foresaw, amongst other ethical and legal implications of the changed status of knowledge, the computerised use of knowledge as the basis for enhanced state security and international monitoring. Both Presner & Schnapp (2010) and Spencer (2004) credit Lyotard for articulating one of the most significant contemporary issues: the struggle for proprietary control of information technologies. They acknowledge Lyotard’s theories as an expression of his disquietude with the developments of the information age and its impact on education. Of particular significance to this study, based at a vocationally-focused HE institution such as a UoT, is Lyotard’s prediction about the ‘exteriorisation’ of knowledge with respect to the knower, resulting in a shift in the interaction of the learner and teacher being reduced to a commodity relationship of ‘supplier’ and ‘user’ (Lankshear, Peters, & Knobel, 2000; Naidoo, 2005).

Many writers (for example Gráinne Conole & Dyke, 2004; Czerniewicz & Carr, 2011; Mishra & Koehler, 2006; Oliver et al., 2007b) have called attention to the lack of theoretical grounding in addition to the challenges that accompany the introduction of digital technologies in HE, in particular the sheer volume of available information, changes in student expectations of the teaching–learning interaction, and the appropriate use of digital and other educational technologies to facilitate student learning. Confronted by the challenges following the exponential growth of conventional and professional interaction online, the need for new research exploring the ‘social epistemology and practices in spaces on the internet’ (Lankshear et al., 2000, p. 19) is pronounced.

Collectively these concerns signal the need for sustained intellectual reflection on 'what knowledge is needed in the new millennium?' (Muller & Subotsky, 2001, p. 163) and the nature and purpose of universities in the digital age. In their examination of the above question in a South African context, Muller and Subotsky (2001) have found that the answers invariably fall into one of two mutually-exclusive categories. They identify the first category as cultural knowledge pertaining to political and moral knowledge and skills, and the second, described as an increasingly influential category, identified as knowledge and skills for economic productivity. The inequalities generated by the apartheid system and still persisting in South African HE add complexity to the challenges of simultaneously retaining a presence in the globalised world as well as being morally responsive to 'local realities' and the socio-economic development needs of the previously disenfranchised majority population (Cloete, 2006b; Muller & Subotsky, 2001; Waghid, 2001).

The changing conceptualisation of knowledge adds complexity to the role of the educational technologist in the context of South African HE. Hodgkinson-Williams and Czerniewicz (2007), in agreement with McFarlane (2006) and Canagarajah (2002), describe the shift away from a rationalist conception of knowledge as decontextualised and value-free from the time of the Enlightenment to one that is understood to be constructed, contextual and collaboratively developed. This shift, according to Hodgkinson-Williams and Czerniewicz, creates the need to produce graduates suitably qualified for the 'knowledge society' and affects educational technologists in the following way:

They [educational technologists] have to support the teaching of increasing numbers of traditional and non-traditional students through digital means; they have to ensure that new kinds of capabilities are imbued in revised curricula; they have to design and make possible new kinds of resources and interventions (Hodgkinson-Williams & Czerniewicz, 2007, no page).

While the above discourses on globalisation and the technological (r)evolution in HE are prevalent at the international level, I have observed, based on data gathered from published books, journal articles, conference proceedings, online articles and blogs, that they are notably less visible at the national level. The dominant discourses at the national and institutional levels in

South African HE are focused largely at two levels: firstly, the capitalisation of knowledge; secondly, and following on the capitalisation, the tripartite role of government, industry and the university in the knowledge economy, including the generation and application of knowledge (Kraak, 2000; Young, 2008; Young & Muller, 2010). It is my contention that these discourses signal the introduction of ideological shifts with regard to knowledge production and curriculum design, and are accompanied by a divergence of opinion on the purpose of the university, knowledge and the role of the academic in the digital age, which consequentially impact on the nature of APD.

4.3.2.3 Discourse on the role of government, industry and university in the knowledge economy

Much has been written about the capitalisation of knowledge, the changing role of universities in the globalised world and the vulnerability of virtual education to the forces of commodification (Barnett, 2011; Biesta, 2007; Naidoo & Jamieson, 2005; Selwyn & Facer, 2013). In a description of the historical process of change within the university system from 'producers of values and social legitimation' to present day universities, Castells explains that

In the context of a technological revolution and in the context of a revolution in communication, the university becomes a central actor of scientific and technological change, but also of other dimensions: of the capacity to train a labour force adequate to the new conditions of production and management (2009, no page).

Internationally, three popular concepts representing the changing conceptualisation of the role of universities are identified by Välimaa and Hoffman (2008). They list the three concepts as the 'knowledge society' developed by sociologists, the 'knowledge economy' developed by economists and the 'learning society' developed by educators. In their analysis, the developers of these concepts do not usually engage with each other in the academic sphere, rather their communication takes place in the arena of public policy often resulting in confrontations and tensions that arise

from different underlying assumptions and value systems. The differences are manifest in the debates, amongst others, on innovation, knowledge as a private and a public good, and the introduction of market forces in higher education. These issues have been extensively examined and debated using theoretical frameworks such as the Resource Dependency Theory¹⁴ (Pfeffer & Salancik, 2003), the Triple Helix¹⁵ of University–Industry–Government Relations (Etzkowitz & Leydesdorff, 2000, 1995), and the Socio-cognitive approach¹⁶ (Rip, 1997). It is beyond the scope of this study to explore these. For my purposes it is sufficient to note that these frameworks reinforce neoliberal policy changes in HE. This has been done by legitimating the idea of universities as a site of entrepreneurial activity (Clark, 2001), supporting the establishment of synergies between universities and the business sector, and the commercialisation of research via a global knowledge network characterised by ‘increasing speed, compression and the digitalisation of knowledge transactions in the global economy’ (Peters & Olssen, 2005, p. 38). Acknowledging the inescapable power of globalisation in the modern world, Young and Gamble note, with reference to the commodification of education, that, while the successful production of marketable commodities relies on a superior system of education and training, it does not call for the education system itself to be ‘modelled on the idea of commodification’ (2006, p. 6). Of concern, in particular, are the forces of commodification which have altered ‘the nature of rewards and sanctions’ (Naidoo, 2005, p. 29) operating within HE, redefining the value of academic success in terms of narrow financial criteria and reconfiguring HE activities for income generation rather than the acquisition of scientific and academic capital. These fundamental shifts have resulted in a range of opinions on the purpose of universities and the emergence of a condition of, in Archer’s (1995) words, competitive contradiction (2.4.2.1.4) which forces academics to make choices. The different opinions and choices inevitably result in varying expectations of

¹⁴ The Resource Dependency Theory states that organisations require resources to survive and so must engage and interact with others who control these resources.

¹⁵ The Triple Helix theory promotes a leading role for the university in innovation, on a par with and in collaboration with industry and government in a knowledge-based society.

¹⁶ The Socio-cognitive approach proposes that scientists increasingly focus on global scientific issues by means of framing them in terms of local issues.

APD, at times as service providers of university administration improving HE efficiency, as scholars of higher education and commentators on policy and practice, or as promoters of the scholarship of teaching and educational research. The role of developers often includes teaching programmes such as higher education learning and teaching and conducting professional development sessions such as induction, teaching-related workshops and encouraging innovation in learning and teaching, promoting the use of technology and supporting academic staff with student development (Boughey, 2007; Fraser & Ling, 2014; Holmes & Manathunga, 2012; Rowland, 2007).

In summary, the discourses on the role of government, industry and university in the knowledge economy described above represent diverse views on the purpose of universities, transitioning from an elite to a mass system, and the production of university programmes as marketable commodities with consequent changes in the academic endeavour and impact on the purpose and nature of APD. In the next section I focus particularly on discourses that indicate shifts in the way knowledge is perceived.

4.3.2.4 Discourse on 'useful knowledge' and modes of knowledge production

A movement, both nationally and internationally, has been noted in the growth of a discourse on 'useful knowledge', described by Barnett (2000) as a shift from 'contemplative knowledge' to 'performative knowledge'. An outcome of this shift has been a change in the relationship between knowledge, people and technology, resulting in 'a profoundly complex shift in world-view' (Oliver et al., 2007a, p. 21), one that has influenced the way knowledge is viewed in Western societies and subsequently changed what is expected of learning organisations. Universities which once enabled generation and dissemination of knowledge as a 'disinterested academic endeavour' (Oliver et al., p. 22) are now required to be actively engaging in wealth generation and effective governance, and contributing to the research needs of business and technological progress, resulting in the 'mercantilisation of knowledge' (Lyotard, 1984), where the definition of being professional has changed from

'having knowledge to having competence' (Oliver et al., p. 23). In a similar vein, Moore and Young (2010, pp. 16-17) point out two competing and contrasting sets of assumptions about knowledge reflected in contemporary curriculum policy. The first is a 'neo-conservative traditionalism', which sees curriculum as a given body of knowledge to be transmitted via the educational institution, and the second, a 'technical-instrumentalism', which sees the curriculum as largely serving the needs of the economy and the future employability of students, and sees knowledge more as a means to an end, with graduates who exhibit the attributes that are presumed to be essential to the future 'knowledge society'.

To describe this shift as a change in knowledge production, Gibbons et al. (1994) introduce the concepts of Mode 1 and Mode 2 knowledge. Mode 1 knowledge is envisaged as being the traditional, canonical disciplinary knowledge produced in universities, and Mode 2 knowledge is perceived as knowledge produced in the context of application. To clarify the distinction between the two modes, in 'Mode 1 [where] problems are generated and solved in terms of the interests of an academic community, [whilst] in Mode 2 knowledge is produced in a context of application and problems arise out of that context' (Peters & Olssen, 2005, p. 43). The shift is outlined by Kraak as

... an epistemological transition away from closed knowledge systems managed only by canonical norms and collegial authority to open systems which are dynamically interactive with outside social interests and knowledge structures (2000, p. 14).

While Mode 2 knowledge production does not replace the familiar Mode 1, Gibbons et al. emphasise that it is characteristically different, as it is not set within a disciplinary framework but is trans-disciplinary and heterogenous on account of its contextual application, and is therefore not institutionalised predominantly within university structures (1994, p. viii). The distinctness of Mode 1 and Mode 2 knowledge has been the subject of intense debate, for example Muller (2000) emphasises that the success of Mode 2 implementation would be conditional on how academics respond to the challenges that accompany the change. In his view, academics who already engaged in Mode 2 knowledge would continue to aspire toward the

recognition and regard in their respective professional societies and follow the norms and values of their academic disciplines.

The debate on the different modes of knowledge production has had a 'particularly strong policy emphasis' in the restructuring process of the South African HE system, with specific reference to the drive to produce research that is 'relevant' to South Africa's socio-economic needs (Kraak, 2000; Shay, 2014; Winberg, 2006). The theory regarding the different modes of knowledge production has been subject to close scrutiny and critique¹⁷. In my view, the inclusive–exclusive debate on the different modes of knowledge production epitomises the exploratory journey toward the establishment of a unique UoT identity. UoTs have been noted to be moving between what is frequently described as 'academic drift' (Kraak, 2006) in the establishment and development of foundational disciplinary knowledge, as in Mode 1 knowledge production, and the valuing of 'principled situated knowledge' (Winberg et al., 2013, p. 109), i.e. knowledge related to a field of practice and located within its context of application, as in Mode 2. I argue, therefore, that the UoT identity is quintessentially and necessarily an amalgamation of both Mode 1 and Mode 2 constructs.

Writing about knowledge production in contexts of application and the workplace as a site of knowledge production, Winberg (2006) highlights the appeal of transdisciplinarity, providing examples such as the need for suitable technologies and environmentally sensitive production methods. She cautions that higher education practitioners 'need to understand, both theoretically and practically, how different knowledge production systems function, and how they might productively interact with traditional higher education' (2006, p. 162). In contrast is the unapologetically entrepreneurial stance taken by du Pré, advocating that '... universities can sell their knowledge' (2009, p. 18) and by so doing compete as enterprises in the open market. He writes:

Universities should deliver programmes contributing towards knowledge-based professions ...The emphasis is to deliver

¹⁷ For a detailed analysis of the new mode of knowledge production in the South African context see Ravjee, 2002; Kraak, 2000; Muller, 2003 & 2009; Subotsky, 2000.

employees ready for the world of work, and the curricula and research programmes are theoretical and application driven. This kind of university brings the academic activities in close contact with the needs of the working place. Academic activities can therefore enrich the world of work. It should be appreciated that UoTs are becoming more effective in their managerial approaches and interaction with business and industry. UoTs should, however, be careful that business principles should not be more important than academic paradigms (2009, p. 19).

It is my contention that the presence of competitive contradictions (2.4.2.1.4) with regard to the concept of knowledge, compounded by the differing conceptualisations of the different stakeholders, adds complexity to the issue of the nature and purpose of the university and the role of the academic in a digital age, and presents a constraint to APD.

4.3.2.5 Discourse on the vocational curriculum, disciplinarity and technology integration

The re-curriculation campaign following the change from technikon to UoT in alignment with the National Qualifications Framework has had a significant impact on the status of programmes offered at UoTs. The vocational curriculum, according to Young, has always had two purposes. The first he describes as providing access to knowledge, usually disciplinary, which is context independent and capable of transforming work. The second is context specific and related to the acquisition of job-specific skills and knowledge (2008). Recent curricular studies, however, have identified patterns of change in the undergraduate curricula, with an increasing emphasis on performativity and skills development (Barnett, Parry, & Coate, 2010) accompanied at times by a 'narrow vocationalism' (Spencer, 2004) following the ideological shift in modes of knowledge production. In their examination of emerging patterns of change in the modern curricula, Barnett et al. note an emphasis on innovation that increases efficiency rather than innovative pedagogical strategies. They write,

There seemed to be an increasing concern with imparting the relevant knowledge and developing the appropriate skills in the time available. Thus, students were presented with more basic documentation or information on Web pages in order to save time. Reducing face-to-face contact with students was deemed to be more 'efficient' (2010, p. 447).

The diversification of higher education and the broadening of the curriculum to include general intellectual capacities and capabilities relevant to particular professions have also been raised as concerns. Singh and Little (2011) highlight that such a broadening of the curriculum raises issues of what is valued and legitimated in higher education, while Wheelahan (2014) cautions that ‘a focus on specific content for a specific context’ divests students from the generative principles of disciplinary knowledge and disables students from operating beyond the familiar context, depriving them of ‘the capacity to transcend the present to imagine the future’ (Wheelahan, 2010, pp. 106-107). Similarly, at a national level, a occupationally-oriented curriculum largely driven by content (as in the traditional elitist systems) or by skills and competencies (as in the new generic models) will result in the loss of important educational goals such as opportunities for progression. It would also have negative consequences for both social justice and the development of a knowledge-based economy (Young, 2009), curbing ‘powerful forms of knowledge’ (Shay & Peseta, 2016) that enable students to participate fully in society. In the context of South African HE, and drawing attention to Morrow’s (2009) concern with regard to epistemological access¹⁸, both Shay (2014) and Coleman (2016) highlight that to give students access to knowledge would require not just disciplinary content, but also access to specialised discourses recognised within the relevant disciplinary boundaries, and a sensitivity to socio-epistemic factors. More recently Shay and Peseta, writing about the call for a socially just and decolonised curriculum in South African HE, have cautioned about the current trend in curricular reform, driven by instrumentalist and neoliberal agendas that promote inter-disciplinarity in reaction to the demand for graduates who can ‘solve’ major social issues, without due regard to the ‘epistemic complexities of inter-disciplinarity’ (2016, p. 361).

¹⁸ Morrow (2009) explains that, to learn how to become a successful participant in a particular academic discipline, one needs to gain epistemological access. Epistemological access is gained by active student engagement. The role of the teacher is as facilitator of the student’s epistemological access. Muller (2014) later describes the term as a ‘conceptual staple’ in South African scholarly discourse as a signal to indicate ‘intent to move beyond physical or formal access to *meaningful access* to the “goods” of the university’.

The findings of both a British study (Hammond & Bennet, 2002) and a South African study (Czerniewicz & Brown, 2007), exploring the relationship between disciplinarity and technology integration, highlight discipline-based differences in the use of digital technologies and recommend that the relationship between disciplinarity and technology integration be examined by investigating disciplinary differences in knowledge construction. This is reiterated by Howard and Maton (2011) who explain that, while existing studies on the integration of digital technologies in classroom practices have examined factors such as teacher attitudes and beliefs, and the availability of resources and access, as well as student engagement, 'the structuring of the knowledge, and where knowledge is addressed' (2011, p. 192) has primarily been explored at a surface level. They highlight that

... the curricular contexts into which technology is integrated are neither homogenous nor undifferentiated, ... and so to understand differences in the extent and form of integration of technology into classrooms requires an understanding of these differences in subject-area knowledge formations (Howard & Maton, 2013, pp. 1-2).

This phenomenon of 'absenting discipline' (Chen, Maton, & Bennet, 2011, p. 129), or keeping the 'structuring of knowledge' at a basic level of empirical descriptions, is described by Howard and Maton as 'knowledge blindness' (2011, p. 192). They explain further that the study of knowledge itself has been obscured in educational research by a 'false dichotomy' between studying either knowing¹⁹ or knowers²⁰. The 'false dichotomy', they write, can be traced to the ways in which psychology and sociology have been recontextualised in educational research. Psychologically informed approaches see knowledge as comprising of 'undifferentiated generic skills or interchangeable packets of information' (2010, p. 6), thereby placing emphasis on knowing, and on 'the processes of learning'. Alternatively,

¹⁹ Knowing, according to Howard and Maton (2011), is linked to psychologically informed approaches that interpret 'knowledge' as that which is in people's minds and 'learning' as comprising generic processes of learning.

²⁰ Knowers are emphasised by sociologically informed approaches. Knowledge in this view is socially constructed and reflects the interests of dominant social powers (Howard and Maton, 2011).

sociologically informed approaches emphasise the social and cultural nature of the learner (Maton & Moore, 2010, p. 6), thereby emphasising the knower. Of particular interest to this study is the ‘absenting’ of knowledge structures, or knowledge-blindness (2.7), in debates on the integration of digital technologies in HE curricula, also noted in arguments promoting massive open online courses (MOOCs) (Maton & Moore, 2010, p. 7).

Using the specialisation dimension of Maton’s (2014) Legitimation Code Theory (LCT) (2.7) to understand the impact of the structuring of knowledge on the use of digital technologies in teaching–learning interactions, Howard and Maton (2011) identify degrees of ‘code matches’ and ‘code clashes’ (3.7.2) between discipline-based knowledge practices and underlying technology practices. Their findings draw attention to the importance of the organising principles of knowledge practices in enabling the integration of digital technologies. As mentioned previously in this study, the LCT dimension of specialisation (see 2.7.1 in Chapter 2 and 3.7.1 in Chapter 3), or ‘what makes someone or something different, special and worthy of distinction’ (Chen et al., 2011; Howard & Maton, 2011, p. 196), provides an important analytical lens to gain an insight into what needs to be included and prioritised in the APD programme to earn legitimacy, status and authority to support the meaningful integration of digital technologies across different disciplines. This will be explored further at the T2–T3 and T4 levels of analysis examining the interplay of structural and cultural conditioning at the site of the study.

In the next section I change my focus to the existing cultural conditions that influence the responses of academics to the introduction of digital technologies in the HE learning environment.

4.3.2.6 Discourses on the changing role of the academic in a digitally-mediated learning environment

As mentioned before many higher education institutions, both nationally and internationally, prompted by globalisation and the transition toward a massified HE system, have selected to incorporate e-Learning as an

institutional strategy as opposed to leaving the adoption of digital technologies up to enthusiastic academics. At DUT an institutional change of this nature communicated a cultural shift and augured subsequent changes in the role of the academic working within a digitally-mediated HE environment, creating conditions for contradictory and complementary perspectives. While there are many models of organisational change, e.g. Fordist, ecological, evolutionary, etc. (de Freitas & Oliver, 2005, p. 4), as well as many models of organisational cultural types, e.g. collegium, bureaucracy, corporate and enterprise (McNay, 1995, p. 106), for the purposes of this study I have selected to focus on the reactions of academics to the change from organic (bottom up) to driven (top down). Both approaches are recognised to be flawed, with top-down change invariably met with resistance and bottom-up change hampered by lack of funding and support (Dearlove, 1977). These phenomena are manifest in the context of this study, which traces the shift from voluntary use of digital technologies in learning teaching interactions to the implementation of the institutional technology imperative at DUT. This study focuses on the varied reactions of the academics to the shift; some highlight the global opportunities while others raise issues of structural constraints and social injustice. Notable particularly, given the legacy of the culture of compliance (2.4.1), was the resistance expressed through minimal 'tick box' participation in the APD programmes rather than vibrant academic debate. This will be examined in greater detail at the T2–T3 level of analysis. In the next section I focus on varying views of the changing role of the academic in a digitally-mediated learning environment.

The academic role is in a state of flux. The growing importance of HE as an instrument of national economic policy has been accompanied by a decline in academic freedom and an increase in corporate-like managerial surveillance and new orders of governance. Increasing managerialism has reportedly affected many roles and relationships in academe, creating a 'poor-fit' between the nature of work and the way academics are managed in HE (Blackwell & Blackmore, 2003; Delanty, 2008; McWilliam, Hatcher, & Meadmore, 1999). Of particular relevance to this study is the widespread introduction of digital technologies in the teaching–learning interaction as an

institutional strategy. This is frequently viewed as an imposition on academic authority (Hanson, 2009) and a 'dislocation of identity' (Barnett & Di Napoli, 2008, p. 5). The imposition of institutional imperatives entails the 're-visioning' of the academic role in HE particularly as academics negotiate (Ibarra, 1999) their space within the new order, moving between 'professional and academic cultures' and adopting several voices in their work with different networks (Bamber, 2012, p. 159).

The evaluation of the impact of digital technologies on academic identities has largely been influenced by technological determinism. Disrupting the notion that there are no choices to be made in adopting new technologies and challenging the deterministic narrative of inevitability and efficiency in accounts of the relationship between technology and the academic identity, Clegg draws attention to related issues of class, gender and location, emphasising that the combination of

... technologies and social relations that make up academic work is open to negotiation and contestation in relation to how we re/assemble them and make meaning (2011, p. 176).

Many researchers (for example Cuban, 2001; Hanson, 2009; Selwyn, 2003) have identified the paucity of writing on how a digitally-mediated academic environment is negotiated and understood by academics. The need for related research that is inclusive of the social and economic realities which could provide an insight into both the use and non-use of ICTs has been recognised, highlighting the importance of looking beyond individual or generational deficits.

4.3.2.7 The generational divide discourse

Internationally, many researchers (for example Blin & Munro, 2008; G Conole, 2004; Laurillard, 2007a; Oliver & Dempster, 2003; Selwyn, 2003) have noted that the anticipated transformation or 'disruption' of teaching practices following the introduction of digital technologies in HE has not materialised. This has added momentum to the popularised discourse on the generational divide between a generation of students born after 1980, and variably known

as the 'digital natives' (Prensky, 2001), or the 'Net Generation' (Tapscott, 2009), endowed with sophisticated technology skills and different from those born in or before 1980, referred to as the 'digital immigrants', perceived to be apprehensive about the use of digital technologies (Prensky, 2001). Despite evidence to the contrary (Bennet & Maton, 2010; Bennet, Maton, & Kervin, 2008; Czerniewicz & Brown, 2010; White et al., 2012), the idea of 'a distinctive new generation of students ... with learning preferences for which education is not equipped to support' (Bennet et al., 2008, p. 783) remains popular and persists. Challenging such sweeping statements of a 'widespread and universal disaffection' (Bennet et al., 2008, p. 783), researchers both internationally and nationally (Bozalek & Ng'ambi, 2015; Brown & Czerniewicz, 2010; Czerniewicz & Brown, 2010; Selwyn, 2010a) have begun to look beyond the 'promise' of online learning, to examine socially-relevant issues of digital connectivity and disconnectivity.

In summary, an examination of dominant, different and competing discourses brings to the fore the striking and complex array of cultural conditions that influence the participation or non-participation of academics in APD programmes focused on enhancing the capacity to critically evaluate the educational potential of digital technologies. The various combinations of contributing systemic conditions, such as institutional change, accompanied by structural and cultural relations of congruity and incongruity, reveal issues that extend beyond simple binaries. These conditions in turn influence academic decisions regarding the participation in and the appraisal of APD, and is the focus of the next section.

4.3.3 The cultural system of academic professional development for the integration of digital technologies in higher education

4.3.3.1 Academic professional development – spaces for disruption

In this section I explore the nature and function of APD as a disruptive space within the digitally-enabled learning environment of HE today, both nationally and internationally. As mentioned previously, the discourses convey both the

culturally- and historically-located meanings that construct and represent the social world. Both Quinn (2012d) and McKenna (2012, p. 15) argue in favour of theorised spaces which 'disrupt' common sense understandings of the purposes of the university to enable academics to both interrogate their practice and develop coping mechanisms to deal with the complexities of HE. I begin by exploring current constructs of APD, and trace how these constructs influence the manner in which APD is actualised within institutions and impacts upon the integration of digital technologies in HE, and then proceed to explore dominant discourses in APD both nationally and internationally.

Using Stabile and Ritchie's (2013) differentiation between training, development and enrichment for the purpose of APD, I briefly describe the ways in which APD is variably constructed in HE institutions in order to understand the different expectations of APD that managers and academics may hold. According to Stabile and Ritchie, 'training' is conducted for the purpose of ensuring that academics acquire the skills or competencies and are capable of applying the practical skills to everyday activities. Training would be appropriate, for example, in the context of software familiarisation training, where the learning activities are readily defined and unvarying. Institutions that ascribe to a training construct view APD as more about instilling an ethic of 'institutional compliance' to satisfy the needs and beliefs of the institution rather than a commitment to learning or advancement (ibid). 'Development', the second construct, by comparison is viewed as more cognitively involved than training, although it is perceived at times as suggestive of a shortcoming in some area on the part of the academics. Institutions which adopt a development construct are committed to the APD process via the provision of resources, materials and support personnel. The purpose of development, however, is frequently faculty focused and viewed as a measurable in terms of producing a more knowledgeable and productive academic. Attached to the development, at times, are extrinsic rewards such as promotions and awards attached to expectations of improved efficiency measured by increased throughput and success and graduation rates. Institutions which promote 'enrichment', the third construct, prompt academics

to examine the alignment of their epistemological beliefs and attitudes with their teaching methodology, and engage in core reflection, habitual self-discovery and analysis that is intrinsically motivated rather than an outcome of an institutional top-down requirement. With particular reference to the meaningful integration of digital technologies in HE, it is evident that the 'naturalisation' of technology as part of the institutional culture is more than the provision of access and training: it also requires a reappraisal of current practice that may need to be 'adapted, translated and integrated into new disciplinary, pedagogical and institutional context through the innovation and creativity of academics' (Beetham, 2002 in Oliver & Dempster, 2003, p. 143). Using Stabile and Ritchie's (2013) three APD constructs, in this study I argue that APD that is focused on enhancing the capacity to critically evaluate the educational potential of digital technologies requires training and development, as well as enrichment. However, these different levels of APD are often not recognised as beneficial either by institutions or by time-poor academics. These constraining contradictions (2.4.2.1.3) will be explored in greater detail at the T2–T3 level of analysis exploring the interplay of structural and cultural conditions that impact and influence the choices made with regard to APD for the integration of digital technologies in teaching–learning interactions. In the next section I focus on two dominant discourses in APD, which are a) professionalising academic development as an emergent field and b) contextualising APD.

4.3.3.2 Professionalising academic development as an emergent field

Internationally, while the terms 'academic development' and 'educational development' (Manathunga, 2007; Rowland, 2002), as well as 'learning technologist' and 'educational technologist' (Beetham & Sharpe, 2007; Czerniewicz, 2008; Oliver, 2002), continue to be debated, there is agreement on the need to acknowledge the 'hybrid roles' (Hudson, 2010) for the support of teaching and learning and to professionalise the practices aligned with teaching and learning in HE, viz. student, staff, curriculum and policy development (Clegg, 2009a; Shay, 2012) and the integration of digital technologies. It has been acknowledged that there are multiple orientations

to academic development, and the activities conducted in the name of academic development are constantly changing, leaving the field open and ill-defined (Leibowitz, 2014) and influencing the status and legitimacy of APD. Similarly, Manathunga writes:

Academic developers are very often disciplinary migrants, performing hybrid, liminal roles at the 'fault lines' between teachers and learners, between academics and managers, and between teaching and research (2007, p. 25).

As an emergent field in South African HE, academic development is in transition from its traditional emphasis on the provision of service and student development (Boughey, 2010a) toward a mixed mode of services at various levels within HE, contributing to a range of potential roles and identities. Both Carew et al. (2008) and Quinn (2012a) highlight the need for theoretical foundations for APD in HE with recognised qualifications, knowledge, skills and dispositions to have the credibility to work with academic staff: a shift away from the traditional role of APD focused on student development, particularly in South Africa, where doctoral qualifications for APD appointments were often not a requirement. In its place is a newly conceptualised role that promotes the APD capacity to contribute to individual and institutional transformation, with growing emphasis toward the professionalisation of the teaching practice of academic staff, on the basis of scholarly foundations and academic status for APD (Quinn, 2012a), and away from ad hoc craft knowledge and generic skills developed through practice (Shay, 2012). In this study I contend that the professionalisation of academic development, including its various areas of special focus such as the integration of digital technologies, would be an enabling condition.

4.3.3.3 Contextualising academic professional development

The impact of policy upon APD practice has been noted both internationally and nationally. In an Australian study on professional development, Hardy describes how policy tensions between competing managerial and democratic approaches to APD influenced practice. He describes the neoliberal and economists' influences of the managerial approach as being reflected in the

'intensification of teachers' work', whilst the democratic approach is characterised by 'support for collaborative, ongoing, site based and student-centred learning' (2008, p. 106). Volbrecht and Boughey (2004) describe similar tensions emerging from the new policy environment in South African HE. Although the practice of APD to date is variably conceived across HE institutions in South Africa, Boughey and Niven (2012) describe three general trends in the history of academic development in the South African context. The first was academic support – a donor-funded add-on initiative, employing staff on short-term contracts to support the small number of black 'underprepared' students who managed to gain admittance to the historically white, liberal universities. A second trend was known as the 'infusion model', which promoted the idea that academic development staff themselves needed to be enabled to engage with mainstream academic staff to address issues of epistemological access. The third phase was characterised by a change from academic development to higher educational development, with an emphasis on quality and efficiency and the development of academic staff as professional educators (Boughey, 2010a). Boughey highlights in this phase a shift in 'ideological alliances and social economic policy propositions' (2007, p. 10), from a socialist ideology pre 1994 to neoliberal thinking post 1994, attributing the change to the development of a stringent macro economic framework and the effects of globalisation and market forces on HE. Following the pattern of these neoliberal shifts, in the context of this study, is the change from the voluntary use of digital technologies at T1 to the introduction of the institutional technology imperative, with related operational targets and performance management working toward the achievement of institutional efficiency and national competitiveness in a globalised economy. This will be the focus of analysis at the T2–T3 level, examining the socio-cultural interaction in order to understand the response of academics to the institutional technology imperative, and its subsequent enabling or constraining conditions that impact on APD.

4.4 Conclusion

Critical realists do not deny the reality of events and discourses; on the contrary, they insist upon them. But they hold that we will only be able to understand – and so change – the social world if we identify the structures at work that generate those events or discourses. Such structures are irreducible to the patterns of events and discourses alike. These structures are not spontaneously apparent in the observable pattern of events; they can only be identified through the practical and theoretical work of the social sciences (Bhaskar, 2011a, p. 2).

In keeping with critical realist underpinnings of a stratified ontology (2.2.1) and the morphogenetic–morphostatic framework, in this chapter I have intentionally and separately traced the pre-existing structural conditions and cultural conditions to enable me to analyse the interplay of the structural (material interests) conditions as well as the cultural (ideas, beliefs, values and ideologies) conditions that have culminated in the decision to introduce digital technologies in the teaching–learning interaction as an institutional imperative. The morphogenetic–morphostatic framework has enabled me to disentangle for analytical purposes (2.3.2) the pre-existing material structures and the normative ideas and their associated discourses at the macro level to gain an understanding of the structural and cultural conditions that may have influenced and shaped decisions and actions related to the introduction of digital technologies and the reactions of academics to the provision of APD at DUT. The examination of macro level structural systems, in the first half of this chapter, in combination with dominant discourses prevalent in the cultural systems of both APD and the university in a digital age, in the second half of this chapter, has enabled me to proceed to explore the unobservable ‘patterns of events and discourses’. Together they help me to gain an understanding and – following Bhaskar – possibly initiate a change in the structural and cultural systems at work that generate these events and discourses that influence the response (or lack of response) to the provision of APD at DUT, the site of the study.

In the next chapter, I continue by exploring the institutional context at the meso level, and the social interactions and socio-cultural interactions of

academics where the nature of the situational logic (2.4.2.1) that the academics have to deal with at the meso and micro levels becomes more evident. What will be of interest are the concerns, projects and practices (Kahn et al., 2012) of the academics (agents) dealing with issues of change and risk in their institutional and departmental environments. The relations of contradiction or of complementarity, and of conjunction or disjunction in the interplay of structural, cultural and personal emergent properties, will be examined to gain an understanding of what needs to be in place or what it is that needs to change to enable APD programmes for the meaningful integration of digital technologies by academics at DUT.

CHAPTER 5: STRUCTURAL AND SOCIO-CULTURAL INTERACTION – MESO AND MICRO LEVELS

5.1 Introduction

As part of my examination of conditions that enable and constrain APD for the integration of digital technologies in teaching and learning interactions at the Durban University of Technology (DUT), this chapter focuses largely on the institutional conditions at the meso and micro levels. I begin with a brief overview of the institutional context at DUT to examine the pre-existing structural and cultural conditions that obtained at T1, before proceeding to the second phase of the M/M cycle, social and socio-cultural interaction, referred to as T2–T3 in both the cultural and structural domains. In the previous chapter, I began with an examination of both structural and cultural conditioning at the macro level to understand how the results of past actions shape the environment that we encounter presently. Archer explains that any activity initiated at T2–T3 takes place in a context not of its own making, because ‘knowledge about it, attitudes towards it, vested interests in retaining it and objective capacities for changing it’ (1995, p. 78) already exist at T2. The range of challenges and concerns, as well as the changing and competing discourses, discussed in the previous chapter on the macro level, indicate that the institution-wide deployment of digital technologies in HE has been accompanied by considerable change and instability both nationally and internationally. In this chapter I look particularly at the social interaction in the structural domain and the socio-cultural interaction in the cultural domain, or T2–T3 of the M/M cycle, which is an analysis of how individuals and groups respond to the inherited enabling or constraining structural and cultural conditions. In this study, following the M/M cycle, it is premised that, should the outcome of the social and socio-cultural interaction be change (morphogenesis) as opposed to staying the same (morphostasis), it would indicate an ‘elaboration’ (2.4) of the structural and cultural systems at T4, which would then also be the initiation point of a new morphogenetic cycle (see Figure 2, Chapter 2) at DUT.

The data used to inform the discussion in this chapter was obtained from (a) official documents and reports mostly generated by DUT, (b) a 2013 e-Learning institutional survey (Appendix 10) as well as a pre-interview participant survey conducted for this study (Appendix 11), and (c) interviews conducted with administrators, managers, academics, educational technologists and technical support staff at DUT (see 3.5). Using the broad principles of critical discourse analysis (3.6.2), I analysed the texts to distinguish dominant thoughts and practices related to APD at DUT. In addition, the realist methodological principle of analytical dualism (2.3.2) was used to distinguish the relationship between the 'parts' (culture and structure) and the 'people' (agency) in the particular time period of the study. This investigation allowed me as researcher to gain insights into the conditions that may have contributed to reproduction or change, and to answer the question: what is it that enables and constrains APD for the integration of digital technologies in teaching–learning interactions at DUT?

5.2 Institutional context

The early years of DUT were marked by change and instability. Following the national plan for a single coherent and unified higher education system, a voluntary merger between two neighbouring technikons in KwaZulu-Natal, namely, Technikon Natal (a historically advantaged institution) and the ML Sultan Technikon (a historically disadvantaged institution) was effected in the formation of the Durban Institute of Technology (DIT) in 2004. The DIT became the first merged higher education institution in South Africa, forming a medium-sized contact and predominantly vocationally-focused undergraduate institution (see 1.2). The merger created a rich amalgam of both structural and cultural conditions. In keeping with new legislation and nomenclature regarding the differentiated higher education system in South Africa, the DIT was renamed the Durban University of Technology (DUT) in 2006. As a voluntary merger between two institutions it was not a direct result of ministerial intervention, however, the established and divergent cultures of each institution were noted in each resisting dominance by the other (Cartwright & Cooper, 1996). The lack of open discussion and debate on academic issues at

the time further indicated that ‘the debate had gone underground’ (Sattar & Cooke, 2009, p. 70), with a prevailing sentiment of a ‘take-over’ and feelings of insecurity and mistrust. Of particular relevance to this study was the human resource related impact of a considerable number of academic staff departures (supported by university management for reasons of institutional financial sustainability via voluntary exit packages) on the academic programmes (Sattar & Cooke, 2009; Wallis, 2005). A further issue adding complexity to the change and instability in the early years of DUT was a frequent change of institutional leadership:

The fact that the development and approval of a new mission for DUT took place in the context of an ongoing governance and leadership crisis did not create a conducive environment for an institution-wide engagement about the implications that the change of designation had for the conceptualisation of the core functions at DUT (Higher Education Quality Committee, 2008, p. 4).

In the recent past and under stable leadership DUT has made strides toward the achievement of its vision, which describes DUT as ‘a preferred university for developing *leadership in technology* and productive citizenship’ (DUT, 2011) (emphasis added). Exactly what enables and constrains ‘leadership in technology’ in DUT sphere of academia is explored further in the study. The 2015–2019 strategic planning document of the university identifies student-centredness and engagement as ‘quintessential threads’ (Durban University of Technology, 2014a, p. 5) in its constitution, working ‘towards relevance, responsiveness and resilience’ (Durban University of Technology, 2014a). ‘Networking the University’ has been identified as one of the key ‘drivers’ of the embedded values in the implementation of the strategic plan. The new strategic conceptualisation suggests that DUT is repositioning itself from being primarily concerned with science and technology and the economic benefits of the application of knowledge (4.2.7) to being a university where the economic purposes of the university share a space with the humanities and liberal education, emphasising democratic citizenship and broader social responsibility. It can be inferred further that these projected changes would be well served by an APD space to review established academic practices and

assess the value of digital technologies in the teaching–learning interaction. In the next section I trace the development of APD at DUT.

5.2.1 Academic professional development at DUT

This section comprises a brief overview of APD at DUT, and an introduction to the e-Learning unit which is responsible for APD training and workshops for the integration of digital technologies across the six faculties. During the merger, the academic professional development units of the two institutions, although dissimilar in areas of emphasis²¹, were amalgamated into the Centre for Higher Education Development (CHED) and further resisted an attempt to move the unit into an adjunct position in human resources as the training department (Harrison & Mistri, 2011). In common with the parent institution, CHED was beset with frequent changes in leadership and staffing that added to complications accompanying shifts in APD priorities and purpose. Given the aforementioned challenges accompanied by divergent views on and expectations of APD, CHED was renamed the Centre for Higher Education in Learning and Teaching (CELT) in 2009 as an exercise in ‘clarifying the role and functional mandate of CHED²²’ (Higher Education Quality Committee, 2008, pp. 14-15), and this was also accompanied by the appointment of a new director for the centre. Under the new leadership, the CELT structure houses four key units, viz. 1) e-Learning, 2) Learning, Teaching and Assessment, 3) Student Access and Support, and 4) Multimedia. A notable shift in support for APD at the level of institutional planning has been the acknowledgement of its role in ‘building a learning organisation’ and toward ‘transforming institutional culture’ through the creation of a ‘programme of learning for all staff’ (Durban University of Technology, 2014a, p. 9). Significantly, the 2015–2019 strategic planning document includes ‘seeing staff development as essential in DUT

²¹ Based on staff allocations, it appears the AD unit of ML Sultan Technical College was focused on student and organisational development, while Technikon Natal placed emphasis on student development and educational technology.

²² This was in accordance with Recommendation 14 of the Higher Education Quality Committee Audit which proposed that DUT: ‘Clarify the role and functional mandate of CHED, which would include the expansion of academic development and support to students by CHED beyond an administrative and co-ordination role’.

purpose' (2014a, p. 6) and the '[development of] dynamic interfaces ... both inside and outside the University' (ibid) as core to its function as a UoT.

With the aforementioned institutional context as a backdrop, in the next section I begin by focusing in particular on academic agency, i.e. the academic responses (T2–T3) to the pre-existing structural and cultural conditions (T1) across three phases of digital technology implementation (see discussion of each and Table 6 below) and the provision of APD at DUT.

Phase	Volunteer - Early	Volunteer- Established	Institutionalisation - Early
SITUATIONAL LOGIC	OPPORTUNISM	PROTECTION	CORRECTION
YEAR	2000	2002/3	2011/2

Table 6: Implementation phases of digital technologies and the situational logics at DUT

Following Archer's M/M cycle, I begin by exploring the relations of compatibility or incompatibility between the goals (projects) of the 'people' and the generative powers of the 'parts' in each of the three digital technology implementation phases and the associated APD. This is done by examining the material relations or the distribution of *vested interests* (2.4.2) and the situational logics (2.4.2.1) or ideas that 'stand in manifest logical contradiction or complementarity to others' (Archer, 1995, p. 229). The presenting situational logics thus predispose people and groups of people to 'see their interests served by defensive, concessionary, competitive or opportunist modes of interaction with other groups' (Archer, 1995, p. 217). I continue further by tracing the patterns of intersection, conjunction and disjunction in 'the interplay *within* and *between* the three [M/M] cycles' (Archer, 1995, p. 194, emphasis in original) of structure, culture and agency, or systemic integration (social and cultural) and social integration (agential) to understand when there is change or elaboration (morphogenesis) that enables APD and when things remain as they are (morphostasis).

5.2.1.1 The volunteer Phase – early

The emergence in 2000 of the e-Learning academic development programme at DUT, initially named the 'Pioneers Online', to support academics in the use of digital technologies such as the Learning Management System (LMS), coincided with a period of national and institutional metamorphosis. Given the focus on the national imperative for HE transformation and institutional concerns with diminishing state subsidies, the merger and leadership related issues, the e-Learning academic development programme (Pioneers Online) evolved contingently, unconstrained and energised by a few academics from the margins in the absence of a clear institutional mandate (Peté & Fregona, 2004).

Many academics, in their interviews, described as enabling the fact that they felt secure in the knowledge that their explorations were not in contravention of any institutional regulations or restricted by institutional requirements or rules. Another key enabling factor was that of a supportive Dean or HoD, who would make it possible for the academics to integrate digital technologies in their teaching by removing barriers such as budgetary constraints and the lack of technical and laboratory support, where possible, as expressed by an academic in the following :

Definitely the support of my department, and the other big support is the support of the Dean. You know, that if you had any queries related to your teaching practice or any issue, you could approach them and you would get that level of support, otherwise it becomes very lonely, like dealing with computers and dealing with, uh, like getting an internet cable. You don't want to have to fight the powers that be to be able to get to the technology, but I'm very lucky that I have a very supportive HoD, I come from a very supportive department, and I have a very, very supportive Dean who understands the benefit of e-learning or educational technology (Shani, 2014, interview).

From my analysis it seems that the presenting situational logic (2.4.2.1) at the early volunteer phase allowed for cultural change and ideational innovation, in Archer's words '*a situational logic of pure opportunism, for only gains can accrue from their exploitation*' (1995, p. 226, emphasis in original). A relation of

contingent complementarity (2.4.2.1.1), where the cultural ideas, beliefs, values and ideologies are compatible but not dependent on one another, was noted between APD and the academic institution during this phase.

Péte and Fregona (2004), writing on the early years of the voluntary Pioneers Online programme, however draw attention to 'lack of [institutional] ownership' as well as the fragmentation of departments, faculties and campuses as key challenges, frequently leaving the innovative practices unnoticed and unacknowledged. This concern was expressed by an academic:

I think we have a lot of people at DUT who do amazing work, but there's not enough sharing. We work in our silos, we work, you know, across various campuses, various departments (Shani, 2014, interview).

The above situation, I would argue, initially limited academics in the early volunteer phase to remain, according to Archer (1995), at the atomistic level of 'primary agents' or of the agency that an individual may choose to exercise and restricted to their unique context, as indicated in the excerpt below:

[A]nd, there's a few people that are sitting in their offices and doing – they're busy doing it [teaching online] because they've seen the value of what it can do for them and for their students (Aarya, 2014, interview).

This situation is in contrast to that of 'corporate agents', explained as a group of 'active' people who are able to strive toward the actualisation of a shared goal, rather than 'passive' people to whom things happen (Archer, 1995). This will be elaborated upon below and in the discussion of the established volunteer phase to follow.

The evidence suggests that the early volunteer phase resulted in morphogenesis despite the challenging circumstances mentioned earlier. The introduction of digital technologies in the teaching and learning interaction, via the Pioneers Online programme, created a contingent relationship, a 'new idea' that was not in competition with or dependent on existing ideas within the cultural system of DUT. According to Archer,

... these changes in the cultural system represent a shifting environment and an extension of horizons which account for

changes in cultural interaction because some actors will take account of them. And whether many take active account or not, the environment has altered radically for all since increasingly they cannot fail to be aware that alternatives exist – and such an awareness is death to tradition (1996, p. 224).

The group of academics who voluntarily took up the APD opportunity aspired to develop and improve their capacity as academics to interact and engage with their students, using the digital medium in a pedagogically significant way. The data seems to suggest an emergent change or morphogenesis, as ‘the contingent complementarity [was] elaborated and those engaged in this process bec[a]me more and more absorbed in it’ (Archer, 1996, p. 222). In keeping with Archer’s explanation of the consequences of contingent complementarity, those academics who completed the Pioneers Online APD programme, and incorporated digital technologies into their teaching repertoire, were frequently regarded as specialists (often referred to as ‘e-Learning champions’) in their respective departments, and later as corporate agents serving as faculty representatives in the e-Learning core-committee at the institutionalisation phase (see 5.2.1.3) of the e-Learning implementation at DUT.

There were also those academics who, despite having completed the Pioneers Online programme, were unable to implement what they had learnt due to competing priorities,

I joined the Pioneers, remind me, four years ago, five years ago? If you were to ask me what I have done since then, I’m not proud to say I’ve done very little. Why, not ... yes I can partly say that my PhD took priority. Yes, I needed to complete my academic studies, but I think the other thing that really frustrated me ... (long sigh) we have a computer lab within the faculty of the Health Sciences and its facilities are [severely] limited (Spirit, 2014, interview).

In addition infrastructural limitations precipitated ethical issues regarding participatory parity and equity of access:

I felt it would be unfair for me to use technology if each student did not have a computer, so that almost stopped me from introducing it for the longest time to my larger numbers of classes. I thought – how can I? how is that fair? It would be like

saying I can teach only those of you who have books and this did not sit well with me (Shani, 2014, interview).

In summary, what emerged as a result of the early volunteer phase at the socio-cultural level was a lower level of social integration as there were more choices, alternatives and 'ideational opportunities' (Archer, 1996, p. 224) for the academics and a change in the learning environment at DUT. Over a period of approximately three years the graduates of the Pioneers Online programme formed a community of early digital practitioners functioning as corporate agents. Members from this grouping frequently gained accolades and recognition within their departments and faculties, and through their participation in webinars, symposia and conferences. In Archer's terms they could be referred to as a '*socio-intellectual elite*' (Archer, 1996, p. 211), a group whose growing proficiencies and other attainments were less accessible to the population at large. The community of early digital practitioners at DUT also began to draw attention, including the attention of the institutional management, via their research publications and proficiency in the use of digital technologies in learning and teaching, thereby enhancing the status of the university. This small but notable increase in interconnectedness of material and ideational interests contributed to the initiation of the next phase in the implementation of digital technologies at DUT, which is the focus of the next section.

5.2.1.2 The volunteer phase – established

The start of a new implementation phase of digital technologies at DUT followed the change in the 2003 institutional policies which were supportive of APD programmes such as Pioneers Online (Peté & Fregona, 2004). However, limited infrastructural provisioning, such as lack of campus-wide internet access across the seven DUT campuses and inadequate student access to computer laboratories and digital devices, restricted e-Learning at the institution to a voluntary level. Despite these limitations, during the period 2003–2011, the APD programme to support the integration of digital technologies evolved to a three-tiered, systematised structure that included

certified programmes for web-readiness and web-based learning. The programme also included up-skilling workshops and regular meetings to sustain the small but growing community of practice (Peté, 2008). The Pioneers Online programme, in particular, was run using the same structure during the 2003–2011 period, that is, an annual programme accumulating to a minimum of 100 notional learning hours (Peté, 2008), and included weekly face-to-face group meetings between the three educational technologists and a multi-faculty group of academics.

Remaining as a voluntary APD programme, the prevailing relation between the academics and the educational technologists was one of necessary complementarity. The mutuality of benefits, following Archer (1995), presented a situational logic of protection (2.4.2.1.2) for the academics, keeping their elite status as ‘e-Learning champions’ within their faculties, and, for the three educational technologists, maintaining the pedagogical emphasis of the programme and preserving the quality and nature of interaction with a manageable number of enthusiastic volunteer academics. The academics continued to receive personalised assistance with the design and development of their online classrooms as well as close supervision of e-Learning related research and publications (Peté, 2008; Peté & Fregona, 2004). The perspective of a volunteer academic is expressed in the following excerpt:

I know when I did the Pioneers Course, we each wrote a research paper. We had theoretical underpinnings of things so we did – we could appreciate, you know the benefits of it looking at various teaching methods and teaching styles. I think people need to see it more from that perspective (Imaan, interview, November 2014).

The status of the Pioneers Online programme was enhanced by the commendation received from the Higher Education Quality Committee (HEQC) in 2008²³ for the work done by the e-Learning Unit (known at the time as the Department of Educational Technology). In addition, the successful application for the accreditation of the Pioneers Online programme as a short course, later

²³ The HEQC 2008 audit report commended the Durban University of Technology for ‘the excellent work carried out by the Department of Educational Technology in web-based learning’.

included as an elective module of a Post-graduate Certificate in Higher Education (Peté, 2008), had the effect of ‘migrating’ (Archer, 1996) the Pioneers Short Course in Web-based Teaching and Learning from the periphery to a valued space within the institutional culture. However, the course remained, as before, at a voluntary level, primarily servicing the growing community of digital practitioners. Over the years, additions to the digital technology focused APD programme, such as a short course on podcasting, could be described, in Archer’s words, as ‘cultural embroidery’, embellishing existing practice without challenging current ideas or beliefs to foster ‘intellectual elaboration’ (Archer, 1996, p. 158). This ‘ideational systematisation’ (Archer, 1996, p. 171) resulted in a cluster of like-minded people supporting similar ideas and practices, a ‘distribution of similarities’ (Archer, 1996, p. 179) with regard to e-Learning at DUT, as indicated in the following:

I’m not sure if there’s good uptake in terms of the in-house workshops because though they are always full, they are always full of the same people, maybe one or two new ones, not that there is no attendance. The attendance is there, but you’ll find that it’s always the usual suspects (DUT Executive-manager, 2012, NRF study interview).

The intensification of ‘socio-cultural uniformity’ (Archer, 1996, p. 158) created a congenial environment of ‘protective insulation’ (Archer, 1996, p. 177) which contributed toward ‘the stable reproduction of a cultural status quo’ (Archer, 1995, p. 238), leaning toward protection of consistency within the community of practice. The net result was cultural morphostasis. The adverse ramifications of this situation were highlighted by an executive manager at DUT:

We have had Blackboard [LMS] for a while, for as long as I’ve been here, this is my eighth year at this institution, but it has always been taken up voluntarily by people who want to take it up, okay. And to me, that’s okay if you’re running one year programmes, but if you’re running three year, four year programmes, each course leads to particular learning outcomes for that particular qualification or programme. And therefore to have these disjointed uptakes of various teaching–learning methodologies does not impact well on the programme. So the reason to say ‘okay, we’ve got people already doing it [using the LMS and other digital technologies], a lot of people have been

trained already and a lot of people are passionate about it', is not enough – we need to diversify (DUT Executive manager: 2012, NRF study interview).

At the institutional level, change seemed imminent, particularly as the existing conditions (described above) were inconsistent with the key objectives of the institution, which had had as its vision since 2009 'A preferred university for developing leadership in technology and productive citizenship', with the aspiration to '[f]oster innovation in learning and teaching' (objective 3.2 (Durban University of Technology, 2009, p. 8) and, more recently, '[n]etworking the university' (Durban University of Technology, 2014a, p. 15) as a strategic change driver. The next section focuses on the early institutionalisation phase in the implementation of digital technologies at DUT under the leadership of a new Vice Chancellor.

5.2.1.3 The institutionalisation phase – early

Within two years of his appointment, the Vice Chancellor (VC) at DUT identified the introduction of digital technologies in learning and teaching at an institution-wide level as one of the strategic shifts for the university in 2012, emphasising its global and local relevance. The following is taken from his inaugural address on 26 March 2011:

Our universities are part of the global village of universities – a reflection of the deep unity of knowledge; produced, disseminated and placed in repositories by human beings – no matter where and by whom that knowledge is produced ... However, universities are not constructed in global space. They are constructed in local space from which they reach out into global spaces. They exist because they have students. And students are born and bred in a local context and when they are at university they live and study in a physical location. Universities have a home (Bawa, 2011, p. 4).

Given the shaping influences of the macro level structural and cultural conditions (examined in the previous chapter), the challenges confronting this shift (the introduction of digital technologies) amidst the socio-economic and political shifts were huge. The complexity of developing institutional capacity to engage significantly in the globalised knowledge society, and of simultaneously responding to the appeal for social justice and the socio-

economic upliftment of the previously disenfranchised majority population, was daunting. Moreover, supporting the national imperative to widen access to HE required fundamental changes at DUT, especially as a historically disadvantaged HE institution. In an interview with the *DUT Link*, an institutional online newsletter, the VC encouraged the academic community to embrace the challenge of change:

... there is much to be achieved as an institution that is in development. The most exciting aspect is how to embark on developing the capacity of the institution to find solutions in a knowledge intensive manner, solutions that are of benefit to the society in which the institution is embedded. A part of this is engaging in a process of defining the role of a university of technology in contemporary society ... We embark on a path to address economic growth and reconstruction, simultaneously creating a vibrant culture of collegial unity, research capacity building and academic freedom. These endeavours will strengthen our approach to learning and teaching through the innovative use and implementation of technology (Bawa, 2013).

It was also hoped that initiating the institution-wide introduction of e-Learning for the purposes of teaching and learning would be instrumental in facilitating a pedagogical shift from the traditional mode of knowledge transmission, introducing a paradigm shift from teacher-centred to student-centred teaching. In an interview, the Vice Chancellor highlights the role of digital technology in alleviating a dominant issue with regard to teaching and learning at DUT:

It's ['over-teaching'] a legacy issue. It's really about how things used to happen at the previous technikons. And it's going to take some time, I think to get people to understand that students that come here are really young adults and we have to get them to become motivated learners ... tak[ing] more responsibility for learning, and we think the one way of doing so is by using [educational] technology more effectively. (Bawa, 2012 NRF study interview)

Writing to the staff via the *VC talks* (Bawa, 2012a), an electronic newsletter, the Vice Chancellor informed the academic community in November 2012 about the outcome of a strategic planning and deployment report, known as the Dark Report²⁴ (2012), commissioned in September 2012 for the purpose of

²⁴ The DUT commissioned Patrick Dark of Blackboard Consulting to present an e-Learning Strategic Planning and Deployment report referred to as the Dark Report in institutional documentation.

assessing current levels of LMS uptake and readiness at DUT to embark on institution-wide deployment of e-Learning. The report outlined what needed to be put in place, in terms of teaching and learning practice, business processes and support structures, to achieve the operational target of an online e-learning component in 50% of all courses by 2014 (later changed to 2015). Significantly, he highlighted,

Half the challenge is technological and half is staff preparedness (Bawa, 2012a).

It is these two challenges that I focus upon in the next two sections, by firstly briefly examining the structural inconsistencies impacting negatively on the institutional drive to implement e-Learning as part of a student-centred teaching and learning environment (Ngwenya, 2011) and thereafter looking at the cultural inconsistencies between APD at the institution and both staff and management expectations of development and support for e-Learning. The inconsistencies are summarised in Figure 12 below.

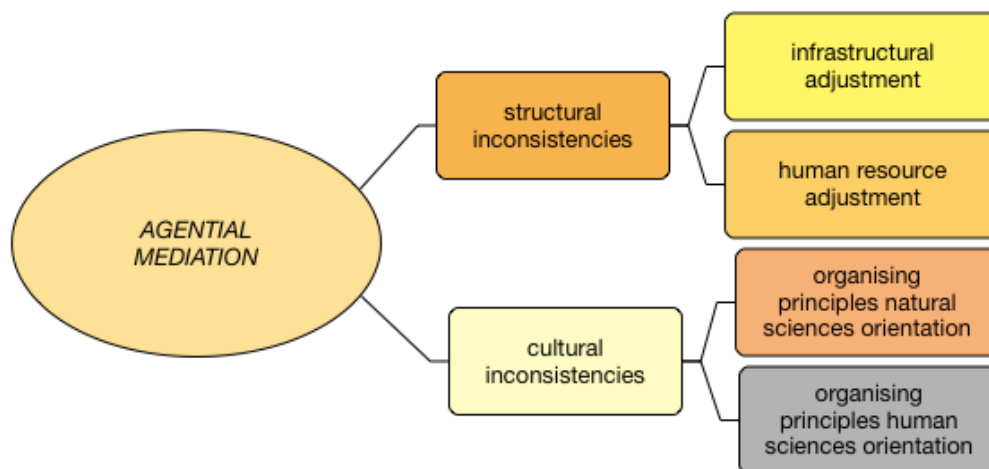


Figure 12: Agential mediation of structural and cultural inconsistencies

An e-Learning strategy, largely following the recommendations of the Dark Report, was formulated and approved by senior management to be initiated at DUT from 2013 onward (Durban University of Technology, 2014b). Briefly, the Dark Report described the existing e-Learning practice at DUT in 2012 as

... largely located in the ‘individual/local’ space, meaning that e-Learning is being forwarded in an uncoordinated way by individuals/departments with central support and infrastructural provision (Dark, 2012, p. 4).

In its place, the Dark Report proposed a programme-centric approach. Other key areas identified for development in the report included academic leadership and faculty engagement, systems integrations, and organisational management structures to enable effective practice and sustainable change (Dark, 2012, p. 5). The shift from voluntary use of digital technologies to its mandatory institution-wide introduction heralded a change, resulting in what appeared to be a necessary contradiction (see 2.4.2.1.3) between the technology imperative as a strategic goal of the university and the infrastructural shortcomings accompanied by varying levels of student and staff readiness for the integration of digital technologies in teaching and learning at DUT. Following Archer, the situational logic induced by the necessary contradictions was one of correction. The intention would be to sink the differences via 'syncretic corrections' (1996, p. 194) between the inconsistencies to effect a union between the contradictory components (described below).

Archer's non-conflationary approach (2.3.1), as alluded to earlier, has been crucial to this study, which considers the reflexive deliberations of academics, institutional managers and support staff at the university, including their expectations, understandings, experiences and responses to digitally-focused APD, as fundamentally important in the mediation of structure and culture in a non-reified manner (Archer, 2007b). In the sections to follow, I analyse the data gathered to examine the agential response to the structural and cultural inconsistencies in the period 2012 to 2016, that is T1 to T4 in this study. This was done in order to understand what it is that enables and constrains APD for the integration of digital technologies at DUT.

5.3 Agency: mediating structural inconsistencies (T2–T3) and structural elaboration (T4)

Following the recommendations of the Dark Report (2012), senior management at DUT announced in a Council Communiqué (Durban University

of Technology, 2013a) the decision to replace, at considerable cost²⁵ to the university, certain key elements of the outdated network infrastructure. The infrastructural adjustment included updates to selected lecture venues, and installation of smart boards and other equipment for creating specialised learning environments. Software purchases included the proprietary Blackboard LMS software, Blackboard Collaborate – a web-conferencing software, Blackboard Mobile, and Respondus, etc. In 2015, 3 534 Android (tablet) devices linked to the National Student Financial Aid Scheme (NSFAS) were distributed to students who qualified for the allowance, as a pilot project in a bid to ensure access to technology for students. Help desk support for both staff and students, although limited, was also initiated. These actions strongly affirmed the importance of digital technologies in the changing nature of the university (T. Lewis, Marginson, & Snyder, 2005). The decision to put in place a stable network across all seven campuses was a key move toward the development of a reliable IT infrastructure to service a ‘wireless university’ (Durban University of Technology, 2013a, p. 2). In addition, taking ‘ownership’ of the implementation process via the e-Learning Project²⁶ and the initiation of an online learning environment, popularised and branded as the ‘Think Learn Zone’, earned the institution additional negotiating power as a major resource distributor. This was evident in the mobilisation of substantial material resources for e-Learning related infrastructure, hardware and software, as well as the appointment of an e-Learning project co-ordinator (Durban University of Technology, 2014b), working toward the correction of inconsistencies which curtailed the adoption of e-Learning. A new level of bargaining positions was transacted, with the e-Learning Project co-ordinator, members of the project core team and working groups largely drawn from the community of ‘e-Learning champions’ (5.2.1.2), serving, in Archer’s terminology, as corporate

²⁵ R15 million rands over a period of three years was allocated toward the replacement of key elements of the 9-year-old network infrastructure.

²⁶ The project commenced on 1 May 2013, with the appointment of an e-Learning Project Co-ordinator for a period of two years, terminating in April 2015 (subject to renewal).

agents (leading the 'Pathfinder projects'²⁷ and 'Vanguard Programmes'²⁸), installed in a position empowered to organise and change. Commenting on the infrastructural development, e-Learning middle management explains:

If people are in an environment in which all of these sorts of affordances are available, or the other way around, if they [the affordances] aren't there, they can't use them. So by actually developing the environment you are providing professionals who should know, who are expected to be able to develop them and self develop (e-Learning middle management interview, January 2015).

New affinities and antagonisms to the institutionalisation of e-Learning, although beyond the scope of this study to examine in detail, impacted on APD and were perceptible in the academic community through the exchange of new power relations, the distributions of necessary material resources and the opportunity costs experienced. As Archer explains,

... vested interest groups are then confronted with situational benefits or penalties stemming from complementarities and contradictions respectively (1995, p. 297).

For example, in contrast to those academics subscribing to the *competing* open source learning platforms at DUT, academics endorsing the e-Learning e and the proprietary software selected by the institution were promised conveniences such as technical and academic development support. In addition, their online classrooms were linked to the Integrated Tertiary Software (ITS) system, which enabled the auto-registration of students into their classrooms. Academics aligning with the institutional imperative were also assured of being acknowledged for their innovative efforts. On the other hand, it was worth noting that this was to be done through the monitoring of enrolment targets and quality enhancement by the executive deans (Durban University of Technology, 2014b).

²⁷ Pathfinder Projects described as 'trailblazer projects which test out different, potentially beneficial aspects of e-Learning'.

²⁸ Vanguard Programmes comprised of selected programmes identified to serve as exemplars for the full rollout in 2015.

Although official university documents noted ‘the promotion of e-Learning and its associated pedagogy [a]s a major university strategic goal’ (Durban University of Technology, 2014b, p. 31), a further inconsistency was evident at the level of human resource adjustment in the e-Learning Unit following the decision to introduce digital technologies in learning and teaching at an institution-wide level. Despite attempts to fill a vacant post at the CELT e-Learning Unit, the team remained, as before, during the volunteer period, under the leadership of the CELT director, and consisted of three educational technologists and one technical administrator, as well as one help desk and one front desk support person. Moreover, two members of the team were employed on a short-term contract.

Following Archer (1995), the situational logic of a systemic incompatibility meant that compromise and concession were necessary to correct the inconsistency, in the context of this study, between the e-Learning growth initiative related increase in technology-focused APD across the six faculties and the limited human resource capacity within the e-Learning unit at CELT. After a first attempt in 2012, as a containment strategy (2.4.2), at reducing the annual accredited Pioneers Online course to a non-credit bearing course (Pioneers Plus) comprising of 15 weekly sessions of 2 hours, a decision was taken at CELT to temporarily replace the shortened Pioneers Plus course with a rudimentary LMS software familiarisation training programme in 2013 (Peté, 2012). This decision was described by the e-Learning middle management in the following:

... there’s been a conscious move by CELT e-Learning to put the broader [Pioneers Online] course ... on hold during a time in which it’s been necessary to do something much more instrumental and less ‘thoughtful’, less deep in terms of its learning objectives ... it’s been a conscious decision and probably a wise one given the constraints ... It’s a great pity that it’s [the pedagogical underpinning] been put on hold, it comes down to just the resource allocation (e-Learning middle management, 2015, interview).

Academics at DUT experienced in the use of digital technologies from the early volunteer stage were appreciative of the infrastructural developments, especially given the resource-related limitations confronting DUT as a

historically disadvantaged HE institution (4.2.5). Some academics were critical of the changeover to the rudimentary software familiarisation training:

I think maybe, you know – maybe it was budgetary issues, financial issues. They were cutting budgets because, you know, they would have to – because we went on intensive training where you would go once a week every week, you know, maybe they felt that this is too much. I just feel that it's not enough to just have this short training. I think it's a superficial approach (Imaan, 2014, interview).

There were also those academics who recognised the challenge presented by the limited human resource capacity issue:

I know of three [educational technologists at DUT], ja three. That's too little, that's way too little [gentle laugh]. It actually explains why these courses are run at a very basic level, because they are able to at least give most people a taste and maybe they can learn on their own thereafter, but for it to be as I said, accredited short courses where people come in and have more rigorous training, three staff cannot address the needs of that. It's a mammoth task for three people, no way can three people be bringing about this e-learning culture or driving this e-learning culture in facilitating this [institutional] change (Shani, 2014, interview).

The disparity between levels of investment in infrastructure and in professional development is not uniquely local and is well documented in international literature. Laurillard and Masterman (2010) and others highlight the disparity as a key feature contributing to the use of digital technologies in ways that largely support existing instructional practices (Culp et al., 2005; Palak & Walls, 2009). These findings have drawn attention to the need 'to move beyond a means–end way of thinking' (Selwyn & Facer, 2013, p. 7), to view the adoption of technologies not only in terms of economy and efficiency but also its pedagogical value (Pachler & Daly, 2011). Oliver draws attention to a 'theoretical blindspot' (2013, p. 41) with regard to educational and digital technologies creating a misperception of technology as a 'technical fix' to educational problems, assigning to technology itself the ability to cause learning. At DUT, similar concerns regarding such deterministic assumptions were raised in addition to the perceived need amongst industry-recruited staff for APD with pedagogical and theoretical underpinning:

I think its perhaps because you just tick a box and say, okay, they've got the basic training or, all staff are now trained in that [digital technology focused APD] , but by training – by being able to login to the [LMS] and creating a basic page does not make you proficient to use it for teaching and learning, and that's a big gap. A gap that perhaps the institution or the powers that be don't really understand, that there is this gap, ... you would have to understand how ill equipped they [industry-recruited staff] are to deal with using it as a teaching and learning platform (Shani, 2014, interview).

In acknowledgement of these concerns, and in keeping with the adopted programme-centred approach, two further 'interventions' were introduced as containment strategies. Each educational technologist was assigned the responsibility of providing e-Learning related APD to two specific faculties, and the deans were tasked with monitoring the development of programmes within their respective faculties toward achieving the target of 50% of programmes with an online component by 2015. On the surface, these attempts at containing the constraining contradictions at the level of social Interaction (SI) appeared successful. The quantitative data from the 2015 DUT e-Learning survey pointed to an improvement, from 27% of respondents having students enrolled in e-Learning classrooms in 2013 to 41% in 2015. Significantly, 78% of the survey participants responded in the affirmative to enrolling for a certified short course on e-Learning in the future (Part time communications officer for the e-Learning project, (Vooght, 2015).

However, also at the social interaction (SI) level, there appeared to be a degree of disaffection with the mandatory imposition of an online component in 50% of programmes by 2015. The low 'potential bargaining power' (Archer, 1995, p. 297) and 'quietism' (Archer, 1995, p. 315) was exacerbated by the culture of compliance (4.2.7) amongst many academics, who remained largely as primary agents. Given these conditions, the interpretation and significance of the data measuring the number of online classrooms as well as the attendance at the mandatory LMS training seemed complex, as conveyed in the following:

... the reality is that you have a tick next to your name, so if the dean asks how many staff have been trained – you've got the tick – and we've satisfied that requirement, and if I were a dean

now, I probably would not know as much as I now know ... The University can tap itself saying it has provided these opportunities for many, but the uptake [of e-Learning] requires something more from interest (George, 2015, interview).

In a similar vein, questions regarding the assumptions based on the statistical presence of having online classrooms and the need for further policy development were raised by the e-Learning project co-ordinator:

The increase in the number of online classrooms is satisfactory, but does not necessarily indicate that the technology is being fully utilised for engaging and innovative teaching and learning. The development of an e-Learning policy, and the implementation of minimum standards for e-Learning practice are being developed this year [2015] with the assistance of the Centre for Quality Promotion and Assurance (DUT e-Learning middle management, 2015, personal communication).

Based on the analysis of my findings presented thus far, I deduced that, while substantial investment was made in planning and change management as well as the provision of adequate and necessary digital technology enabling infrastructure, at the same time the lack of adequate access to pedagogical support resulted in a short-lived 'technology hype'. The eagerness for change and innovation faded in the absence of a necessary support mechanism, which would reinforce the pedagogical meaningfulness to effectively maintain the enthusiasm generated by the promise of convenience, immediate relevance and usefulness. This is consistent with the findings of Jefferies, Cubric and Russell (2013), who highlight infrastructure, support and change management as interlinked and mutually supportive. They draw attention to the use of the equilateral triangle (see Figure 13) to emphasise that each point is of equal importance and is supportive of the others. In the context of this case study, at the structural systemic level, the decision to invest in the design of an effective change management process and the installation of the necessary infrastructure, whilst retaining APD and support at the pre-existing level, is pardonable in light of the limited financial resources. However, as a consequence, the early institutionalisation phase was seemingly characterised by an attitude of 'inserting' technology into the academic programmes as a minimal response in compliance with a top-down directive rather than an impetus to systematically embed the technology as a significant part of the

academic staff and student culture. Based on the findings, I would argue that a successful institution-wide integration of digital technologies would of necessity require the simultaneous and equally focused provision of three key enabling conditions, viz., infrastructure, support (student and academic professional development) and planned change management (see Figure 13).

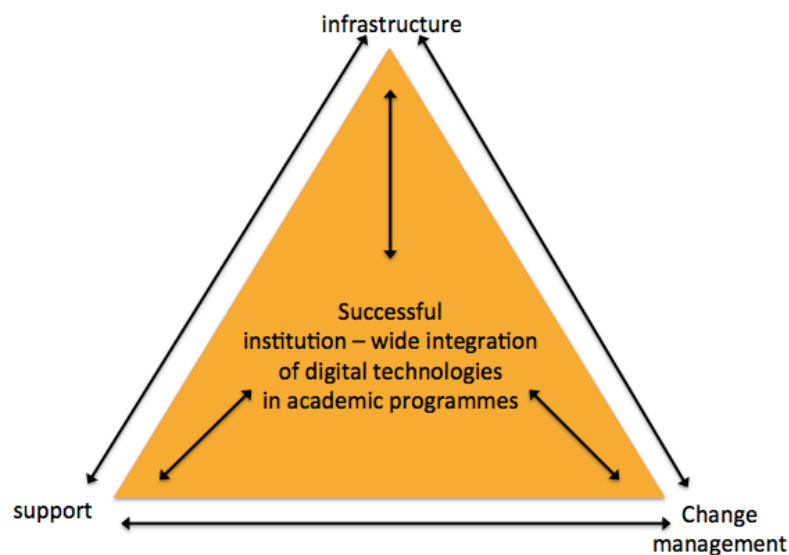


Figure 13: The interrelationship of the three key issues to support successful introduction of digital technologies in academic programmes. adapted from Jefferies et al., (2013, p. 32)

According to Archer,

Structural contradictions represent obstructions to certain institutional operations and these translate themselves into problem-ridden situations for the agents associated with them ... A constraining contradiction is the site of cultural tension (1995, p. 230).

The cultural tensions mentioned above are the focus of the section to follow.

In the analysis of the agential response to the social system, examining the social interaction thus far, I have explored the 'bargaining power' (Archer, 1995, p. 297) of those with maximum access to resources, such as those in leadership and managerial positions, to understand the power lodged in the first-order distribution of resources and the subsequent negotiating strength to initiate change and contain contradictions at DUT. Based on the findings, I concur with the following caveat in the Dark report:

... the infrastructure should be a given, beyond this, ... what will distinguish institutions is the human and organisational infrastructure they put in place to maximise the value, and the success of the change management process they establish to achieve this (2012, p. 26).

In the following section, I examine the influence of prevalent cultural inconsistencies and ideational differentiation with regard to APD, looking in particular at what it is that needs to be in place to earn legitimacy for APD for the integration of digital technologies in the different faculties and programmes at DUT. I later explore these findings to understand the interplay of structure and culture, and whether both structural and cultural domains are working in harmony, or are at variance with one another.

5.4 Agency: mediating cultural inconsistencies (T2–T3) and cultural elaboration (T4)

The early institutionalisation phase of the implementation of digital technologies at DUT was steered by the strategic goal of 'Building student communities of living and learning' (Durban University of Technology, 2014a, p. 10), with one of its objectives being to 'deepen the innovative use of technology to improve the quality of learning and broaden access' (ibid). In tracing the responses of academics to the institutional technology imperative, it became evident that a more significant effort would be necessary than the current digitisation of familiar teaching–learning practice, an ostensible e-Learning related shift, to attain the institutional goal of a student-centred and innovative teaching and learning environment. This was confirmed by e-Learning middle management. It was pointed out to the Senate executive team that the target of 50% of qualifications with an e-Learning component had been reached. The need to shift beyond statistical monitoring toward quality, and beyond digital content repositories toward interactive online engagement was highlighted in the following way, 'We have reached the target, **but** what's actually inside those classrooms?' (Durban University of Technology, 2015c). A similar point is raised with regard to APD participation related data by an academic in the following:

I think the faculty is working on a low morale at this moment in time, and that's an individual thing, and I think most of them go and do it [the LMS familiarisation training] for the sake of ticking off a box (Spirit, 2014, interview).

A mismatch was evident between management level expectations and the real challenges confronting both academic staff and the e-Learning unit:

... They [management] expect staff to readily buy into this [using the LMS and digital technologies] and they don't understand the training staff have a lot of barriers to cope with from the staff itself, and maybe the Deans think 'oh all staff are proficient [users of the LMS] or they know this'. They don't understand who they're dealing with – who the training component is and they don't understand the challenges that need to be addressed. Perhaps they think because they're lecturers and they're teachers they are automatically going to just, you know [clicking fingers] take to it (Shani, 2014, interview).

An apparent reluctance amongst many, although not all, academics to consider the pedagogical change accompanying the introduction of digital technologies was evident:

I'm actually seeing this resistance everywhere. Because people are just comfortable. They're just comfortable doing what they're doing, you know. And they don't want to change. I'm often told 'you're giving us more work' or 'you're wasting my time' (Aarya, 2014, interview).

Many academics, not convinced of its merit, were reluctant to invest the required effort and time:

... maybe they're not convinced about, you know, the worthwhileness of it, the return on changing, the big change that they perceive, because I think that they perceive that this is a big change (Alan, 2014, interview).

Another academic believed the mandatory nature of the change to be problematic:

... you know the moment you start forcing people into doing something, especially learning something as different and committing to something like that, they're going to be resistant towards it, so although many people have actually done it [the software familiarisation training], they um, they're not passionate about it, they're doing it because they have to not because they enjoy it. Some have come to enjoy it after they've tried it but, you know, I think the approach could have been different and better

to encourage people to want to go into digital technology
(Sheela, interview, November 2014).

The constraining contradictions described above presented a situational logic of correction (Archer, 1995). Attempts to sink the differences (1996) between the institutional goals and the general reluctance of academics to explore new approaches to teaching and learning made possible via digital technologies and APD required a causal analysis of the contradicting conditions. A key question in this study was therefore: why is it that, after having decided to use digital technologies in their teaching–learning interactions, some academics choose to participate in digital technology focused APD and others do not?

As mentioned earlier (2.5), Archer explains that structural and cultural emergent properties will only have a significant impact (constraint or enablement) if individuals perceive them as being ‘relevant to some specific agential enterprise’ (1995, p. 76). In addition, we define ourselves by prioritising our ‘ultimate concerns’, which are ‘constitutive of who we are, and an expression of our identities’ (Archer, 2000, p. 4), to develop a *modus vivendi*, a way of being in the world. She clarifies,

We survey constraints and enablements, under our own descriptions in conjunction with our *projects* which were deliberately defined to realise our concerns, and we adjust them into those practices that we conclude internally will enable us to do what we care about most in society’ (Archer, 2011, no page).

In the section to follow, using the M/M framework I examine the interplay between the structural, cultural and personal – emergent properties (SEPs, CEPs and PEPs) – to understand why, during the early institutionalisation phase, some academics experience the APD programmes offered at DUT as enabling and others experience it as constraining. Guided by Archer’s exposition of ‘emotions as commentaries on human concerns’ (2000, p. 193), I utilised her explanation of the three orders of reality (2.6) (Table 3) which people, according to Archer, interact with internally and simultaneously, to prioritise their emotions and arrive at a unique *modus vivendi*. These data indicative of the ‘constellations of concerns’ and the prioritising of certain concerns over others across the three orders of reality were used as an

analytical lens to trace the 'ultimate concerns', or ordering, re-ordering and negotiating of priorities and commitments of the academics (Archer, 2002).

Based on the interview data, I categorised the predominant emotions across three continua (see Figure 14 below) in relation to APD with a digital technology focus. The first is a continuum of emotions ranging from fear to excitement, tracing emotions of physical well-being in the natural order; the second, a continuum ranging from apprehension to trust and collegiality, tracing emotions of self worth; and the third, a continuum of emotions in the practical order with regard to the performative value of APD, ranging from futile to beneficial. The emergence of emotions across the three continua will be explored next.

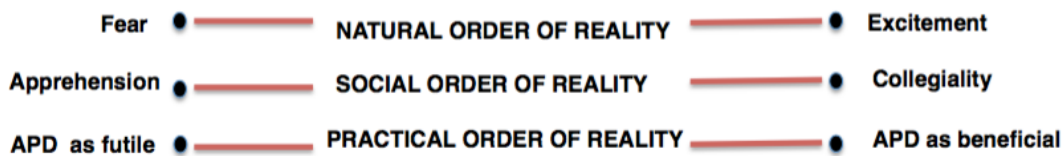


Figure 14: Three orders of reality reflecting a series of continua of emotions related to the use of digital technologies and impacting upon APD

5.4.1 Emergence of emotions in the natural order: from fear to excitement

Some academics expressed concerns in the natural order, such as fear associated with feelings of uncertainty when using digital technologies. In the physical realm, it appears that, as time-poor academics, the time required to familiarise themselves with the digital technology added strain to their feelings of well being.

I think the risks are more, you know, with me and my wariness, you know, about technology, more than anything else. It's also a time issue because I teach a lot. You know I teach seventeen hours a week and I have lots of marking, you know, I'm busy marking when I'm not teaching. So it's just a matter of, you know, shifting my thoughts and getting down to setting up a classroom (Imaan, interview, November 2014).

It also became apparent that some academics were uncomfortable about changing from the familiar:

The first thing is, you know, people like to do the easy thing, and they don't like disruptions to their programmes (Alan, interview, November 2014).

In contrast to the fear and reluctance to explore change, at the other end of the continuum was the excitement, a sense of benefit and gain, evident in the comments of those academics motivated by the interactive and wider range of learning relationships and opportunities made available in a digitally-mediated learning environment

I could see this is actually how you build knowledge, you know. People participate in building knowledge and its not just the teacher, it's the students who do it as well, you know, they can contribute and whatnot, and that is the forum of which this is a tool through which you can do it, you know, this on-line system (Alan, interview, November 2014).

and

This is all happening in DUT, my home university, and I was embarrassed to realise that I'm far removed from my home university, and all this wonderful work is happening, okay. And we look towards the international guys in other universities and, hang on guys, it's right here in home ground, home turf here. (Michele, interview, November 2014)

While the spectrum of emotions described above possibly contributed to the tendency of academics to choose to participate or not in APD, it must also be remembered that, as emergent properties, the events we observe may arise from a combination of influences. As mentioned previously, the same type of event may have different generative causes (3.2.1), as some mechanisms may support each other while others counteract each other's manifestation in an open system such as the academic environment (Archer, 2000).

In the next section I examine the emergence of emotions related to feelings of self worth.

5.4.2 Emergence of emotions in the social order: from apprehension to collegiality

Notable in the data with regard to subject / subject relations amongst academics were emotions ranging from apprehension (with regard to sharing both positive and negative experiences with the use of digital technologies in their learning teaching interactions in the APD environment) to trust and collegiality. It was clear that people were reserved about sharing their experiences:

I think we have a lot of people at DUT who do amazing work, but there's not enough sharing. We work in our silos, we work, you know, across various campuses, various departments. I think we need to look within ourselves and the richness that is here (Shani, interview, November 2014).

Evident in the excerpt below is the need for a trusting and collegial environment, characterised by vibrant academic debate and supportive of change:

... you know, come show me, this is what I'm doing, you know, and this is what I found, you know, and these have been the results and I think it [sharing experiences] must create some sort of disruption in people's lives to say well, you know, I must change what am I doing (Alan, interview, November 2014).

In addition, some academics spoke of a community of practice as a safe space to network and learn from the experiences of other academics:

I think its always nice to see what people in your department have done because it's closer to home and makes it seem more possible for you to get there if you haven't done it before. Um, we did have a community of practice, and I think that encouraged a lot of our staff to get into creating online classrooms, into the whole digital technology thing ... it was beneficial, we actually got people from other departments to come and show us what they'd done and you got to share the good and the bad (Sheela, interview, November 2014).

On the other hand, feelings of apprehension inhibiting sharing and openness, redolent of the mistrust present during the merger period, seemed to be predominant in the data, although there were smaller groupings of friends who

... chat[ted] amongst ourselves and share[d] our experiences and our ideas to support each other in that way (Sheela, interview, November 2014).

The above interview excerpts are indicative of a sense of vulnerability, insecurity and a sensitivity to social approval or disapproval, also impacting on feelings of self-worth. The responses may however be a condition of the new institutionalisation phase and may possibly change with time and increased confidence.

The next section focuses particularly on the perceived efficacy or inefficacy of APD and feelings of competence amongst academics.

5.4.3 Emergence of emotions in the practical order: from APD as futile to beneficial

In this section I focus specifically on the emotions in the practical order and draw attention to the dissimilar affective responses (frustration and fulfilment) in the subject / object relations with regard to APD and its role in the effective integration of digital technologies in academic programmes at DUT. Archer maintains that emotions in the practical order are related to performative achievement, which 'is the generic concern of *homo faber*' (2000, p. 210), a concept referring to humans as managing their environment through tools, viewing everything in terms of utility and competence, and as a means toward a specific goal (daVenza-Tillmanns, 2015; Parekh, 2008). This concept is particularly relevant to this study, which is an attempt to understand the management of digital technologies in a pedagogically significant manner through APD. Archer cautions that the practical import of competence should not be mistaken for social approval or disapproval of the performative achievements, but rather that the cluster of emotions arising from the subject / object relations 'develops through the emotional commentary which our competence supplies on our doings' (2000, p. 210).

In the interview data, it was noted that some academics were unhappy with the radically simplified, and mandatory, LMS familiarisation training provided as

APD at the introduction of the early institutionalisation phase, when compared to the accredited Pioneers Online short course:

As I said, you know, you're telling people that you need to have online classroom, but you can't say that to people in a vacuum. I don't think there's been enough discussion about that. If we're looking at our context, looking at our challenges and all of that. It's got to be embedded in some framework. I don't think people have that. They haven't seen it. You know, they haven't seen this framework in which this thing is embedded unless you go for a Pioneer's course. Now it's just called Blackboard training, but the Blackboard training is different. What we went for at that time was something more substantial. We thought about it. We wrote a paper on it (Imaan, 2014, interview)

Others were displeased that the APD provided by the institution was available only at a basic training level, and without options for accreditation or advanced levels that would accommodate the changeable nature of technology. These shortcomings were seen as impacting negatively on their performance achievement:

When I hear e-learning and I hear training, its just a very, um, homogenous, everybody is clumped in as one, and it shouldn't be that. Like we said, we speak about our students and their levels, and their skills, their attributes, we need to look at that in terms of training for our staff as well. I think once you've done the basic course, you're forgotten. We need to have more courses that speak at an intermediate or advanced level because the technology is always changing, the practice is always changing. I've heard in conversation that a lot of the staff found the basics are just a waste of time because it is so easy. If you go you want to learn things more than you can learn on your own – now remember these are staff that have the skills already and don't need to go for this training (Shani, 2014, interview).

The preference for the more in-depth, lengthier and pedagogically-focused Pioneers Online course was clearly voiced by some:

... what hugely appealed to me [in the Pioneers Online course] was that instead of the technology being the point, pedagogy was the point and that technology was, not secondary to that, but very much a way of actualising, if you like your pedagogical vision. And that philosophy was certainly highlighted in the certified course offered, and to me it's still the ideal way to go (DUT e-Learning middle management, 2015, interview).

It was important to note in the data an equally forceful opinion that was critical of the Pioneers Online course. Academics in this grouping spoke favourably of

the new 'short and sharp' software familiarisation training provided by the e-Learning unit following the institutional drive for the rapid adoption of e-Learning across the university:

When I did the Pioneers course it was very much about teaching, you know and all the possibilities and all of that, you know. It was beyond just this quickly this-is-how-you do it. You see that also had the flip side to that was that it took much longer than, you know, whereas if you feel you are able to access enough of that sort of conversation about how to teach and how to, you know, all of that stuff, then you want to just know, quick, quick how do I do it (Candy, 2014, interview).

There were many academics who were unhappy about the pedagogical focus:

Sometimes you're going through the whole process [APD workshop] and we've got information coming at us about all the pedagogies and all of this and all of that, and all we wanted to know was how to set up a multiple choice test (Sheela, 2014, interview).

What is apparent from these interview excerpts is that the concerns the academics have in the practical order are the basis for the concerns in the social and natural orders. The time cost related to APD for the exploration of pedagogical and curricular implications of introducing technological tool/s was met with disfavour by some academics, who saw it as demanding of time that could be utilised toward tasks that were perceived as contributing to their project and performative competence. This is consistent with the findings of Howard, in a study exploring teachers' concerns about technology integration and the role of affect in technology-related risk perceptions, in which she identifies 'resistance to technology integration [a]s a function of a negative affective response to technology' (2011, p. 271).

To summarise this section, the introduction of the LMS familiarisation training may have been conceived as a first step toward 'repairing' (Archer, 1995, p. 233) the divergent levels of software utilisation. Although it was anticipated that the training would largely remove the disparities, a 'unification' in Archer's (1995, p. 305) terminology, this was not the result. In effect, an additional layer of difference emphasised the inconsistency between the institutional goal of innovative teaching–learning practice and the general reluctance amongst

academics to engage with the possibility of pedagogical shifts to accompany the introduction of e-Learning. The presence of APD related oppositional ideas promoted further 'cleavage' (Archer, 1995) at the level of socio-cultural interaction between the different groupings amongst the academics. Looking at the data retroductively (3.6.3.2), and using Maxwell's (2012) integrated categorising and connecting analysis strategy (3.6.3), it became apparent that there were significant patterns of preferences and distinct trends in the 'ultimate concerns' of groups of academics. These preferences were also linked to divergent perceptions of an effective APD course, and subsequently different measures of credibility and legitimacy. It is the cultural differences and APD preferences between the groupings of academics that I explore next. Using Maton's Legitimation Code Theory (LCT), and in particular the specialisation dimension as an analytical lens, I investigated what it was that each group held as valuable and credible to understand 'what properties must exist' (Danermark et al., 2002, p. 97) in digital technology focused APD programmes to earn legitimacy in the different groupings.

In keeping with the social realist approach, and following the stratified ontology of CR, a transfactual analysis (see 2.3 in Chapter 2) of the data gathered for this study was important to explore the complex interactions of causal mechanisms in the domain of the real. In the next section I therefore examine the data using abduction (3.6.3.1) and retroduction (3.6.3.2) to find a possible causal explanation to the question: why do the evidence and data appear to follow the pattern that they do?

5.5 Exploring faculty-based differences in responses to the provision of APD for the integration of digital technologies

As noted earlier, the interview responses of the academics to the provision of APD, both in the established volunteer phase noted for its pedagogical emphasis, and the early institutionalisation phase noted for its short and sharp software familiarisation emphasis, seemed to invite two distinct sets of responses from academics to each APD provision, which appeared to be aligned to the faculties that they belonged to at DUT. The educational

technologist supporting the faculties and programmes with a human sciences orientation described the response of the academics to the software familiarisation programme in the following way:

I think it's [the APD programme] being rethought ... It's being rethought because we offered a short course and web-based learning and that's been put on hold to be able to respond to the directives of the VC. I think there's definitely a realisation that there's a loss, that the offering has changed to meet the immediate needs, but that has to be taken up again and that's why the e-Learning co-ordinator is looking into a variety of ways in which it could be offered in the future. I have been told people miss what we used to offer, the safe space over a period of time to re-conceptualise teaching and research, that and especially contact with peers (Elektra, 2015, educational technologist interview).

Notable by contrast were the responses of academics teaching programmes in the natural sciences, as highlighted in the following comment by the educational technologist supporting the largely natural sciences faculties:

There're those that it [the new software familiarisation training] had an effect on and others it didn't have an effect on, because they will tell you straight up, I'm here because the VC said we must be here. Not because they're here to learn something new. And the attitudes of some of them will be just that. I don't really want to be here. I'm just here because the VC said so (Naomi, 2015, educational technologist interview).

The above comments from the educational technologists are reminiscent of the 'two cultures debate' (Biglan, 1973; Snow, 1961, 1998) about the relations between the natural sciences and the human sciences and their struggle for status and resources. In the next section, I explore these differences further using, as an analytic tool, the specialisation dimension of Maton's (Maton, 2014) Legitimation Code Theory (LCT) (2.7 and 2.7.1 in Chapter 2).

To recap briefly, expanding on Bernstein's work on knowledge differentiation, vertical discourse (scholarly or professional knowledge) and horizontal discourse (everyday or common-sense knowledge), Maton introduced in LCT(Specialisation) the concept of knowledge-knower structures, thus adding 'knower structures' to Bernstein's 'knowledge structures' (2.7.1). The introduction of 'knower structures' gave rise to two co-existing but analytically

distinct sets of relations that 'enable[d] knowledge practices to be seen, their organising principles to be conceptualised, and their effects to be explored' (2014, p. 3). This in effect created the basis for the specialisation codes of legitimation which reframed the two-cultures debate (Snow, 1998) by changing the focus to 'the organising principles underlying their languages' (2014, p. 68). More simply, the academic practices could now be viewed as emphasising either the knowledge structure or the knower structure, or both or neither, as a basis for distinctiveness and legitimacy (Maton, 2014). Maton emphasises that 'the medium is also a message' (Maton, 2010, p. 5), proposing that acknowledging the significance of the organising principles of knowledge practices would help to address the '*knowledge-blindness*' or the tendency to view knowledge as comprising of universal attributes such as critical thinking, and reducing curriculum design to an arbitrary selection of interchangeable packets of information and generic skills (Maton, 2014; Shay, 2013). In the context of this study, the specialisation codes of legitimation will be explored in more detail below, to understand the varying preferences amongst academics from disciplines with either a natural sciences or human sciences orientation.

5.5.1 Exploring knowledge practices and programme orientations across disciplines

Examining the empirical data using abductive reasoning, it could be postulated that the two sets of contrasting preferences for the provision of APD appeared to be linked to the knowledge practices and the programme orientations. This would be consistent with the findings of Vorster and Quinn (2012, p. 83), who, using the specialisation codes of Maton's Legitimation Code Theory (2.7), explain how the knowledge practices advanced by a professional development programme may be met with resistance or incomprehension due to disciplinary differences. The inference regarding the contrasting preferences also resonated with the findings of a study by Howard and Maton (2013) exploring the influence of teachers' conceptions of subject-area knowledge practices on technology integration. Their findings suggest that different structures of knowledge may interact differently with different forms of digital and educational technologies.

I used the specialisation dimension of the Legitimation Code Theory (LCT) in my study to explore a possible connection between discipline-based knowledge practices and the different reactions of academic staff to the pedagogy-focused APD and the digital technology focused and procedural software familiarisation training. As an analytical tool, LCT seemed particularly appropriate for this study as it centres on the question 'what makes actors, discourses and practices special or legitimate?' (Maton, 2007, p. 98). According to Maton, the beliefs and practices of academics [actors] present 'a ruler for participation' (2010, p. 37) and can be understood as *languages of legitimation* that describe what is considered the dominant basis of achievement within a discipline.

In the next section, using LCT, I describe the findings that revealed the connection between what is the basis of legitimation in the academic programmes and the responses of the academics to the APD programmes.

5.5.2 Identifying programme code matches and code clashes with the APD programmes

Having identified the specialisation code characterising each programme (in the sample), as described in the methodology chapter (3.7.1), it was possible to compare the organising principles of knowledge practices of each programme against the specialisation code characterising both the APD Pioneers Online programme and the software familiarisation training (see Appendix 10), to establish a code match or a code clash (3.7.2).

Juxtaposing the legitimising claims of the academic programmes taught by participants in my study against the knowledge code dominant software familiarisation training and the knower code dominant APD programme revealed that:

- Programmes with a knowledge code match with the software familiarisation training, and a knower code clash with the APD programme were largely those with a natural sciences orientation (see Table 7). Both the software familiarisation training and knowledge code

dominant programmes emphasised explicit knowledge, skills and procedures, that is stronger epistemic relations (ER+). The preference for the software familiarisation training amongst academics teaching programmes with a natural sciences orientation indicated that a similar conceptualisation of the basis of success was important in establishing the value of and confidence in the APD programme.

Legitimation Code Theory: Organising Principles of Knowledge Practices - Matching / Clashing Orientations												
Programme			Organising Principles of Practices: Human Sciences Orientation				Organising Principles of Practices: Natural Sciences Orientation					
Specialisation dimensions			ER+	ER-	SR+	SR-		ER+	ER-	SR+	SR-	
			Academic Professional Development			✓	✓			Software Familiarisation	✓	
Economics			x	x		Clash		✓			✓	Match
Dental Technology			x	x		Clash		✓			✓	Match
Information Technology			x	x		Clash		✓			✓	Match
Mathematics			x	x		Clash		✓			✓	Match
Software Programming			x	x		Clash		✓			✓	Match
Chiropractic			x	x		Clash		✓			✓	Match

Table 7: Knowledge code match with software familiarisation for programmes with natural sciences orientation

On the other hand,

- Programmes with a knower code match with the APD programme, and a knowledge code clash with the software familiarisation training were largely those with a human sciences orientation (see Table 8). Both the APD programmes and the knower code dominant programmes emphasised the attributes and dispositions of the knower, that is stronger social relations (SR+). The preference for the APD programmes amongst academics teaching programmes with a human

sciences orientation confirmed, as above, that a similar conceptualisation of the ‘rules of the game’ (Howard & Maton, 2011, p. 197) or measures of achievement would affirm the significance and worth of the APD programme.

Legitimation Code Theory: Organising Principles of Knowledge Practices - Matching / Clashing Orientations												
Programme			Organising Principles of Practices: Human Sciences Orientation				Organising Principles of Practices: Natural Sciences Orientation					
Specialisation dimensions			ER+	ER-	SR+	SR-		ER+	ER-	SR+	SR-	
			Academic Professional Development			✓	✓			Software Familiarisation	✓	
Journalism			✓	✓		Match		x			x	Clash
Architecture			✓	✓		Match		x			x	Clash
Public Relations			✓	✓		Match		x			x	Clash

Table 8: Knower code match with APD Online for programmes with human sciences orientation

And as an exception,

- There was one programme with a relativist code (ER-, SR-). This programme recognised neither knowledge nor dispositions as being of fundamental importance in order to succeed. As such it presented a clash with both the APD programme and the software familiarisation training (see Table 9).

Legitimation Code Theory: Organising Principles of Knowledge Practices - Matching / Clashing Orientations													
Programme			Organising Principles of Practices: Human Sciences Orientation				Organising Principles of Practices: Natural Sciences Orientation						
Specialisation dimensions			ER+	ER-	SR+	SR-		ER+	ER-	SR+	SR-		
Academic Professional Development				✓	✓			Software Familiarisation	✓			✓	
Video Technology				✓	x	✓	Clash		x	✓		✓	Clash

Table 9: Knowledge and knower code clash with relativist code dominant – Video Technology programme

On the surface, the findings confirm the hypothesis that the academics from the two programme orientation groupings, the human sciences and the natural sciences, would prefer APD programmes with similar organising principles and knowledge practices. The different orientations are best distinguished by Young and Muller, who describe disciplines in the natural sciences as advancing through ‘long sequences of hierarchically-related concepts’ and disciplines in the human sciences as progressing through ‘variation or diversification of concepts ... having a macro-conceptual organising principle’ (2010, p. 21); this validates that disciplines with differing levels of objectivity and subjectivity have different notions of legitimacy. However, as a social realist study, endorsing change or stasis as a consequence of the interplay of structure, culture and agency at the level of the real (2.4.3), this finding is viewed as but one contributing factor in ‘a constellation of rules, assumptions, practices and relationships’ (Trowler & Cooper, 2002, p. 221) influencing academic choice regarding digitally-focused APD. I continue by briefly examining two fundamental issues related to the nature of APD at DUT before examining the particular significance of the elite code at a UoT (5.5.3 below).

Hudson draws attention to the need for improved collaboration between academic developers and educational technologists, as ‘the new professionals’ (2010, p. 2) in higher education. She explains the ‘newness’ as a discursive

term coupled with notions of change, reform and innovation, frequently associated with centres for educational development, educational technologies, and other academic support departments. At DUT, a precedent has been set with regard to the combined provision of pedagogical and educational technologies development in the APD Pioneers Online programme. Although the programme was recognised for its pedagogic emphasis, it was well received in part only, and largely by academics teaching programmes with a knower code, as has been indicated in the analysis of the data generated for this study. Significantly, as the majority of the programmes at UoTs such as DUT have a stronger knowledge code, the appeal of the APD Pioneers Online programme (knower code) was limited and the workshop attendance, as described by an executive manager at DUT, was '*always full of the same people, maybe one or two new people*' (2013 NRF study²⁹). Although seemingly an unfortunate miscalculation, the pedagogic emphasis in the APD Pioneers Online programme was a deliberate attempt to address the perceived 'pedagogy deficit' and alleviate the 'stressful experience' of those professionals who chose to enter the academe as lecturers in their professional fields on the basis of their combined professional qualifications and industry experience and without formal training in teaching (Mistri & Vooght, 2013).

Acknowledging the status of DUT as a predominantly undergraduate HE institution for vocational and higher education with a strong industry affiliation, in the next section I focus particularly on the relevance of the findings in relation to the nature of UoT programmes and 'professionally oriented'³⁰ knowledge' (Winberg et al., 2013).

²⁹ A national research foundation (NRF) funded multi-institutional and case based study was conducted in 2013 investigating the contextual influences on the professional development of academics as teachers in HE in South Africa.

³⁰ For the purposes of this study, I have adopted the definition of 'professionally-oriented' from Winberg et al. (2013), as inclusive of traditional professional programmes, such as architecture, engineering, accountancy, law and medicine, as well as new and emerging professions, such as medical imaging, emergency medical care, mechatronics, and career-focused programmes such as industrial design, business informatics, and multimedia studies.

5.5.3 UoT programmes and the élite code

Examining the positioning of the academic programmes in the study sample on the LCT specialisation plane, it was interesting to note that, while most programmes were predominantly in the knowledge codes quadrant and fewer in the knower codes quadrant, there were many programmes that were also present, although to a lesser degree, in the élite codes quadrant (see Figure 15 below). This signified that the basis of achievement in the knowledge code dominant programmes also present in the élite code quadrant would include, albeit minimally, being the right kind of knower, and similarly the knower code dominant programmes present in the élite code quadrant would also include having the right kind of knowledge.

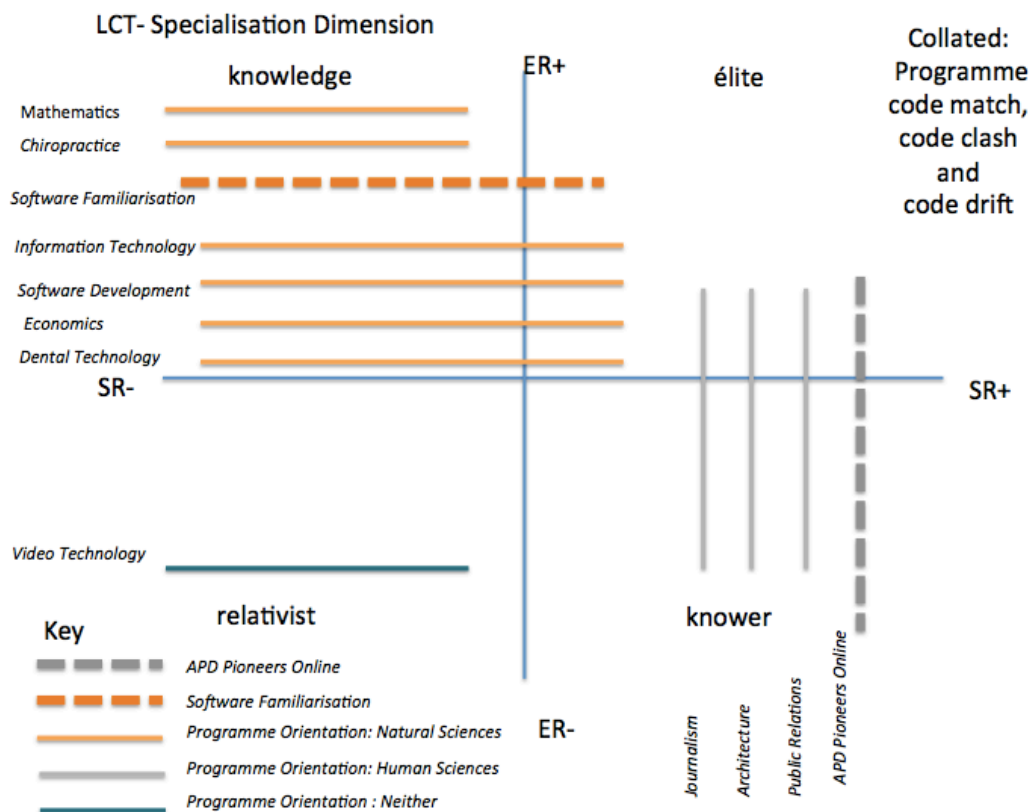


Figure 15: LCT(Specialisation) plane denoting a collated view of code match, code clash and code drift for the programmes in the study sample

This would be in keeping with both Wheelahan (2014) and Winberg et al. (2013), who highlight the significance of disciplinary knowledge as well as

situated knowledge³¹ for professionally-oriented programmes, as are offered at UoTs. Affirming the value of epistemological access to both disciplinary and situated knowledge, Winberg et al argue that

[c]ompetent professional practice requires appropriate disciplinary knowledge to enable cumulative theory building and the progression of the field of practice; but competent practice also implies knowledge about, and knowledge within, the field of practice. The key attributes of professional programmes that are fit for purpose involve both disciplinary specialisation and practical experience (2013, p. 115).

The emphasis on the value of both disciplinary knowledge and situated knowledge for professionally oriented programmes is an important consideration in the design of APD programmes at UoTs. I argue, therefore, that it does not suffice for APD programmes to be designed purely in alignment with the indicated LCT(Specialisation) code preference.

In summary, the LCT(Specialisation) findings provided insight into the cultural inconsistencies and discipline-related trends noted in the data regarding the APD related choices of the academics at DUT. The findings extend the 'two cultures debate' (Snow, 1998), and endorse Howard and Maton's (2013) findings regarding the impact of subject-area knowledge practices on technology integration. The code clashes and code matches between academic programme orientations and the APD and software familiarisation programmes also exemplify how the knowledge practices, including the subject-area specific legitimising claims, influence the APD preferences of academics. As a realist, however, I argue that the legitimising claims present as one contributing factor in a complex set of interactions of causal mechanisms in the domain of the real that influence the APD choices of academics. It is to these structural, cultural and agential emergent properties that I return to in the next section, examining the conditions of morphogenesis and morphostasis, referred to as T4 in Archer's (1995) morphogenetic

³¹ In this study, the term situational knowledge is adopted from Winberg et al. (2013) to represent both vocationally related and contextual knowledge that would facilitate the acquisition of workplace related competence.

approach, to understand when APD enabled change (morphogenesis) occurred and when things remained as they were (morphostasis) at DUT.

5.6 Tracing the morphogenesis or morphostasis of APD

As mentioned previously, according to Archer (1995) the M/M cycle occurs in limitless three part cycles (2.4), comprising of structural / cultural conditioning → social / socio-cultural interaction → structural / cultural elaboration or stasis (see Figure 3, p. 26), and enables a researcher to investigate why things have either changed (elaborated) or stayed the same (reproduced).

Following the tenet of analytical dualism, in the preceding sections on the early institutionalisation phase (see 5.2.1.3) I separately examined the agential mediation of the structural inconsistencies and the resulting elaboration, and similarly with the agential mediation of the cultural inconsistencies, to examine the role they play in one another's transformation over time. I next proceeded to examine the intersection between structure, culture and agency using the M/M framework to theorise about the possible conflictual or orderly relationship between them and what results under conditions of conjunction or discontinuity. This helped me to advance concrete propositions related to why digital technologies focused APD at DUT has evolved in the way that it has. Archer explains this process as another way of examining 'whether structural and cultural power is pulling in the same direction or not' (Archer, 1995). She explains further that, when there are discontinuities between the M/M cycles in the structural and cultural domains, one is found to be more commanding than the other. I begin by briefly examining the first two volunteer-based implementation phases (5.2.1.1 and 5.2.1.2), and thereafter focus on the early institutionalisation phase (5.2.1.3) promoting the integration of digital technologies in the teaching–learning interactions at DUT. As can be seen from Table 10, the early volunteer phase is characterised by a disjunction between cultural morphogenesis and structural morphostasis. The established volunteer phase and the early institutionalisation phase both exhibit a disjunction between cultural morphostasis and structural morphogenesis, although moving towards the end of the early institutionalisation phase there

appears to be a shift in the direction of a conjunction between cultural morphogenesis and structural morphogenesis in the adoption of digital technologies and the development of APD for the integration of digital technologies in the teaching learning interaction at DUT. These disjunctions and conjunction will be examined next.

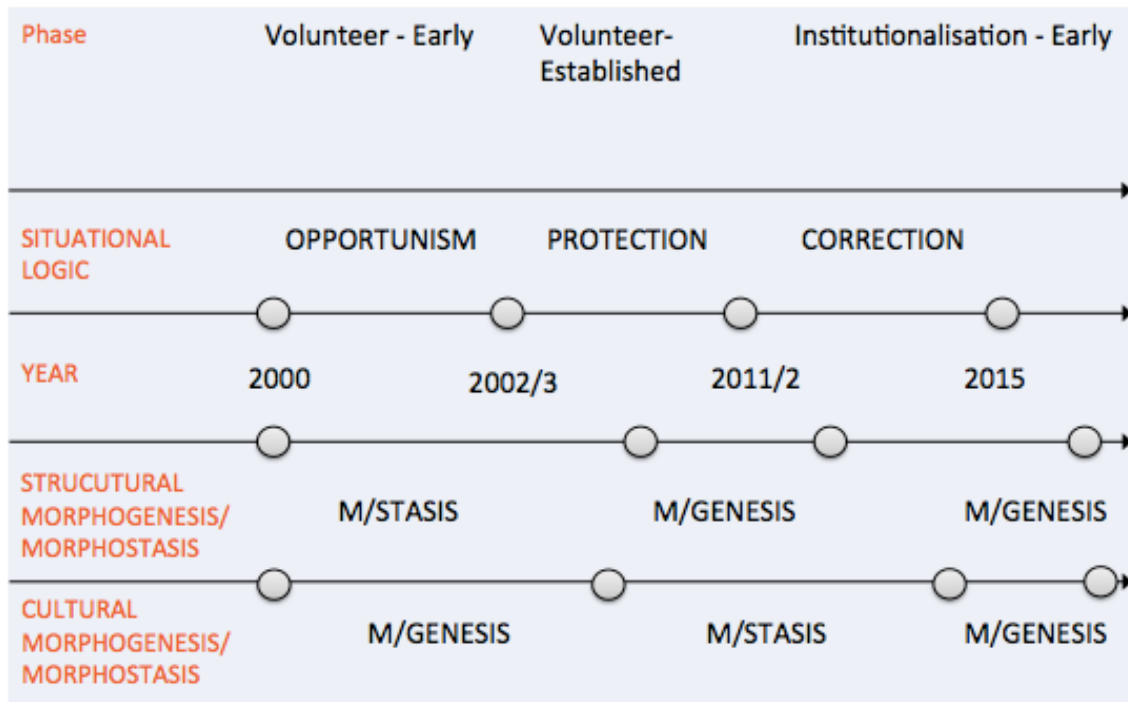


Table 10: The disjunctions and conjunction between the cultural and structural domain during the implementation phases of digital technologies at DUT

5.6.1 The disjunction between cultural morphogenesis and structural morphostasis

As described in the section on the early volunteer phase (see 5.2.1) at DUT, a group of early e-Learning enthusiasts, 'Pioneers', had initiated, with the support of the educational technologists and technical support personnel at the e-Learning unit, a special interest group to advance the use of the institutionally-provided learning management software (LMS) and other digital technologies. In the process, a number of corporate agents had become 'culturally differentiated' (Archer, 1995, p. 315). Despite the prevailing national (HE transformation including institutional mergers) and institutional (leadership, human and financial resources, infrastructure) challenges described

previously, the presence of a growing community of e-Learning practitioners was evidence that the ideational diversification and specialisation had an effect at the socio-cultural level. Notably, the deepening cleavage resulting from the lower level of social integration amplified the divide between those who were willing to 'take a risk' and engage in a new teaching and learning approach supported by digital technologies, versus those who chose to remain with the proven and familiar, at times finding new opposing ideas, such as the generational divide (Prensky, 2001), to 'retain their old ideas as their source of legitimation' (Archer, 1995, p. 318). According to Archer,

... the generic effect of cultural morphogenesis on structural morphostasis is that ideational change stimulates social regrouping ... the social interaction changes because of the introduction of diversity or intensification of divisions between material interest groups (Archer, 1995, p. 318).

At DUT, the APD programme initiated a change that presented 'a new fund of divisive ideas' (Archer, 1995, p. 317), presenting a competitive advantage and new opportunities and resulting in recognition, status and bargaining power. As noted before (5.2.1), the achievements of the 'Pioneers Online' group had begun to draw attention to the volunteer-supported APD work done by the e-Learning unit. Senior management at the institution introduced policy-level changes supportive of APD programmes, such as the Pioneers Online course, setting in place systems to support a new phase of APD, the established volunteer phase of APD. The early years in this phase were strongly morphogenetic. As mentioned earlier, the APD Pioneers Online programme was re-designed to include a three-tiered systematised structure that provided support for academic staff at various levels and included a programme in web-readiness, web-based learning, a certified short course and up-skilling workshops, with regular meetings to sustain the growing community of digital practitioners at DUT. With growing intra-institutional recognition, the Pioneers Online programme moved from the margins to a respected space within the institution, and continued to be offered in the aforementioned format for over a decade. It is this established and repeated provision of the Pioneers programme that is central to the cultural and structural intersection examined next. It must be noted, as can be seen in Table 10 (page 170), that the cultural

changes did not neatly coincide with the structural changes initiated at the university.

5.6.2 The disjunction between cultural morphostasis and structural morphogenesis

As mentioned earlier, the Pioneers Online programme, as a successful and commended programme in the established volunteer phase, was offered in the recognised format for over a decade. The cultural configuration in this phase thus remained highly systematised and protected by cultural power (Archer, 1995). The Pioneers Online programme, remaining at a voluntary level, continued to provide a service to a select like-minded group of academics who, despite the infrastructural challenges, were willing to explore the possibilities and affordances made available by digital technologies in the teaching–learning environment, and thus, in Archer’s terminology, were subject to ideational control. As described in the section on the established volunteer phase (5.2.1.2), the existing mutuality of benefits for both the educational technologists and the participating volunteer academics presented a situational logic of protection, leading to socio-cultural interaction working towards the maintenance of the status quo. The resulting situation was cultural morphostasis, described by Archer as a consequence of powerful and hegemonic systematisation, which, in the absence of ideational opposition, is supported at the socio-cultural interaction level by the reproduction of ideas amongst a unified group (1995).

In the structural domain, it was recognised that the volunteer-based APD programmes had created an ‘apartheid-like’ social and cultural elite at the level of the institution, seemingly providing a service utilised by a select group, the community of volunteer digital practitioners, able to make the best of the privilege of digital access accompanied by necessary resources and support to teach online. Given the impact of globalisation and internationalisation, as well as the national drive for social redress and widening access to HE institutions, the situation seemed to be calling for correction. Structural morphogenesis at

the institutional level had got underway with the decision to initiate institution-wide introduction of e-Learning and the necessary infrastructural adjustments (5.3). It must be noted however, that these changes, particularly the decision-making and infrastructural installations and adjustments, were taking place in a stable cultural context.

Given the increased power and negotiating strength (2.4.3.2) of the institutional management with regard to e-Learning, manifest through the various initiatives taken to ensure the successful institution-wide deployment of digital technologies (e.g. the e-Learning project), correcting and containing the cultural and structural inconsistencies, described in sections (5.3) and (5.4), it became evident that maintaining the status quo of the Pioneers Online programme would not benefit the institution. Moreover, negative opportunity costs were evident, and the e-Learning unit would need to be seen as supportive of the institutional goals to retain its legitimacy as an effective presence as an academic support unit at the institution. The introduction of the new 'problem solving' syncretic formula was introduced via the software familiarisation training programme in the early institutionalisation phase. The radically changed training programme was presented as an accommodative arrangement (Archer, 1995) to enable the three educational technologists at the e-Learning unit to provide a basic level of LMS software familiarisation training to the academic community at DUT. The programme was bolstered both by the institutional imperative and the mandatory attendance of the training programme. While there is evidence of resistance (the tick box attendance of the programme) to the proposed change, it is evident that, within this intersection of the structural and cultural domains, structure had a stronger influence on culture, evident through the presence of new corporate agents, the e-Learning champions and members of the core team in the e-Learning project. As the institutionalisation phase evolves towards an established phase, there appears to be a progressive change in both the structural and cultural domains.

5.6.3 A possible conjunction between cultural morphogenesis and structural morphogenesis

Looking ahead, the development suggests a move toward a possible conjunction between cultural morphogenesis and structural morphogenesis at the start of the established institutionalisation phase. In this phase I envisage an increased number of academics at DUT manifesting the characteristics of corporate agency, engaging in the advancement of differentiated interest groups, as Archer explains:

Whether some alliance is initiated from the cultural side or from the structural side ... eventually all ideational options are taken up in social interaction as all interest groups become involved in Socio-Cultural interaction (Archer, 1995, pp. 319-320).

Hence at the start of the established institutionalisation phase, it is anticipated that the variety of material interest groups would have articulated a new cycle of interaction, with new APD interests communicated to advance new affinities, new relations and new interactions, and starting the next cycle, introducing its own situational logic/s and new intersections within the cultural and structural domains resulting in morphogenesis or morphostasis.

5.7 Conclusion

In this chapter, I began with an examination of the institutional context, to understand the influence of pre-existing structural and cultural conditions on the implementation of digital technologies at DUT. Tracing, with the help of the M/M framework, the presenting contradictions and complementarities resulting in situational logics of opportunism, protection and correction across the three implementation phases of digital technologies at DUT, it was possible to understand why the APD programme evolved in the way that it has. In a similar vein, tracing the ultimate concerns of the academics and exploring with the help of LCT the organising principles and different knowledge practices provided an insight into the different measures of achievement and legitimacy across different academic programmes. Having done so, it became possible to understand why some academics, after having decided to use digital

technologies in their teaching–learning interactions, were willing to participate in APD while others were not.

The potential broader significance of the structural and cultural systemic conditions that contributed to the participation or non-participation of academics in the APD programmes will be discussed in Chapter 6, where I synthesise the findings in relation to the research question and sub-questions.

CHAPTER 6: CONCLUSION

6.1 Introduction

This purpose of this study was to investigate what it was that influenced the choices academics made with regard to their participation or non-participation in digital technologies related APD at a higher education institution in South Africa. In order to better understand why it was that, after having decided to use digital technologies in their teaching–learning interactions, some academics chose to participate in APD and others did not, this study was guided by the following question:

What are the cultural, structural and agential conditions that enable and constrain academic professional development for the integration of digital technologies in teaching–learning interactions at the Durban University of Technology?

Margaret Archer's (1995) M/M framework (2.4) provided a theoretical foundation and methodological means for examining the cultural, structural and agential conditions that enabled or constrained APD during the early institution-wide introduction of digital technologies. The examination of prevailing structural conditions and cultural conditions emanating from the macro context (international and national) enabled me to account for the historicity of the emergence (Archer, 1996) of the management-level decision to introduce the technology imperative at DUT, a significant shift in the teaching and learning strategy of the institution. The findings, related to the structural, cultural and agential conditions, pointed to the inconsistencies in the distribution of material resources at the structural systemic level (5.3) and the constraining contradictions at the cultural systemic level (5.4) that impacted negatively on the institutional drive to embed the use of digital technologies in teaching–learning interactions at DUT. In this chapter, I reflect on the implications of three key findings from this study which indicate that *academics' resistance to participation in digital technologies related APD was most strongly influenced by institutional contextual conditions and the lack of discipline-specific relevance of the APD programme design.*

6.2 Key finding 1: Inconsistencies at the structural systemic level – Insufficient investment in APD related human capital

The first key finding emerged from the separate examination of cultural and structural conditions, using the principle of analytical dualism (2.3.2), to develop a better understanding of why academics were reluctant to participate in digital technology related APD programmes following the institution-wide introduction of digital technologies in teaching–learning interactions. The analysis of the structural and cultural conditions provided valuable insights into the possible shaping influences on the decision to participate or not participate in APD. Key finding 1 focuses on the inconsistencies at the structural systemic level (5.3) with regard to APD related human capital and links to the sub-question:

What are the causal mechanisms and processes that contribute toward the choices academics make with regard to academic professional development for the use of digital technologies at DUT?

Institutional documents at the Durban University of Technology (2014a) acknowledged the need for adjustments in both infrastructure and the provision of academic support to sustain interest, grow expertise and ensure pedagogical significance in the integration of digital technologies in the teaching–learning interactions. My analysis of structural conditions, however, indicated a disparity in the level of investment between on the one hand infrastructure and change management, and on the other hand human resource provisioning to enable necessary professional development (5.3). This disparity in the level of investment has been recognised by Oliver (2012), and confirmed in my study, to be a consequence of the under-theorised conceptualisation of the role of digital technologies in education, a ‘theoretical blind spot’ (Oliver, 2012) contributing to the misperception of technologies as a ‘technical fix’ to educational problems.

At DUT, data from the first institutional e-Learning survey (Durban University of Technology, 2013c) revealed an increase in the use of digital technologies following the initiation of the e-Learning Project. However, this initial interest

did not translate into sustained and pedagogically significant use of digital technologies. The findings of this study suggest that the enthusiasm for change and innovation faded in the absence of adequate human capacity in the e-Learning unit. Human resources related statistical data for 2015 indicated that there were three educational technologists servicing the e-Learning related APD needs of 1 038 academics at DUT (see Appendix 12). This shortcoming impacted on the capacity to provide necessary APD as a support mechanism to effectively maintain the enthusiasm generated by its promise of convenience and contribute in pedagogically-sound ways to students' learning in the institution. Jefferies et al. (2013) argue in favour of synchronous and equivalent investment in infrastructure, support and change management as three key enabling conditions (see Figure 13 in Chapter 5) at the point of introduction of new digital technologies for large-scale adoption of digital technologies at higher education institutions.

In light of the above-mentioned finding, I would argue that the interlinked and mutually supportive enabling conditions (infrastructure, support and change management) underpin the gradual but effective institution-wide integration of digital technologies for teaching–learning interactions. Findings in this study indicated that motivation and an impetus for change accompanied by the progressive provisioning of infrastructural and network capacity were evident at the point of institution-wide introduction of digital technologies at DUT. However, the shortcoming in terms of adequate availability of APD support (limited to a general and rudimentary software familiarisation training) at the time of the introduction resulted in an attitude amongst academics of 'inserting' technology into the existing academic programmes as a minimal response in compliance with the top-down directive. This was contrary to the desired embedding of technology into academic practice as part of the academic staff and student culture.

The examination of conditions at the structural systemic level that contributed to a relatively poor level of participation in APD programmes pointed to the lack of human capital in the e-Learning unit, linked to the lack of institutional investment in support, as a causal condition. I conclude, therefore, that successful returns on digital technologies related investments in infrastructural

and network capacity building, as well as software and proprietary licences, need to be balanced with investment in APD related human capital to support the growth of academic, instructional and technological expertise.

This finding on the consequences of insufficient investment in APD related human capital at the structural systemic level may be of interest to institutional management, institutional planners and human resource managers, who are entrusted with the equitable allocation of institutional resources toward the attainment of institutional goals. At this point, I re-introduce the quote by Laurillard:

Imaginative use of digital technologies could be transformational for teaching and learning, taking us well beyond the incremental value of more accessible lecture presentations. The problem is that transformation is more about *the human and organisational aspects* of teaching and learning than it is about the use of technology. We have the ambition. We have the technology. *What is missing* is what connects the two (2007b, pp. xvi, emphasis added).

I therefore suggest that APD related human capital investment is ‘what is missing’. In order for the academic institution to achieve its primary purpose, that is, student academic success, I would strongly recommend that university management and leadership invest much more in human capital. Access to sufficient APD support would help to connect the available technology to student success, the ambition of the institution.

Supported by the findings of this study (5.3), I endorse the balanced provision of institutional resources toward the three enabling conditions. This would include infrastructure and change management as the organisational aspects, and the provision of support through the necessary presence of APD with regard to the human aspect of teaching and learning. It is my contention that the synchronous and balanced presence of the three enabling conditions at the point of introduction of new digital technologies would provide the transformative connection for the pedagogically significant use of digital technologies in teaching–learning interactions.

As the findings of this study have drawn attention to *'the human and organisational aspects of teaching and learning'* in the institution-wide deployment of digital technologies, it was encouraging to see that the recently approved e-Learning policy³² at DUT emphasises the issue of resourcing at various levels, that is, at the levels of staffing, programme co-ordination and infrastructure, to ensure quality of e-Learning. With particular reference to 'staffing', the policy states:

Sufficient planning and resource provision (in terms of time as well as money) are required to build the capacity of the staff to deal with the demands of developing and delivering electronic learning materials, and the integration of three crucial sets of skills: academic expertise, instructional expertise, and technological expertise (Durban University of Technology, 2016, p. 4).

6.2.1 Recommendations and possible opportunities for future APD related research

My analysis of the literature on digital technologies related APD showed what Archer (1995, p. 6) refers to as conflationary tendencies (2.3.1). Conflationary thinking assigns causal powers of change to either the structural or agential aspects in teaching practice. In the context of APD for the integration of digital technologies, upward conflationists³³, who allow the 'people' to dominate the 'parts', prioritise individual lecturer agency as fundamental to the adoption of digital technologies. Downward conflationists³⁴, who allow the 'parts' to dominate the 'people', prioritise the technological and local factors as essential, while central conflationists³⁵, in turn, who are set on the inseparability of the 'parts' and the 'people', explain that it would be impossible to unravel the influence of the one upon the other. Archer (1996, p. xix)

³² The DUT e-Learning policy was approved by Senate in September 2016

³³ See for example Ottenbreit-Leftwich et al. (Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010), who emphasise the beliefs, attitudes and perceptions of academics in the use of digital technologies.

³⁴ See for example Perrotta (2013), who places greater emphasis on institutional characteristics on the technology related choices of academics.

³⁵ See for example Zhao and Frank (2003) who propose an approach that examines the adoption of digital technologies from cognitive, social, organisational, technological and psychological perspectives.

explains that conflationary thinking limits the understanding of the interplay between social structures (the parts) and human agents (people), thereby inhibiting 'the explanation of cultural dynamics' (1996, p. xix).

By comparison, in this study, using the non-conflationary M/M framework, it was possible to separately examine the role of structure and agency, or the 'parts' and the 'people', to see the role they play 'in one another's transformation over time' (Archer, 1995, p. 253). The structural and cultural contradictions and complementarities resulted in situational logics (2.4.2.1 and 5.6) of opportunism, protection and correction across the three phases of digital technology implementation at DUT. A multi-dimensional view (5.6) of the various disjunctions provided causal explanations for conditions that gave rise to change (morphogenesis), and conjunctions that contributed to things remaining as they were (morphostasis). This required me to look beyond appearances and events to understand the causal conditions that produced the reality that we experienced in APD and to appreciate why the APD programme at DUT evolved in the way that it had.

With reference to the first key finding of this study, I argue for the balanced and synchronous presence of three enabling conditions, that is change management, infrastructure and support, at the point of introduction of new digital technologies for institution-wide adoption. As mentioned previously, as a realist study focused on developing causal explanations about the deep structures of reality, the findings and recommendations enhance our understanding of 'what underlies a certain course of events' (Danermark et al., 2002, p. 52) and enable us to use the understanding of causal conditions at play in the given setting to obtain insights that contribute to the development of a theory of the processes involved. Moving beyond the point of the introduction of digital technologies, further research exploring the new set of structural and cultural dynamics that accompany the established and advanced levels of institution-wide digital technology integration and utilisation would provide valuable guidance for decisions at both the structural and cultural systemic levels with regard to the progressive evolution of digital technologies related APD.

6.3 Key finding 2: Exercising agency through participation

The second key finding relating to the personal choice of the academics to participate or not participate in APD emerged from the analysis of interview data. Using Margaret Archer's concept of the three orders of reality (5.4), I examined the interplay between the structural, cultural and personal emergent properties (SEPs, CEPs and PEPs), and traced how academics used their reflexive capacity to act in specific ways, given the structural and cultural enablements and constraints. The second key finding was that cultural and structural conditions *influenced* but did not determine the choices academics made with regard to APD participation, and responds to the question:

Why is it that after having decided to use digital technologies in their teaching-learning interactions, some academics chose to participate in APD and others do not?

The analysis of interview data was based on the premise that 'emotions [act] as commentaries on human concerns' (Archer, 2000, p. 193). The categorisation of dominant emotions along three continua (5.4), following the three orders of reality (2.6), revealed: firstly, a continuum of emotions ranging from fear to excitement, tracing emotions of physical well-being in the natural order; secondly, a continuum ranging from apprehension to trust and collegiality, tracing emotions of self worth in the social order; and thirdly, a continuum of emotions in the practical order with regard to the performative value of APD, ranging from futile to beneficial. The findings highlighted the 'inner dialogue' (Archer, 2007a, p. 2) of the academics, ordering and re-ordering their priorities and commitments, or 'ultimate concerns' (Archer, 2007a, p. 7) that influenced the decision to participate in APD. The categorisation of dominant emotions, emerging from the interview data along the three continua, however, remained as trends and could not be used to draw predictive conclusions because of their subjective nature (Archer, 2007a). The findings, nevertheless, drew attention to the agential powers of the academics that produced the variation in the choices of the academics and explained why they did not respond in a uniform manner, given the same set of institutional structural and cultural conditions. Notable toward the end of

the study was the finding that the e-Learning project core-team had increased its outreach within the faculties by bridging the divide between academic support and administration at the institution (Durban University of Technology, 2015a). This process is described by Archer as 'double morphogenesis' (2.4), that is, the same sequence that brought about change in the social and cultural conditions at the institution is also responsible for transforming agency amongst academics (1995).

6.4 Key finding 3: Inconsistencies at the cultural systemic level – absence of discipline-specific relevance of the APD programme design

The third key finding of this study emerged from the enactment of the specialisation dimension of Karl Maton's Legitimation Code Theory (2.7.1), which enabled a fine-grained analysis of the significant patterns of academic preferences with regard to APD that emerged in the findings. Key finding 3 focuses on the inconsistencies at the cultural systemic level and links to the following sub-questions:

In what ways do the knowledge and knower structures in the different academic disciplines influence the preferences of the academics with regard to APD?

In what ways do the design of the APD programmes take into consideration the knowledge and knower structures of the discipline?

Although there have been studies that have examined the relationship between disciplinarity and technology integration (Czerniewicz, 2010; Howard, Chan, & Caputi, 2014; Howard & Maton, 2011), which have highlighted the risks associated with 'knowledge-blindness' (2011, p. 192) and 'absent disciplinarity' (Chen et al., 2011, p. 129), there have not been many studies that examine the impact of disciplinarity on the design of digital technologies focused APD programmes.

Traditionally, digital technology related APD programmes are focused on pedagogy and the application of innovative features of the online learning environment. It has been argued by Vorster and Quinn (2012) and Chen, Maton and Bennet (2011) that an approach to APD that is focused on advising academics about the nature of pedagogy, and focused on the processes of learning in an all-encompassing manner, would feel alien and obscure to academics from disciplines having a strong knowledge code, with stronger epistemic and weaker social relations. In keeping with the findings of this study, matching the preferences amongst academics for APD programmes to discipline-related code matches and code clashes (5.5.2), it can be concluded that most academics teaching vocationally-directed courses with a natural sciences orientation, as is the case at DUT (5.5.2), having a stronger knowledge code, would resist participating in a knower dominant APD course. This, however, is not to say that academics teaching in knowledge code dominant programmes do not possess the attitudes or qualities required to derive benefit from APD programmes, but rather introduces the possibility that the APD programme design may be a factor in causing the disconnect. In the next section, I suggest possible ways in which the findings of this study can contribute to the design of programme- or discipline-specific APD engagements that acknowledge the organising principles and knowledge practices across the disciplines.

As mentioned previously (3.7.2), in situations where multi-disciplinary teams come into contact, such as APD, there are likely to be contrasting views about what constitutes legitimate knowledge and what is valued as a measure of success. Maton's theory, premised on the understanding that all beliefs and practices are about or toward something and enacted by someone (Maton, 2007), helped me to gain an understanding of:

What influences the ways in which academics interpret and give meaning to academic professional development for the use of digital technologies in their teaching–learning interactions?

Using the LCT(Specialisation) dimension, the findings on code matches and code clashes (5.5.2), confirmed the hypothesis that academics from the two

programme orientation groupings, the human sciences and the natural sciences, preferred APD programmes that had organising principles and knowledge practices similar to their own. This finding addressed the issue in the first sub-question, on the influence of knowledge and knower structures in the different academic disciplines on the preferences of academics with regard to APD. Based on these findings, I argue that programme- or discipline-specific APD engagements, that take into consideration the criteria by which achievement within the different disciplines is measured, are valued and legitimated. It is my contention that participation in APD would be enhanced by 'learning the rules of the game' (Maton, 2014, p. 84), and recognising the different kinds of educational and intellectual practices across the disciplines. This can be done by taking the code matches and code clashes into consideration during the programme design, and introducing the possibility of a code drift or a code shift, as explained below.

According to Maton, Hood and Shay (2016), a code drift, in LCT, refers to changes within a code, where relations are strengthened or weakened (ER \uparrow/\downarrow , SR \uparrow/\downarrow) although the movement³⁶ remains within the quadrant of the plane (2.7.1). A code shift, by comparison, refers to movement between quadrants of the plane and represents a change in the legitimation code, such as from a knowledge code (ER+/SR-) to an élite³⁷ code (ER+/SR+).

As argued in 5.5.3, professionally-oriented programmes, largely offered at UoTs in South Africa, are ideally characterised as comprising both disciplinary specialisation (ER+) and practical experiences (SR+) (Wheelahan, 2014; Winberg et al., 2013). Together, a programme made up of these two components may be described as (ER+/SR+), an élite code (see Table 11), 'where legitimacy is based on both possessing the specialist knowledge and being the right kind of knower' (Maton, 2014, p. 31).

³⁶ An example of a code drift would be ER+ $\uparrow\uparrow$, where the strength of the epistemic relation changes but relative overall strength remains the same.

³⁷ Maton (2014, p. 31) clarifies that 'élite' refers not to social exclusivity but rather to possessing both legitimate knowledge and legitimate dispositions.

Professionally-oriented Programme Components	Disciplinary Specialisation (ER+)	Practical Experience (SR+)	Elite Code (ER+/SR+)
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Table 11: Professionally-oriented programme components

The design of digital technologies related APD programmes at UoTs should include both the procedural knowledge of educationally-relevant software applications (ER+)³⁸ and pedagogical knowledge (SR+). Together these two APD programme components may also be denoted as (ER+/SR+) or an élite code (see Table 12). The next section describes how programme- or discipline-related information can be included in APD programme design.

APD Programme Components	Procedural Knowledge: educationally relevant software applications (ER+)	Pedagogical Knowledge (SR+)	Elite Code (ER+/SR+)
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Table 12: APD programme components

A key factor for consideration in the design of a programme- or discipline-specific APD engagement in the future would be to take into account the organising principles or discipline-specific practices. This can be implemented by sequencing the APD programme components in a manner that prioritises and begins the interaction with the APD component that is in common with the discipline. The code-matching engagement earns the trust of the academics and establishes the legitimacy of the APD programme. The subsequent introduction of the code-clashing component of the APD programme, to initiate a code drift or code shift in the direction of the élite code, would then be met with less resistance from academics. As can be seen in Figure 16, the APD sequence for a knowledge code dominant programme, such as economics (ER+) for example, would begin with a code-matching APD (ER+) component, such as the procedural knowledge of educationally-relevant software applications (ER+), to establish trust and legitimacy. This would be followed by the introduction of the code clashing APD (SR+) component, focused on pedagogical knowledge (SR+). The anticipated effect would be a code drift (ER+/SR- \uparrow -) or a code shift (ER+/SR+).

³⁸ The procedural knowledge of software applications follows the organising principle of hierarchical knowledge structures, therefore can be described as ER+

**APD sequence for
Knowledge code dominant programme (ER+/SR-)**

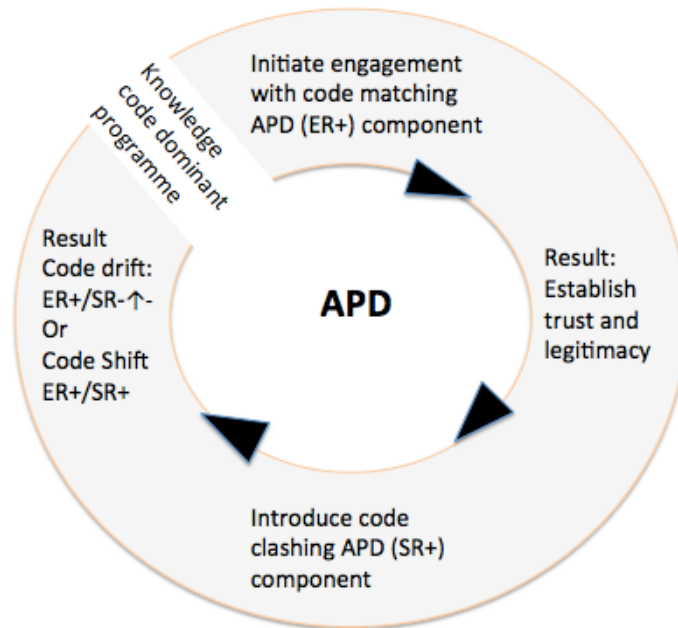


Figure 16: APD sequence for knowledge code dominant programme

Similarly, the APD sequence (see Figure 17) for a knower code dominant programme, such as journalism for example, would begin with a code-matching APD (SR+) component, focused on pedagogical knowledge, to establish trust and legitimacy. This would be followed by the introduction of the code-clashing APD (ER+) component, such as the procedural knowledge of educationally-relevant software applications (ER+). The anticipated effect would be a code drift (ER-↑-/SR+) or a code shift (ER+/SR+).

APD sequence for
Knower code dominant programme (ER-/SR+)

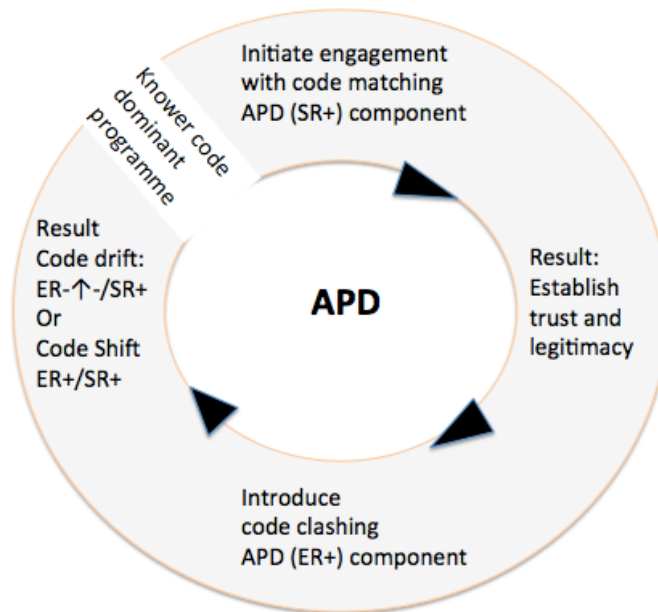


Figure 17: APD sequence for knower code dominant programme

Based on the identification of programme- or discipline-specific patterns of preferences in the findings of the study, it is recommended that initiating a programme- or discipline-specific APD engagement with a code-matching APD component, which has in common with the particular discipline the criteria by which achievement is measured, would help to establish the value of and confidence in the APD programme. These findings and recommendations are responsive to the need to improve participation in digital technologies related APD programmes and have particular relevance to the design of the APD programmes. The findings, therefore, would be of interest to APD programme designers, academic developers, educational technologists and researchers in higher education, nationally and globally.

6.4.1 Recommendations and possible opportunities for future APD related research

Based on the findings and recommendations for programme- or discipline-sensitive APD programme design, many questions emerge and present opportunities for further research. In this study I have alluded briefly to

Legitimation Code Theory (LCT), using only the specialisation dimension of the LCT toolkit. Together, the 5 dimensions of the LCT toolkit would enable me and other researchers in a similar context to look beyond the surface features of empirical situations, to develop a collection of discipline-based responses to APD for the integration of digital technologies. Furthermore, using the 4-K model, which describes the LCT(Specialisation) codes in terms of 'insights' and 'gazes' and 'lenses', would enable a nuanced understanding of the struggles for legitimacy that could be examined at both micro and macro levels, ranging from an individual case study and multiple case studies to inter-institutional studies on the integration of digital technologies in teaching–learning interactions worldwide.

The three key findings in this chapter refer to the structural, cultural and agential conditions that influenced the ways in which academics gave meaning to APD and influenced their decision to participate in the APD programmes. The examination of the structural and cultural conditions provided insights into the 'constellation of rules, assumptions, practices and relationships' (Trowler & Cooper, 2002) at DUT during the period of the study that enabled and constrained participation in APD programmes. This examination of the deep structures of reality has provided insights into the causal processes influencing participation in APD programmes, and in so doing makes a contribution to the field of academic professional development for the integration of digital technologies in teaching–learning interactions in higher education, both nationally and internationally.

6.5 Final reflections

*The real voyage of discovery consists not in seeking new landscapes
but in having new eyes—Marcel Proust*

I began this study for both professional and personal reasons. In my professional capacity as an educational technologist-cum-academic developer, I searched for an answer to the bewildering lack of participation by academics in APD programmes designed to support the integration of digital technologies

in teaching–learning interactions. I entered the field of educational technology, naively convinced of the transformative potential of digital technologies; however, I soon learnt of the many ‘wicked problems’ (Rittel & Webber, 1973) that accompanied the institution-wide introduction of digital technologies to enhance teaching–learning interactions in higher education. As a doctoral student, the introduction to critical realist philosophy presented me with ‘new eyes’ – and so began the real voyage of discovery from the ontological perspective of a realist, examining processes and events as an outcome of complex interactions in the domain of the real (2.2.1). As a researcher, the morphogenetic / morphostatic model provided me with an analytical and organising framework for my study while the introduction of LCT(Specialisation) provided an analytical tool that enabled a fine-grained analysis, allowing me to move beyond theory into the practical realm, with practicable options to explore change as an APD practitioner and to enhance participation of digital technology focused APD programmes.

Reflecting on this study, I have grown to understand how established institutional practices, including the familiar practices of APD for the integration of digital technologies, have introduced levels of uneasiness amongst academics by not acknowledging their disciplinary cultures in APD. It is this uneasiness, a feeling of ‘unhomeliness’ (Bhabha, 1994, p. 9), that has been a key factor in many of their decisions not to participate in APD. I have recognised that my ‘established’ APD practice, influenced by my ontological perspective, reflects a human sciences orientation as well as my disciplinary background in education. Most importantly, this study has made me aware of the inadvertent imposition of my ‘teaching and learning regimes’ (Trowler & Cooper, 2002), which has contributed to resistance amongst academics from disciplines with orientations different to the one I advanced. It has been acknowledged that disciplines constitute the essential source of academic identities (Baume, 1996; Healey & Jenkins, 2003; Quinn, 2012c; Trowler & Cooper, 2002). I learnt in this study that the allegiance that academics have to their disciplines ‘specialise[s] their identity and claims to insight’ (Maton, 2006, p. 50); that is, for the disciplines in the natural sciences the epistemic relation (ER+) was central to their field, while the human sciences held the social

relation (SR+) as the basis of their specialisation. Addressing either the epistemic relation or the social relation in APD would result in a 'gulf of mutual incomprehension' (Maton, 2006, p. 51) for the other, as disciplines are underpinned by different theories, beliefs and values. Together, culture and structure (the 'parts') shape the disciplinary knowers (the 'people'), and hence their expectations of APD. This has been confirmed in the findings of this study, that highlight the APD programme related patterns of preferences and distinct discipline-related trends amongst academics. In the context of digital technologies related APD, it is evident that the minimal presence of the discipline in generic modes of 'training' loses legitimacy, as it is perceived to be responding purely to the novelty of educational digital technologies without a foundational basis in disciplinary relevance. Finally, I conclude with Archer's (Archer, 1995) explanation of the interplay between social structures and human agents:

... it is only by respecting the powers of people (i.e. not treating them as 'indeterminate material') that the powers of the 'parts' [structural and cultural] can exert a conditioning influence ... One of the most important and differentiating powers proper to people is their intentionality – their capacity to entertain projects (goals) and design strategies to accomplish them ... They designate the congruence or incongruence between two sets of powers – those powers of the 'parts' in relation to the 'projects' of the people. Only in this way, of course, can the *same* environmental property give rise to situations which some agents find enabling and others constraining (Archer, 1995, pp. 198, emphasis in original).

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Appendix 1: Demographic details of research participants

Participant						
Name	Pseudonym	Faculty	Specialisation	Age	Years in teaching	
Transcription P...	Q Janice	Q FEBE	Q Engineering	Q 30-40 ye...	Q > 6 years	
Transcription P...	Q Spirit	Q FHS	Q Dental Technology	Q 30-40 ye...	Q > 6 years	
Transcription P...	Q Shani	Q FMS	Q Media Studies, Communication Science	Q 30-40 ye...	Q > 6 years	
Transcription P...	Q Meera	Q FAS	Q Mathematics	Q > 40 years	Q > 6 years	
Transcription P...	Q Alex	Q FMS	Q Economics	Q > 40 years	Q > 6 years	
Transcription P...	Q Michele	Q FHS	Q Chiropractic	Q 30-40 ye...	Q > 6 years	
Transcription P...	Q Sheela	Q FAI	Q IT, Software Development	Q 30-40 ye...	Q > 6 years	
Transcription P...	Q Aarya	Q FAI	Q Computer Programming	Q 30-40 ye...	Q > 6 years	
Transcription P...	Q Jake	Q FEBE	Q Architecture	Q 30-40 ye...	Q > 6 years	
Transcription P...	Q George	Q FAS	Q Mathematics	Q > 40 years	Q > 6 years	
Transcription P...	Q Imaan	Q FAD	Q Journalism	Q > 40 years	Q > 6 years	
Transcription P...	Q Cary	Q FAD	Q Television production, scriptwriting and vid...	Q > 40 years	Q > 6 years	

Appendix 2: Email invitation to participate in academic professional development related research

Dear _____

I am writing this email to invite you to share with me your experience with regard to academic professional development for the use of digital technologies in learning and teaching at DUT. This interview would form a central part of my data gathering for the purposes of my PhD study, which is titled:

A social realist analysis of academic professional development for the use of digital technologies for teaching and learning in higher education.

The purpose of this study is to examine and understand the complex and real life conditions that either enable or constrain academics from participating in academic professional development (APD) for the use of digital technologies at the Durban University of Technology (DUT).

For the purpose of this proposed study, the term digital technologies, following Rosenblit (2009), will refer to technologies that are applied in higher education institutions for information retrieval, simulations and multi-media presentations, communications between academics and students in- and after classes, communications amongst students, online exercises and examinations; for the purpose of teaching, learning and research.

Your participation is completely voluntary. The possible benefit of this is to allow you the opportunity to add 'your voice' to the responses of academics in South African Higher Education to the introduction of digital technologies. It would also contribute toward informing the design and delivery of future academic professional development programmes necessary to support the use of technological affordances in the teaching and learning environment. What this will require from you in terms of time and resources is that we will spend approximately 45-60 minutes together in a semi-structured and audio-recorded interview. If needed, a second interview may be conducted via email correspondence.

You may decline to answer any of the questions you do not wish to answer. Anonymity is of the highest priority and the greatest care will be taken to ensure that your contributions are not traceable back to you. It is important to note that this research has not been commissioned by any organisation or agency.

Further, you may decide to withdraw from this study at any time, without any negative consequences, simply by letting me know your decision. I look forward to our conversation on -----date, time, venue

Please do feel free to contact me for further clarification or information on the study.

Sincerely
Gita

Appendix 3: Academics' views on what influences their understandings, behaviours and attitudes towards academic professional development for the use of digital technologies (APD_dT) in their teaching learning interactions.

Focus Areas

- a. The influence of digital technologies (on T&L) and the academic identity/role (agency/projects/ ultimate concerns)
- b. Institutional Culture and Structure – (Support Mechanisms for the use of digital technologies in Learning and Teaching at DUT)
- c. Faculty and Departmental Culture and Structures
- d. Other Structures and Influences
- e. General

1	The influence of digital technologies in teaching and learning (and the academic role and identity)	time	notes
	<p>I see from the survey that you are using digital technologies with your students...</p> <p>Can you tell me how long are you using the digital technologies? What was it that helped you decide to use the digital technologies?</p> <p>Was there anything that concerned you or excited you about introducing digital technologies in your course?</p> <p>Has it influenced your role as an academic in any way? Has it had an impact on how you teach? Please tell me more.</p> <ul style="list-style-type: none"> o digitisation of content o changed pedagogy o other challenges <p>How about you students? Do the digital technologies help or hinder learning in any way?</p>	10 min	

	<p>In your experience as an academic at a UoT are there particular influences on your decision to use/not use digital technologies in your learning and teaching?</p> <ul style="list-style-type: none"> o Vocational institution o industry o changing technology 		
2	<p>As you know this research project is really focused on Academic Professional Development for the integration of digital technologies (APD_dT) in learning teaching interactions.</p>		
	<p>The survey tells me How do you feel about the APD-dTs?</p> <p>Do you think there is a need for academic development and support for the use of digital technologies in teaching and learning at DUT? Can you please explain?</p> <p>(Possible probes):</p> <ul style="list-style-type: none"> o Academic space o First and third word divides o Digital technologies in education o Student success o Digital and other divides 	10 min	

	<ul style="list-style-type: none"> o Industry appropriate graduate attributes <p>Can you tell me a little about the APD_dT opportunities that are available to you?</p> <p>(Possible probes):</p> <ul style="list-style-type: none"> o APD_dT opportunities that you would like to get? o What would constitute excellent APD_dT for you? o In what ways did / didn't the APD_dT programmes that you attended answer the questions or concerns that you had about the use of digital technologies in learning and teaching? <p>What was it that made you choose to participate? / not participate?</p> <p>(Possible probes):</p> <ul style="list-style-type: none"> o Globalization (changing socio-economic political/cultural and technological climate) o Knowledge economy/society o Information society o ICT anxiety o Familiarity with technology or lack thereof o Disruptive technologies o Faculty or industry requirement o Improved qualification o Understanding how technology changes learning experience o Positive/negative 		
--	--	--	--

	<p>When you were able to participate, what did you have to do to make it possible for you to participate? Can you give me an example</p> <p>If you were not able to participate, what was it that prevented you from participating? Can you give me an example</p>		
3	<p>Institutional Culture and Support Mechanisms for the use of digital technologies in teaching learning interactions</p>		
3.1	<p>Embeddedness:</p> <p>Since 2012, there been changes or institutional drives at DUT to encourage the use of digital technologies in teaching and learning</p> <ul style="list-style-type: none"> o Gen Ed, Re-curriculation, FYSE, etc <p>Have these drives/ imperatives had an influence on</p> <ul style="list-style-type: none"> o you personally, or o within your department or o faculty? <p>Can you please explain</p> <p>How have these imperatives encouraged / discouraged you from using digital technologies in your teaching and learning? Can you explain please?</p>	5 min	
3.2	<p>Mechanisms</p> <p>Are there systems in place to support the institutional drive for digital technology use in teaching and learning? Can you explain?</p> <p>Have there been changes recently related to APD for the integration of digital technologies? Can you tell me more?</p> <p>Can you tell me what encourages or discourages you from</p>	5 min	

	<p>participating in APD_dT at DUT?</p> <ul style="list-style-type: none"> o Institutional policies, faculty policies. Workloads, time, and coping mechanisms, infrastructure, other material resources o Formal workshops o Informal sessions o Learning from colleagues 		
3.3	<p style="text-align: center;">Contexts</p> <p>Has participating in APD-dT influenced the way you use digital technologies in your teaching and learning? Please explain.</p> <p>Is there faculty or department support APD_dT? If so, how? / or why not? How do you feel about this?</p> <p>How do you feel about the technology imperative and the target to have 50% of qualifications with an online component by 2015?</p> <p>Are there any other factors that influence your decision to use digital technologies?</p> <p>Are there any other factors that influence your participation in APD?</p>	5 min	
3.4	<p style="text-align: center;">Regularity</p> <p>Do your colleagues in the department or faculty participate in APD_dT? Does this influence you? Can you tell me more?</p> <p>What is it that makes it easy / difficult to participate?</p> <p>How do your students feel about the use of/ or non-use of digital technologies by academics? Does this influence your participation in APD_dT?</p>	5 min	

3.5	<p>Change</p> <p>Are there national or international trends in the use of digital technologies in higher education and in your field? Has this influenced you in any way? Has this influenced your participation in APD_dT?</p> <p>Can you give me some detail about the challenges that are specific to teaching in your field? Does APD_dT have a role to play in meeting these challenges?</p>	5 min	
4	<p>General</p> <p>Is there anything else you would like to add regarding academic staff development for the use of digital technologies?</p>	5 min	

Notes:

Appendix 4: Consent form

Requesting your consent to participate in my research project

Dear Colleague

The purpose of this letter is to request your consent for participation in my research project. In order to protect your interests and to ensure that my research is undertaken in an ethical way, I would like to give you as much detail as I can so that you can give informed consent for participation in my research project.

The project is titled:

A social realist analysis of academic staff development for the use of digital technologies for teaching and learning in higher education.

The purpose of this study is to examine and understand the complex and real life conditions that either enable or constrain academics from participating in academic staff development (ASD) for the use of digital technologies at the Durban University of Technology (DUT).

For the purpose of this study, the term digital technologies, following Rosenblit (2009), will refer to technologies that are applied in higher education institutions for information retrieval, simulations and multi- media presentations, communications between academics and students in- and after classes, communications amongst students, online exercises and examinations, for the purpose of teaching, learning and research.

Your participation is completely voluntary. The possible benefit of this is to allow you the opportunity to add 'your voice' to the responses of academics in South African Higher Education to the introduction of digital technologies. It would also contribute toward informing the design and delivery of future academic staff development programmes necessary to support the use of technological affordances in the teaching and learning environment.

What this will require from you in terms of time and resources is that we will spend approximately 45-60 minutes together in a semi-structured and audio-recorded interview. If needed, a second interview may be conducted via email correspondence.

Confidentiality is of the highest priority and the greatest care will be taken to ensure that your contributions are not traceable back to you. It is important to note that this research has not been commissioned by any organisation or agency. Also, note that you are at liberty to decline to answer any of the questions and that you may decide to withdraw from this study at any time, without any negative consequences, simply by letting me know your decision.

If you require any further information on this project prior to consenting to participation, please contact me. Additionally, further information is available on the research blog <http://mistrig.wordpress.com/>

In the event that you should be concerned by my actions as a researcher,

My supervisor is:

Prof Lynn Quinn

Head of Department: The Centre for Higher Education Research Teaching and Learning.

Tel: 27 46 603 8171

My co-supervisor is:

Prof. B. Leibowitz

Chair: Teaching and Learning

Faculty of Education

University of Johannesburg

Tel: 27 11 5593487

Attestation of agreement and confidentiality

I, Gitanjali Umesh Mistri (the researcher) do hereby swear that all information obtained as a result of this research will be treated in such a way that the confidentiality of the provider of that information will be maintained.



Signed: _____ Date: _____

I,(research participant) do hereby acknowledge that I have been informed of the nature, method and purpose of this research project, and have given my informed consent to participating in the project provided that my confidentiality is observed. I give permission for data with my identity concealed, to be used for the purposes of this research project.

I acknowledge that I have received a copy of this consent form and information for my records.

Signed: _____ Date: _____

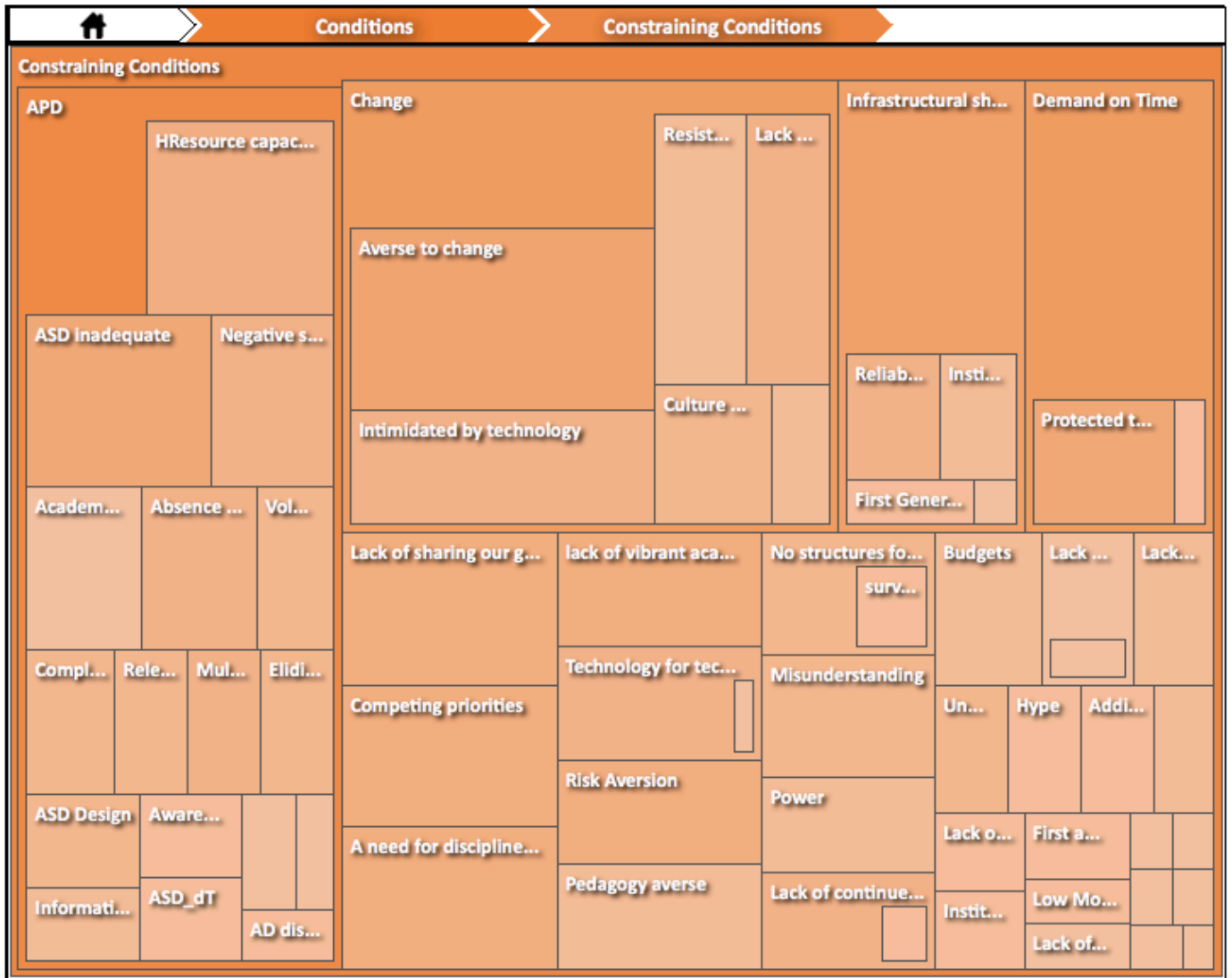
Appendix 5 : NVivo coding categories – enabling conditions

▼ ● Enabling conditions	0	0
● Accepting challenges	5	7
● Accountability	1	1
● Acculturation	3	7
● Collaboration and Networking 	4	5
● Collegiality	3	5
● Confidence in AD Staff	1	1
● Convenience	3	5
● Disruption	2	2
● Drawcards for using dT	3	4
● Infrastructural enablements	6	13
▶ ● Institutional imperative	6	22
● Open to Change and Risk 	6	13
● Opportunity	3	4
▶ ● Pedagogical Practice	9	19
● Personal Background	1	1
● Personal interest in dT	2	2
● Personal Motivation	7	10
● Professional Practice	2	3
● Raising awareness	2	4
● Recognising development	3	4
● Reflecting on practice	1	1
● Relevance and Need	5	7
▶ ● Rethinking and organisational change	3	4
▶ ● Sharing	5	9
● Social Media in education	1	2
● Student requests	2	6
▶ ● Support	8	21
● Taking responsibility	1	1
● Theory enabled practice	2	2

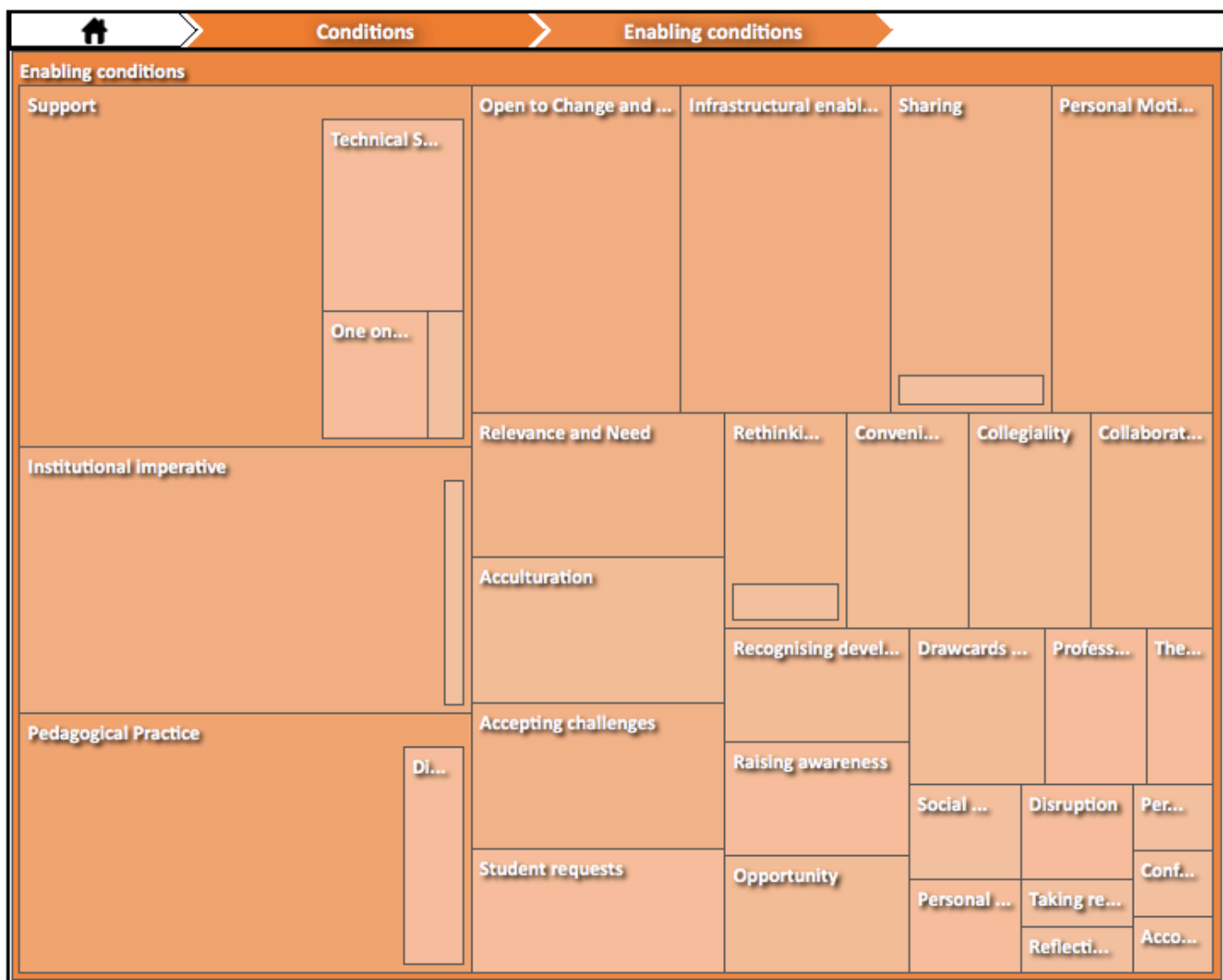
Appendix: 6: NVivo coding categories: constraining conditions

▼ ● Constraining Conditions	1	1
● A need for discipline specific AD	7	13
● Adding divides	2	4
▶ ● APD	8	11
● Budgets	3	7
▶ ● Change	7	17
● Competing priorities	7	13
▶ ● Demand on Time	12	25
● First and Third world realities	2	3
● Generic AD_dT	1	1
● Hype	2	4
▶ ● Infrastructural shortcomings	8	21
● Institutional merger	2	3
● Lack of access to computers for students	1	1
● Lack of accreditation	1	2
▶ ● Lack of continued training and support	5	5
● Lack of departmental support	1	1
● Lack of efficient help desk type response	1	1
● Lack of eLearning policy	2	3
● Lack of sharing our gains and losses to learn	7	14
▶ ● Lack of support for open source	1	4
● Lack of training in pedagogy	3	5
● lack of vibrant academic debate	7	10
● Low Morale	2	2
● Misunderstanding	4	9
▶ ● No structures for accountability	3	5
● Norms	1	1
● Pedagogy averse	3	9
● Poor attendance	3	3
● Power	3	7
● Risk Aversion	7	9
● Technikon culture	1	1
▶ ● Technology for technology sake	5	9
● Underutilised software	0	0

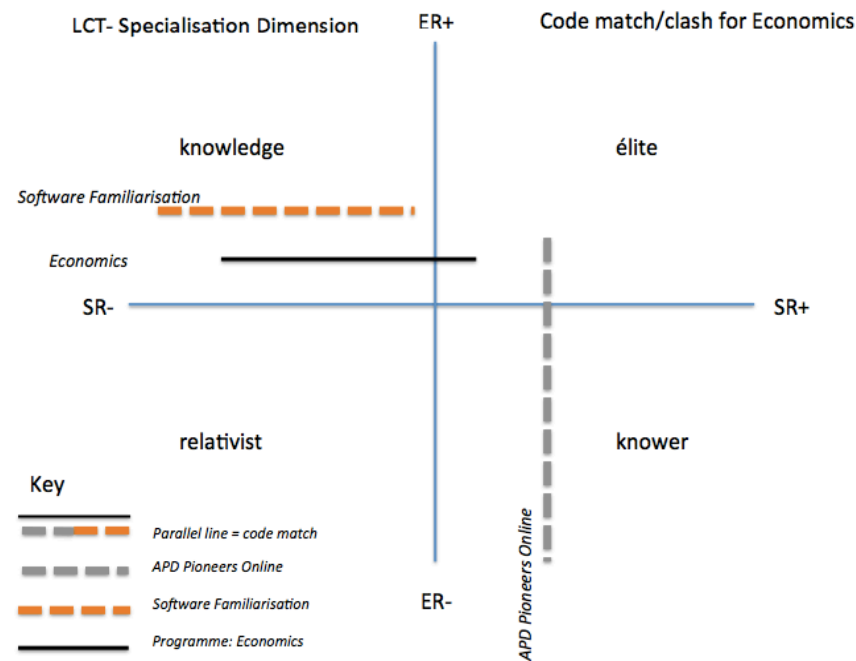
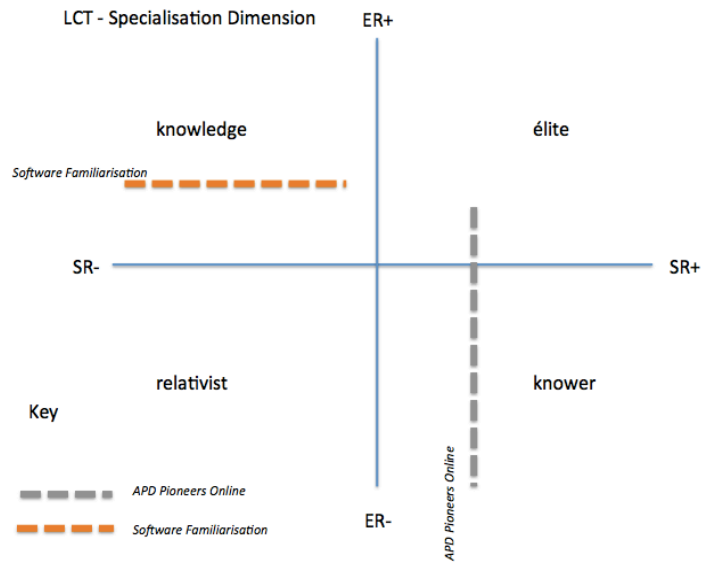
Appendix 7: NVivo hierarchy chart for constraining conditions

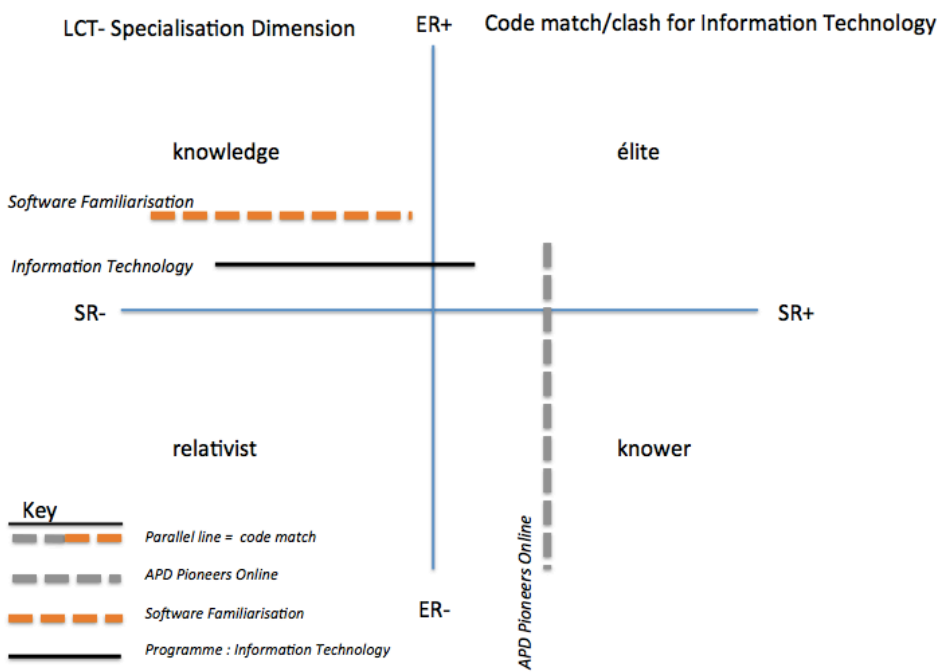
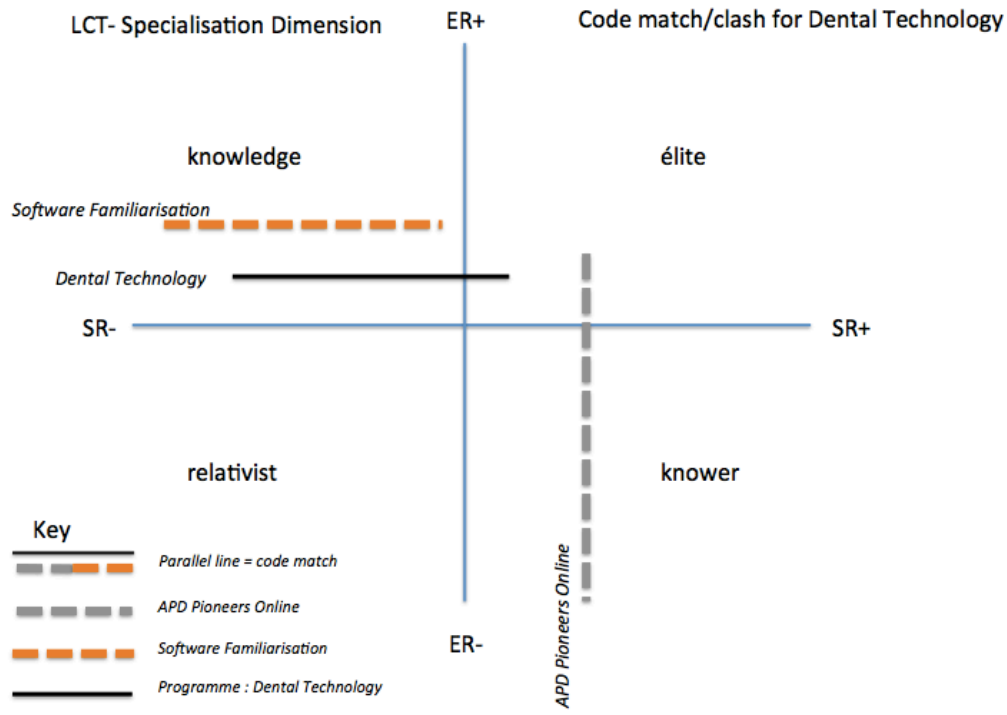


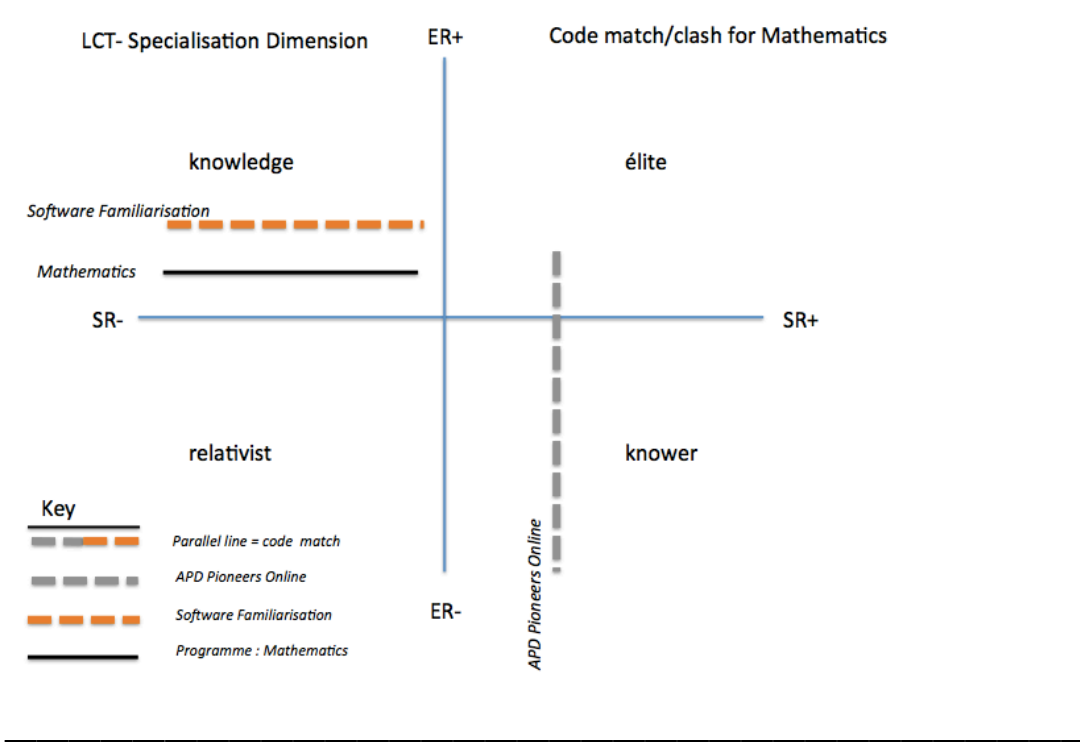
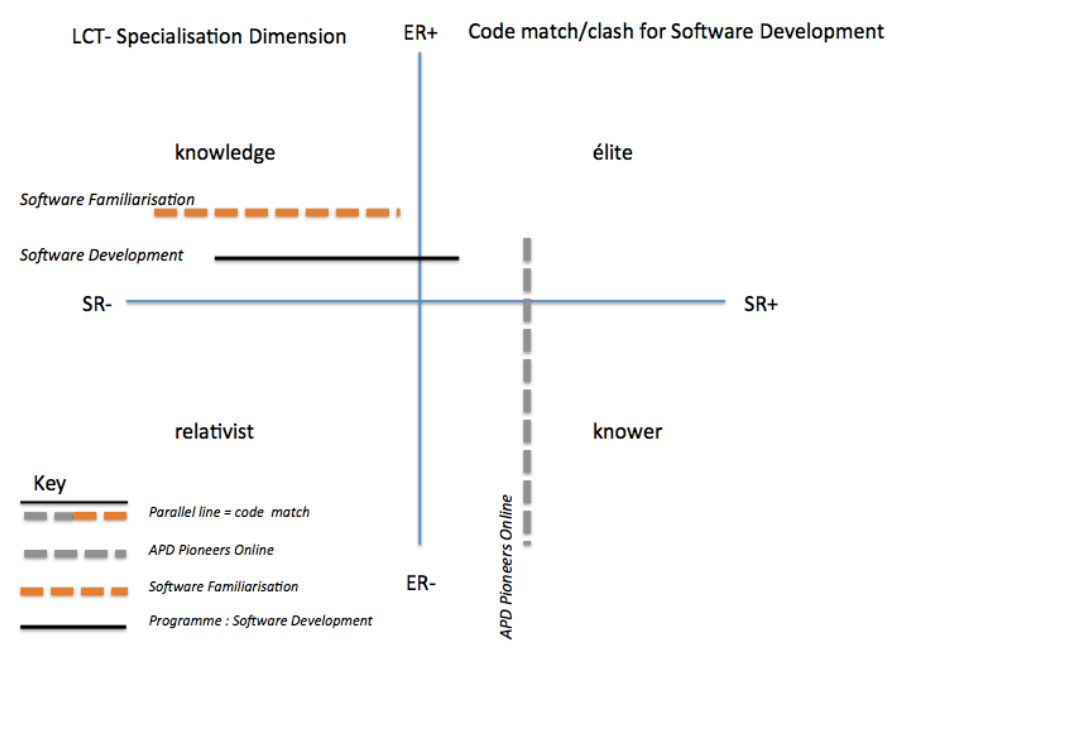
Appendix 8: Nvivo hierarchy chart for enabling conditions

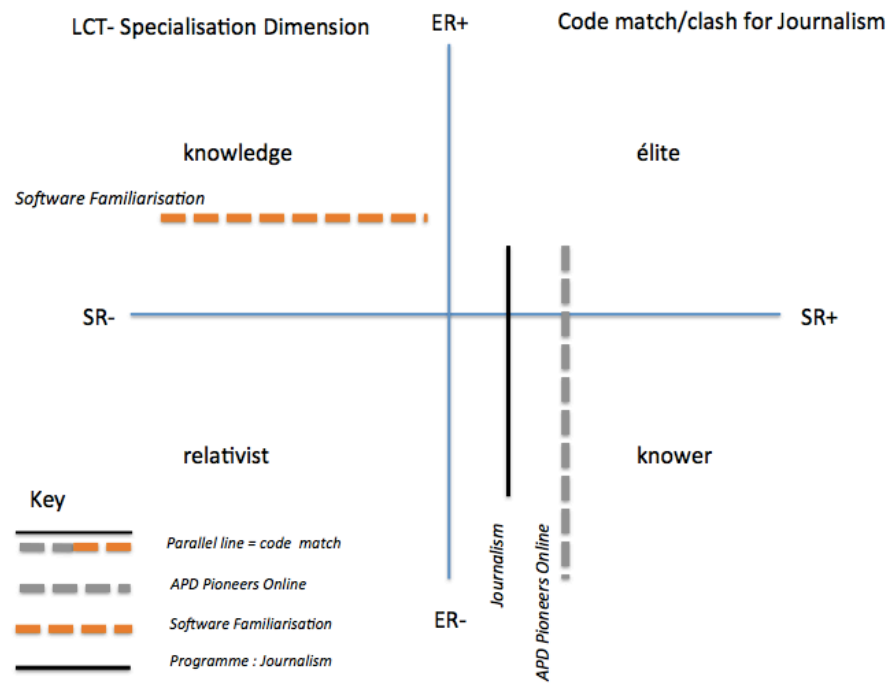
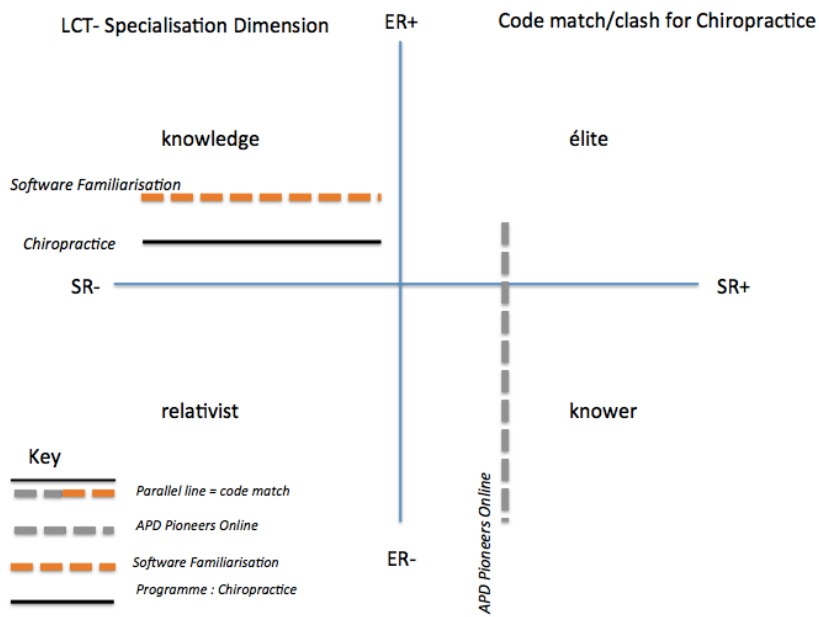


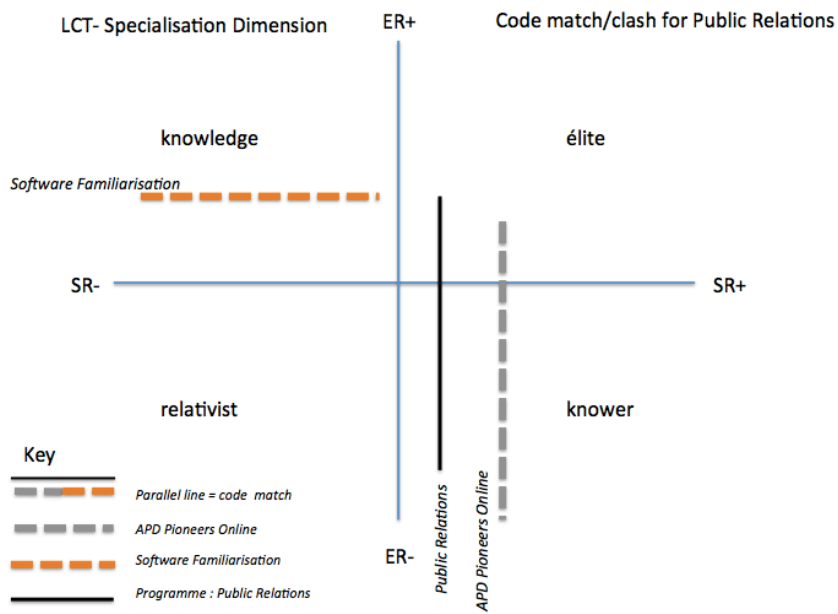
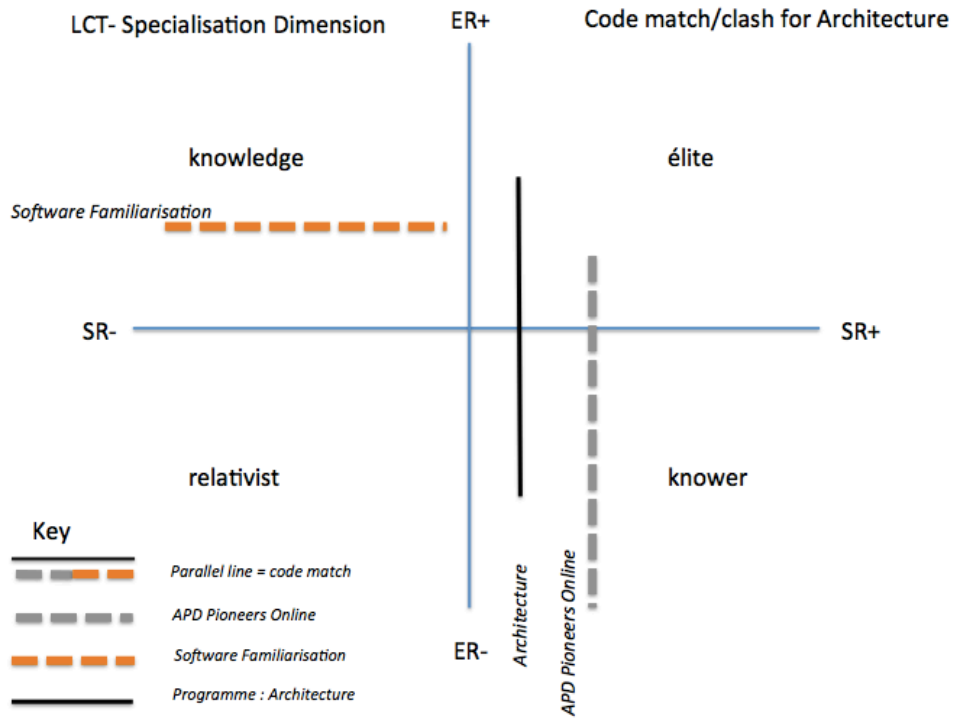
Appendix 9: LCT (Specialisation) plane - juxtaposing LCT (Specialisation) codes of academic programmes against LCT (Specialisation) codes of APD programmes

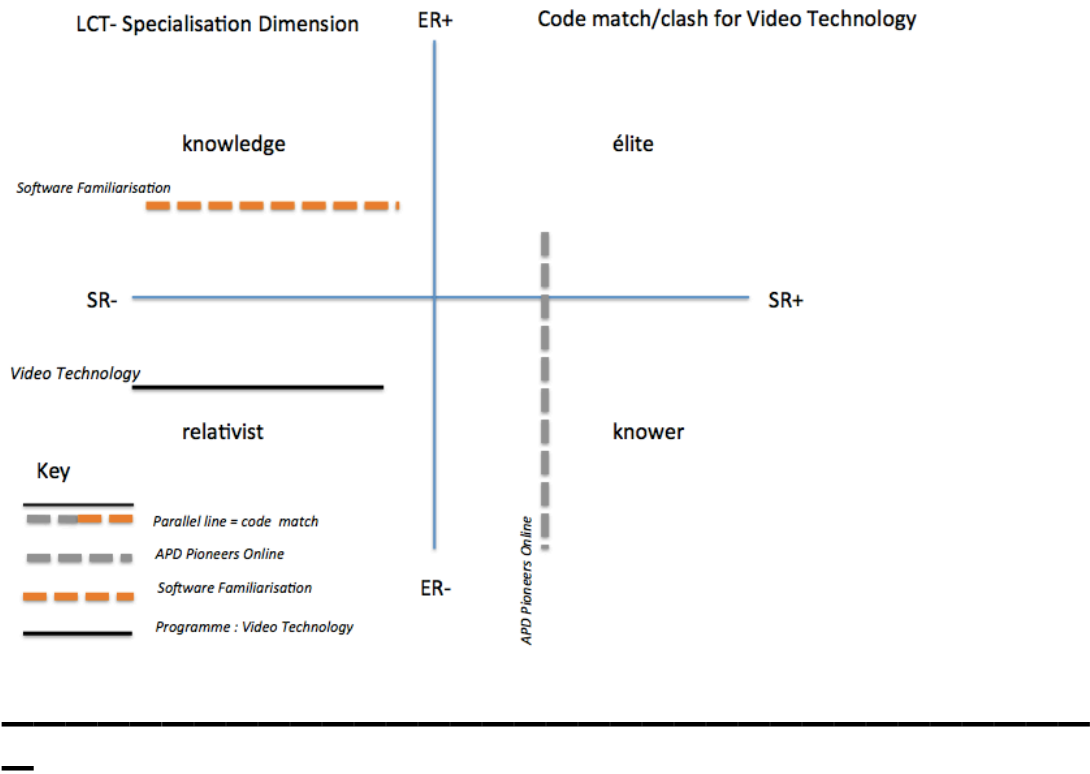













Appendix 10: 2013 Institutional e-Learning survey

EvaSys	Survey on E-Learning	Electric Paper
		

Mark as shown: Please use a ball-point pen or a thin felt tip. This form will be processed automatically.
 Correction: Please follow the examples shown on the left hand side to help optimize the reading results.

1. Kindly respond to the following:

1.1 Name (optional)

1.2 Faculty
 Arts and Design Applied Sciences Accounting and Informatics
 Engineering and the Built Environment Management Sciences Health Sciences
 Not Applicable

1.3 Employment Category
 Academic staff Academic Support Staff (e.g. Library, CELT)

1.4 Do you have students enrolled in an e-learning classroom (e.g. Blackboard, Moodle, etc) in 2013?
 Yes No

1.5 If you answered yes for (1.4), please give details

1.6 If you answered yes for (1.4), how many of your subjects/modules in 2013 have an e-learning component?
 1 2 3
 4 5 6
 7 8 9 or more

1.7 What is the total number of subjects/modules that you are teaching in 2013? (include all subjects/modules with and without an e-learning component)
 1 2 3
 4 5 6
 7 8 9
 10 or more

1.8 If you had students enrolled in an e-learning classroom in any previous year/s, indicate the years
 2012 2011 2010
 2009 2008 earlier than 2008

1.9 If you answered yes for (1.4) or had students enrolled in an e-learning classroom in a previous year (1.8), which e-learning systems (e.g. Blackboard, Moodle, etc) did you use? (Select more than one, if applicable)
 Blackboard/WebCT Moodle Any other e-learning application (e.g. social media, du4life, etc)

1.10 Have you attended formal e-learning training at DUT or elsewhere?
 Yes No

1.11 If you answered yes for (1.10), please give details

1.12 Have you written an article or presented a paper on e-learning?
 Yes No

1.13 if you answered yes for (1.12), please give details

1.14 Have you ever used a mobile device or smartphone to communicate with your students as part of your teaching and learning delivery?
 Yes No Not applicable

1.15 If you answered yes for (1.14), give an example

1.16 If you are interested in participating in a more detailed survey, please provide your email address



Appendix 11: Excerpts from research participant pre-interview survey

A 5-minute academic staff development opportunities survey

A survey of academic staff development opportunities for the use of digital technologies in learning and teaching at the Durban University of Technology (DUT). This survey is part of a PhD study which hopes to contribute to the design and delivery of future academic staff development programmes to support the use of digital technologies.

For the purpose of this proposed study, the term digital technologies will refer to, and following Guri-Rosenblit (2009):

Technologies that are applied in higher education institutions for information retrieval, simulations and multi-media presentations, communications between academics and students in- and after classes, communications amongst students, online exercises and examinations; for the purpose of teaching, learning and research.

Surname and name

REQUIRED

Faculty and Department

REQUIRED

The main course I teach is

REQUIRED

Please select the nearest approximate for the duration of the training participated in.

REQUIRED

	0 hours	Less than or equal to 4 hours	Less than or equal to 1 day	Less than or equal to 2 days	Less than or equal to 1 week
Blackboard LMS training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moodle LMS training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whiteboard training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training in the use of online documents and spreadsheets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training in the use of presentation software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training in the use of email communication software and tools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training for online information retrieval	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training in the use of conducting library database searches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training in the use of citation tools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training in the use of cloud based file sharing services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 12: 2015 Academic staff to educational technologists ratio

	Faculty	No of departments	No of academics	Educational technologist	Ratio Educational technologist : Academics
1	FMS	12	206	1	1: 366
2	FAD	7	160		
3	FAS	10	97	1	1: 360
4	FEBE	10	263		
5	FHS	10	192	1	1: 312
6	FAI	6	120		