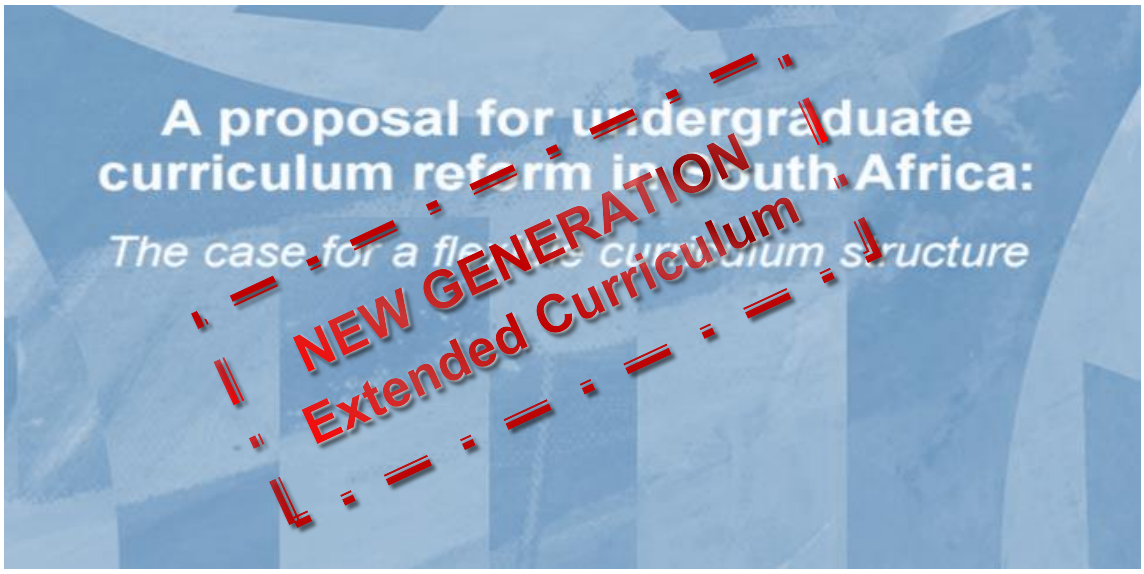

NEW GENERATION EXTENDED CURRICULUM

'THE FLEXIBLE DEGREE PROPOSAL'

TDG COLLABORATIVE GRANT

PROJECT REPORT

MAY 2016

Executive Summary

In August 2013 the Council for Higher Education (CHE) released "A proposal for undergraduate curriculum reform in South Africa: A case for a flexible curriculum structure" (CHE, 2013). The argument was that the current curriculum structures pose a *systemic* obstacle to access and success that can only be overcome through deliberate intervention at a *systemic* level. Until such time as the proposal is approved, higher education in South Africa finds itself in the precarious position of ambitious targets for growth in enrolments and graduation rates but without a systemic plan for how these targets will be achieved. The DHET is committed to a range of strategies for improving student success. One of its key strategies is increased investment in ear-marked funding for extended curriculum programmes, also known as foundation programmes. The question however is, **will these extended curriculum programmes as they are currently being implemented enable the systemic reform required**? The CHE proposal argued that despite some successes the existing Foundation Programmes will not achieve the scale of reform required. This is not only a matter of scale but also the poor completion rates of the majority of these programmes point to existing inefficiency. In its own analysis of the 2000-2008 cohorts DHET (2016) notes significant improvement in first year attrition rates which may in part be as a result of Foundation Programmes. They concede, however, that this has not resulted in the necessary improvement in graduation rates; with nearly half of those enrolled failing to complete within 5 years' time.

In 2014 a multi-institutional research and development project was launched -- funded by the DHET Collaborative TDG -- with the aim of understanding the strengths, limitations and overall effectiveness of the current extended (EXT) curriculum programmes, and what reform is required to strengthen the contribution of these programmes to systemic reform. Across four universities, a total of nine extended curriculum programmes from faculties of Engineering, Science, Commerce and Humanities were investigated.

The first key question of the study is, what are the key principles that need to inform undergraduate curriculum reform in South Africa? Drawing on the CHE (2013) Flexible Degree Proposal (FDP) the research findings propose that in order to address key structural problems, the following **curriculum reform principles need to apply:**

- Foundation provision: at the entry level there is a recognition that serious knowledge gaps need to be filled given problematic curricular assumptions about students' prior knowledge.
- Epistemic transitions: there is further acknowledgment that addressing the entry-level gaps will not suffice; there is a need to scaffold students' epistemic development beyond foundation provision.
- Enhancement: there is a need for a structure that enables greater 'breadth' of exposure in order to produce graduates for the contemporary world.
- Enrichment: there is the necessity for 'curriculum enrichment through key literacies'.

The study further illuminates how these general principles will vary across knowledge domains, qualification types and institutional contexts. In other words, there is no 'one-size-fits-all' reform template. Epistemic access and development in the sciences is different to that of the humanities, and that of the formative qualifications is different to that of the professional ones.

The second key question is, to what extent are the curriculum reform principles of the FDP currently being implemented in existing extended (EXT) curriculum programmes. Drawing on the four institutional case studies, the findings are:

- The curriculum principle of foundational provision is being achieved. Furthermore, the Year 1 to 2 progression data suggests that **the majority of the EXT programmes are successfully supporting students through to their second academic year.** It is noteworthy that with the exception of two programmes, the Year 1 to 2 progression of EXT cohort is <u>better</u> than the mainstream (MS). This suggests that decades of investment in foundational provision have made a significant contribution to retention and progression into second academic year of study for those students on extended programmes who face significant obstacles in terms of academic, financial and psycho-social preparedness for university study.
- The curriculum principles of epistemic transitions, enhancement and enrichment are not being fully implemented in the majority of the EXT programmes. In other words, **the developmental support of the EXT programmes ceases at the end of foundation provision.** The average cohort completion data (N=4 years for EXT) is 22% in contrast to 30% for MS. The average cohort completion data (N+3=7 years for EXT) is 47% compared to 59% for MS. This suggests that the investment and resulting positive gains of the foundation provision are wasted for more than half of the students on these programmes.
- There are four notable exceptions of EXT programmes where all of the principles of the FDP are being implemented. The cohort completion data (N+3) shows that three of these programmes have relatively successful completion rates (54, 63 and 65%) and two of these programmes have better completion rates than the MS. Thus the key finding of this study is that across these case studies the EXT programmes **which are truly extended four-year programmes have better completion rates than those which are confined to foundation provision only.**

The findings of this study strongly support the DHET's on-going commitment to Extended Curriculum programmes. These programmes have played a significant role in terms of providing access and retention to South Africa's most talented and capable but underprepared black students. The success of these programmes in delivering students to their second academic year of study points to the commitment of academic development (AD) staff in delivering a quality of curriculum and wrap-around support which is highly commendable and is likely to attract greater international attention as higher education systems around the globe increasingly face the consequences of inequality on student access and success. These programmes (and the significant academic human resources which

make them possible) serve as a very strong base for any future educational investment in curriculum reform in South Africa.

The findings however also suggest that unless these Extended Curricula adhere to the curriculum reform principles of the FDP, the investment will not contribute to the systemic reform required. More pointedly, it will be wasted for a majority of the students who fail to graduate.

In summary we recommend the following:

- Extended curricula programmes need to be designed as four/five-year degree/diplomas with strong foundational provision but developmental provision throughout the curriculum with enrichment and enhancement. If designed appropriately it is possible that this developmental provision can also be made available to mainstream students who would benefit, thereby further extending the reach of the investment.
- The revised policy framework for extended curricula programmes need to not only make this extended provision possible but should incentivize development provision at second/third year level.
- Placement practices onto extended curriculum programmes need to be informed by clear institutional policies that draw on full range of data available. More specifically, NSC results need to be complemented with other data, such as NBTs.
- Developmental provision in the second and third academic year will require significant organizational shifts in the way that AD resources are currently deployed. This will require clear vision and strong leadership both from AD but as importantly from the department and faculties in which these programmes are located. The challenges of achieving these shifts should not be underestimated.

In conclusion, given the stated intention of strengthening the role of extended curricula, this research is an important contribution to the next phase of development of, what we refer to as, a 'new generation' of extended curricula. We echo the warning of Badat (2015) who, with specific reference to the CHE proposal argues, "unless much needed academic transformations are instituted, we will deny opportunities to people from socially subaltern groups, tragically waste the talents and potential of these individuals, and perpetuate injustice. This compromises democracy, which proclaims the promise of greater equality and a better life for all people." The demands for transformation initiated by the #RhodesMustFall and #FeesMustFall student protests during 2015 point to the very urgent need for research-informed, evidence-based, systemic and structural reform. It is hoped that this research will make a contribution to this reform.

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Citation

Shay, S., Wolff, K., & Clarence-Fincham, J. (2016). *New Generation Extended Curriculum Programmes: Report to the DHET.* Cape Town: University of Cape Town.

Acknowledgements

The authors and project team would like to express their sincere appreciation to the four participating institutions, the relevant programme HODs, faculty and departmental staff. Their commitment and contribution to the project speaks to a collective desire to truly transform higher education in our country. We also wish to thank Prof. Ian Scott who gave insightful and constructive comments on a penultimate draft. Finally we wish to acknowledge and thank the DHET for funding and support for this project.

Glossary

ADP	Academic Development Programme
BCom	Bachelor of Commerce
BEng	Bachelor of Science in Engineering
BHum/SocSci	Bachelor of Humanities/Social Sciences
BSc	Bachelor of Science
CHE	Council on Higher Education
DHET	Department of Higher Education and Training
DipAS	Diploma in Applied Sciences
DipEng	Diploma in Engineering
ECP	Extended Curriculum Programme (in general)
EXT	Existing Academic Development Extended degree/diploma programmes
FDP	Flexible Degree/Diploma Proposal
HEI	Higher Education Institution
HEQSF	Higher Education Qualification Sub-Framework
HAI	Historically Advantaged Institution
HDI	Historically Disadvantaged Institution
MS	Mainstream degree/diploma programmes
NBT	National Benchmark Tests
NSC	National Senior Certificate
TDG	Teaching Development Grant
UoT	University of Technology

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1. Introduction

1.1. Background

In August 2013 the Council for Higher Education (CHE) released "A proposal for undergraduate curriculum reform in South Africa: A case for a flexible curriculum structure" (CHE, 2013). The proposed policy argued that current curriculum structures pose a systemic obstacle to access and success that can only be overcome through deliberate intervention at a systemic level. The CHE proposed the introduction of an extended and flexible[1] curriculum structure for undergraduate education in South Africa (SA), arguing that all current 3-year degrees and diplomas be extended by one year with an additional 120 credits. The case for structural curriculum reform was extensively argued and supported by national cohort performance; retention and graduation data that called into question the efficacy of current curriculum delivery models.

As a result of the public response to the Flexible Degree proposal (FDP), a collaborative multi-institutional project -- funded by the Department of Higher Education and Training (DHET) Teaching Development Grant (TDG) -- was launched to:

- Identify the key curriculum reform principles underpinning the FDP (phase 1)
- Test these principles across different qualification types and institutional contexts (phase 2).

The subsequent delay in the Ministerial approval by the DHET has sharpened the project focus to: **an investigation of the extent to which the curriculum reform principles of the FDP are currently being implemented in existing extended curriculum programmes[2]**. The rationale for this focus is to support the DHET's commitment to extended curriculum programmes as one of the key strategies for improving student success (DHET, 2015). DHET argues that these programmes along with other strategies (increased NSFAS funding, student housing and TDGs) appear to have contributed to a positive difference in the steady decrease of first year attrition (DHET 2015, p. 19). They concede however that this decrease in dropout rate has not translated into as significant an improvement in graduation rate; 53.5% of the 2009 cohort graduating after five years for 3 and 4-year contact programmes "is not good enough" (p. 20). The DHET's conclusion is that "we are getting better at retaining, but need to more effectively convert retention into graduation in regulation time" (p. 20). The question however is, **will these extended curriculum programmes as they are currently being implemented enable the systemic reform required?**

[1] The notion of 'flexible' referred to an accelerated route through exemption for those who can finish in less than four years.
[2] This report distinguishes between Extended Curriculum Programmes (in general or in principle) and existing extended programmes (analysed for the purpose of this study), by using the acronyms ECP and EXT respectively.

The CHE proposal argued that they would not. The proposal drew on the nearly three decades of experience of these extended (EXT)[3] programmes – both their strengths and limitations – to argue for a number of 'essential features' required to move beyond mere 'foundational' provision:

- developmental support through key transitions of the degree
- curriculum enhancement through 'breadth'
- curriculum enrichment through key literacies.

This research thus investigates **the extent to which these curriculum reform principles are currently being implemented in existing extended curriculum programmes**. Through the institutional case studies the research offers an understanding of 1) the effectiveness of our current extended curriculum programmes, and 2) what reforms are necessary to strengthen these programmes. The research proposes an agenda for the reform of the existing extended curriculum programmes -- a 'new generation' of extended curriculum programmes.

1.2. Project overview

Four SA higher education institutions were identified to collaborate on the project. Each came from a particular institutional type[4]:

- Historically Advantaged Institution (HAI) – University of Cape Town (UCT)
- Historically Disadvantaged Institution (HDI) – University of Fort Hare (UFH)
- Comprehensive Institution – University of Johannesburg (UJ)
- University of Technology (UoT) – Cape Peninsula University of Technology (CPUT)

The objectives of the project were to:

- identify the key curriculum reform principles underpinning the FDP
- test these principles across different knowledge domains, qualification types and institutional contexts.

These two key objectives were designed as two research phases. In phase one, the focus was on surfacing and making more explicit the key curriculum principles that underpin the FDP both at a high level and at the level of the specific qualifications. In order to illustrate the implications of the FDP principles for actual curriculum design, the proposal included exemplars for each qualification type produced by academics from across South African higher education institutions.

[3] These are variously termed Foundation Programmes (FP), Extended Curriculum Programmes (ECP), AD extended curricula in contrast to the traditional mainstream (MS) programmes designed around minimum qualification duration. For ease of reference the abbreviation EXT is used throughout the report to refer to existing non-mainstream, extended curriculum programmes for which additional funding is currently provided by the DHET.

[4] The report, however, makes no claims as to institutional-type generalisability or representativity on the basis of the selected case studies.

Making these principles more explicit was achieved through an analysis of the FDP exemplars, and interviews with exemplar leaders for each of the five degree/diploma types:

- Bachelor of Science (BSc)
- Bachelor of Science in Engineering (BEng)
- Bachelor of Commerce (BCom)
- Bachelor of Humanities/Social Sciences (BHum)
- Diploma in Engineering (DipEng)

The participating institutions, researchers and programmes are summarised in table 1:

Table 1 Project collaborators & programmes

Institution	Researcher	Programmes
University of Cape Town (UCT)	A/Prof Suellen Shay (Project Leader)	BSc, BEng, BCom, BHum
University of Johannesburg (UJ)	Dr Andre van Zyl	BSc, BEng, DipEng
University of Fort Hare (UFH)	Dr Noluthando Toni	BSC, BCom
Cape Peninsula University of Technology (CPUT)	Prof Chris Winberg	DipEng, Dip Applied Science
External Senior Researcher – Prof Jennifer Clarence-Fincham (UJ/NMMU) Research Assistant – Dr Karin Wolff (UCT)		

In phase two of the research project the implementation of the key principles emerging from the FDP and supported by phase one interviews were investigated in the context of current extended (EXT) curricula. Each participating institution's collaborating researcher identified specific programmes in the relevant qualification type[5], as well as academic staff to be interviewed.

Drawing on theoretical insights from the sociology of education as to the nature of curriculum and knowledge, documents and interview transcriptions were considered against four analytical categories: selection (what goes into the curriculum?), sequence (in what order?), pacing (how is time used?), and evaluation/criteria (what is important for the specific programme and its graduates?).

Following analysis of the research documents and discussion between collaborators, the findings for each case study were shared with the research participants by way of a series of feedback workshops conducted by the project leader and senior researcher. These workshops (and, indeed, the case studies themselves) afforded academic staff across faculties and departments the opportunity to reflect on and engage with their own and other practices. The question at the heart of this project is that of academic access and success for HE students in SA, specifically the question of "epistemological access" and the different curriculum conditions necessary to ensure such access. A starting point is sensitising academic staff to "a more sophisticated understanding of the nature of disciplinary knowledge" (Shay, 2008, p. 596) and its space in the

[5] In selecting the EXTs we aimed for some clustering around knowledge domains and qualification types, e.g. to include all the BCom's, BSc's and DipEng's across the case studies. Further to this the institutions selected programmes where they felt staff involved would be willing to participate in the study.

curriculum. The conceptual tools employed in the research project provided a useful common framework through which to analyse and describe the various curriculum models that emerge across the five qualification types and in the context of different knowledge domains. The project team regards the project process and outputs as having made a contribution towards a shared understanding of the significance of curriculum structures from the perspective of the different disciplinary bases, as well as the purposes of specific qualifications.

The project acknowledges, firstly, that there are many other conditions that are necessary to ensure the success of an extended curriculum in increasing equity of access and outcomes, including mechanisms for placement onto different curriculum pathways, alternative forms of pedagogy and assessment, as well as resources required for implementation, for example, educational development expertise, academic staff development, and a range of infrastructural needs. Secondly, it is acknowledged that enabling epistemic access and progression is not simply a matter of curriculum structure or more specifically only about more time. It is profoundly about particular ways of teaching that promote particular ways of learning (Case, 2011). However, as noted in the CHE proposal: "the exemplars offer a valuable basis for further curriculum analysis and development in institutions … and [that] an elaboration of these will be a key contribution to implementing the new structure" (CHE, 2013, p. 122). The project research findings support the case made in the proposal that what we are currently doing is not enough, and that there are currently no reform initiatives at any level that address the scale of curriculum reform required.

This research makes an important contribution to the next phase of development of, what we refer to as, a 'new generation' of extended curricula. We echo the warning of Badat (2015) who, with specific reference to the CHE proposal argues, "unless much needed academic transformations are instituted, we will deny opportunities to people from socially subaltern groups, tragically waste the talents and potential of these individuals, and perpetuate injustice. This compromises democracy, which proclaims the promise of greater equality and a better life for all people." The demands for transformation initiated by the #RhodesMustFall and #FeesMustFall student protests during 2015 point to the very urgent need for research-informed, evidence-based, systemic and structural curriculum reform. This research contributes to the debates about the nature of this reform and the role of academic developers at this critical juncture.

1.3. Report structure

The report introduces the conceptual framework and methodological considerations in part two. The third section summarises the key principles emerging in each of the qualification types profiled in the FDP across the four key knowledge domains: science, engineering, commerce and humanities. This is followed up by a cross-institutional summary of key findings from the second research phase, namely: the practices in current extended curriculum delivery as compared to

the principles of the FDP. Section 4 discusses the implications of the findings and considers these in light of the available quantitative data. The report ends with a set of recommendations. A summary of the collaborating institution's case study data is presented by way of a set of appendices (see Appendix A, Appendix B, Appendix C, and Appendix D).

2. Conceptual framework & methodology

2.1. Conceptualising curriculum

Curriculum can be differentiated into the intended and the enacted. The former refers to the curriculum structure and design, the latter to how that design is implemented and its effects on learning and learners. The focus of much academic development scholarship has been largely on the latter, on the learning and teaching that is enacted through a particular curriculum experience. There has been less attention given to the curriculum *conditions* that constitute the learning. Focusing attention on these conditions requires a conceptual language for discussing the intended curriculum.

One language through which to conceptualise curriculum is informed by the social realist school of sociology of education, in particular the work of Basil Bernstein. Bernstein defines curriculum as "what counts as valid knowledge" (Bernstein, 1975, p. 85). Whatever else it may do, curricula must enable access to this knowledge. "Epistemological access" is a term first coined by Wally Morrow in the early post-apartheid days to signal that formal access to the institutions that produce knowledge is not enough; "meaningful access is access to the knowledge 'goods'" (Muller, 2014a, p. 2), access to what Morrow (2009) calls 'epistemic values' – the forms of inquiry of the disciplines. This is more than disciplinary content; it is the "grammar of inquiry" (p. 37). Morrow elaborates on this:

"In this way of talking, any established and disciplined practice, such as civil engineering, teaching, mathematics, legal practice, biochemistry, history or primary healthcare, can be said to be constituted by a particular (but not necessarily exclusive) grammar…Higher knowledge of the practice in question would consist in understanding the constitutive grammar of the practice, the grammar that makes the practice what it is" (p. 120).

Drawing on the work of Winch (2013), Muller (2014b) argues that epistemic access is access to both the propositional knowledge ('know that') and procedural knowledge ('know how') of the discipline. Relevant to curriculum design is how these 'know how's' "ascend epistemically" (Winch, 2013, p.x), in other words, how they increase in conceptual complexity. Hence, why sequence in curriculum is critical. The particular combinations and progressions of 'know that' and 'know how' will vary depending on the structure of the knowledge that constitutes the discipline/s of the degree. Bernstein (2000) uses the notion of 'structure' to refer to the manner in which the knowledge grows or is produced. Differences between the disciplines are characterized by Bernstein using the metaphors of 'hierarchical' and 'horizontal': natural science disciplines are broadly characterized as hierarchical, in other words, they grow cumulatively, by subsumption of phenomena into increasingly higher-order explanatory principles/laws. This implies learning based on strongly sequenced concept chains. The humanities are characterized as 'horizontal'. They grow by the development of new 'languages' or theories that do not necessarily replace one

another but are on offer as competing explanatory frameworks. These structural characteristics imply a different approach to the notion of conceptual sequence. The metaphors of 'hierarchical' and 'horizontal' are limited but they alert curriculum designers to the very different epistemic conditions of these disciplinary domains. The epistemic 'journey' into science will not be the same as that into humanities due to the different structures of their respective disciplines.

The particular combinations and progressions of 'know that' and 'know how' will vary depending on the purpose of the qualification. The Higher Education Qualification Sub-Framework (HEQSF) specifies three broad qualification pathways – vocational, professional, and general formative. These pathways point to different curriculum purposes and hence different 'logics', that is, what gives the curriculum sense or meaning (Muller, 2009). Formative degrees are typically constituted by a collection of 'singulars' or disciplines that have strong autonomy (Bernstein, 1975) - for example, a science degree may be made up of chemistry, physics, and mathematics. The coherence or logic of this kind of curriculum is conceptual (Muller, 2009), in other words, the curriculum 'spine' is made up of the basic conceptual building blocks of those disciplines packaged up into, for example, Chemistry 100, 200 and 300. Similarly, a humanities degree is a collection of 'singulars' such as history, sociology and politics, each of these with their own distinct 'know that' and 'know how' knowledge. Unlike science, the conceptual progression of a humanities curriculum may be more arbitrary, evidenced by the heated debates over what goes in Sociology 100, 200 and 300. Nonetheless, the coherence is still conceptually-driven.

In contrast to this collection of 'singulars', professional degrees are more 'integrated'. While in the foundation years they may start as a collection of singulars with a conceptual logic -- for example the early years of a medical degree consisting of physics, chemistry, anatomy -- at the advanced levels, the 'logic' shifts towards a more contextual logic given the outward professional orientation of the degree. The curriculum at the more advanced levels assumes basic foundations are in place and requires integration across the 'singulars' and application to the 'problems' of the profession. These are fundamentally different epistemic journeys. Similarly, qualifications based on combinations of significantly different disciplinary bases also demonstrate significantly different epistemic journeys. These qualifications are described as 'regions'. The 'regionalisation of knowledge' (Bernstein, 1996, p. 8) occurs through a 'recontextualising principle', which sees the selection and combination of elements of the 'singulars' (pure disciplines such as mathematics, physics or ethics) to form a new 'region' (such as engineering or economics).

The formative journey is one of increasing complexity along a conceptual spine. The professional journey requires fundamental epistemic transitions, for example, in engineering from one kind of 'know that' and 'know how' of the basic sciences to another of the applied sciences to yet another of the design disciplines. Thus the epistemic transitions of the collection code curricula are different to those of the integrated code. There are also important differences in terms of the

acquisition of professional identities in the latter. The ways in which knowledge specializes the knower is a crucial feature of epistemic development in vocational and professional qualifications.

This conceptual language for analysing and describing curriculum enables a more refined view of the epistemic architecture of the disciplines and the qualifications in which they are located. The 'language', in fact, previews a number of key curriculum design principles, which emerged in the CHE proposal.

2.2. Curriculum reform principles

The CHE proposal presented general **curriculum reform principles** (elaborated below) in arguing for the need to address three key *structural problems*:

Table 2 The CHE proposal (FDP) principles

Principle	Structural problem
Foundation provision	Articulation gap between secondary and higher education (p. 17)
Epistemic transitions	Key transitions within the undergraduate curriculum (p. 19)
Enhancement	The meeting of contemporary local and global conditions (p. 19)

- Foundation provision: It is necessary to address the "discontinuity between secondary and higher education in South Africa" what is referred to as the 'articulation gap' (CHE, 2013, p. 17). 'Bridging' this gap through extended curricula for talented but educationally disadvantaged students, entails the provision of extra time "for foundational learning" (p. 18). This involves "… not only subject knowledge but also academic skills, approaches to study, background or contextual knowledge and forms of social capital" (p. 17).
- Epistemic transitions: The second 'structural' problem that the curriculum reform must address is 'key transitions' through the undergraduate curriculum (p. 19). As noted above, these are essentially 'epistemic' transitions. Thus a further key feature of the restructured curriculum is reform beyond foundational provision into the remaining years of the programme.
- Enhancement: The third 'structural' problem calling for "urgent attention" is curricula to be "enhanced to meet contemporary local and global conditions" (p. 19). This is the formation of a particular kind of graduate through "broadening the curriculum to include learning that is professionally and socially important in the contemporary world … and that lays the foundations for critical citizenship (p. 19).

To summarize the general principles put forward by the FDP: at the entry level there is a recognition that serious knowledge gaps need to be filled given problematic curricular assumptions about students' prior knowledge. There is further acknowledgment that addressing these gaps alone will not suffice, and that beyond entry level there is a need to scaffold students' epistemic development. Finally, there is a need for a structure that enables greater 'breadth' of exposure in order to produce graduates for the contemporary world. In addition to these three

'structural' principles, is the necessity for 'curriculum enrichment through key literacies'. Beyond these general principles, curricula that enable epistemic access will have different requirements depending on the knowledge/disciplinary domain (science vs. humanities) and the qualification type (formative vs. professional vs. vocational). The analysis that follows firstly extracts these general principles in relation to the different proposed curriculum models, and then examines how (if at all) these principles are currently enacted in existing extended curricula.

2.3. Methodology

The research project employed a mixed-methods, case-study approach. Both qualitative and quantitative data were gathered in the form of curriculum documentation, national HE status and performance reports, and interview transcripts. Semi-structured interviews with exemplar leaders and academic development staff focussed on the following question categories (see Appendix E):

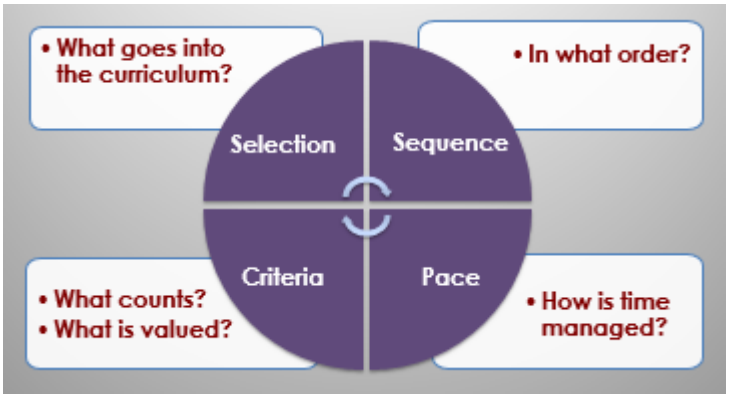

Figure 1 Research methodology 'framing' categories

- Structure: What is the nature of the current extended curriculum model?
- Pace: How is the additional time used?
- Selection: What has been included and why?
- Sequence: How important is the order in which material/concepts is/are presented/introduced?
- Criteria: What is valued in this qualification?

Participants were interviewed as individuals -- in the case of Heads of Departments or Directors/Coordinators of specific units -- or in small groups of teaching staff. The latter emerged in the first case study as a result of logistical considerations, but proved an effective practice-sharing method, and was thus the approach for all case studies. It became apparent that the group participants had in some cases never had the opportunity to compare their curricula, approaches and challenges. The research method afforded them such an opportunity. Interviews were audio recorded and transcribed verbatim. These data were then broken into discrete statements and coded against the analytical categories in an electronic spreadsheet format.

Quantitative data for the most recent completing cohorts (2005 – 2010 first time entering students) were gathered from official institutional sources to inform student retention, progression

and completion rates per case study, per qualification and disaggregated according to extended and mainstream cohorts. Three key data points were investigated per case-study qualification:

- Year 1 to Year 2 progression: the percentage of the cohort who progress from Academic Year Of Study (AYOS) 1 to AYOS 2. MS cohorts finish AYOS 1 in one year. ECP cohorts finish in two years.
- Cohort completion percentages within minimum time (N) -- (3 and 4 years respectively on 3- and 4-year mainstream qualifications, contrasted with 4 and 5 years respectively on 4- and 5-year extended programme qualifications).
- Cohort completion percentages within minimum time plus 3 years (N+3) -- (6 and 7 years respectively on 3- and 4-year mainstream qualifications, contrasted with 7 and 8 years respectively on 4- and 5-year extended programme qualifications)[6].

A few comments about the data:

1) Institutional data are notoriously difficult to acquire. The data were provided by the institutional collaborators who acquired them from their central institutional planning offices.
2) There is an inevitable time lag between the quantitative data (2005-2010) and the qualitative data reported by the participants. The implication of this is that the quantitative data may reflect extended curricula policy and practices that may have changed. Where this disjuncture surfaces it has been noted.
3) Though requested one source of data which proved either impossible to acquire or to use comparatively is the average admissions placement score (APS) which provides a proxy of the differentiated levels of preparedness of students. Where the data were available from one institution it is clear that MS cohorts are admitted with higher APSs than those of the EXT cohorts. As a general rule in the Comprehensives, degree cohorts would have higher APSs than the diploma cohorts. Some institutions (e.g. UCT) will have higher APS requirements than others (e.g. CPUT). All this points to the need for caution in any comparisons of 'success' or otherwise across case studies. Some institutions and some programmes have significantly greater challenges given the levels of preparedness of the students.
4) There is an attempt to compare this institutional data with the overall findings of the CHE proposal (based on 2006 cohort) and the recently released 2000-2008 First Time Entering Undergraduate Cohort Study (DHET 2016).
5) All research participants completed the necessary research consent forms, and each participating institution approved the ethics clearance granted by the UCT ethics committee. All data are shared among the collaborating researchers.

[6] Final figures were received in early 2016 based on all data up to and including 2015 results where available. For cohorts entering a 4-year EXT programme, final quantitative data on the n+3 measure is not given beyond the 2009-entering cohort. Similarly, the n+3 measure on 5-year EXT programmes is only given for 2005 – 2008 entering cohorts (or until 2007 in one case). Where figures are given for n+3 in the 2010 columns, these would in fact be n+2 of the 4-year EXT programmes.

3. Research findings[7]

3.1. Science

3.1.1. Principles of the FDP BSc exemplar

Phase one of the research – interviews with exemplar leaders – establishes that the proposed FDP BSc sees a "redistribution of the load over four years" (CHE, 2013, p. 236). The aim is to "facilitat(e) the successful assimilation of scientific concepts and …translat(e) these into operational skills" (p. 230). This succinctly encapsulates the notion of epistemic access being about the 'know that' (the concepts) and the 'know how' (the procedural skills) in relation to the concepts. The redistribution suggested by the FDP BSc is essentially a 'stretch' of the conceptual 'spine' of the existing three-year degree, initially back towards the foundational content and in the second year to be able to build on the epistemic foundations. The purpose of 'stretching' is not simply more time but making the 'epistemic architecture' (Muller, 2014b, p. 7) of the various disciplines more explicit. Thus is not simply a 'stretch' of same content but additional enrichment of the academic literacies of the disciplines.

Essentially, the FDP BSc focuses on the first two general curriculum reform principles: foundation provision (stretching back) and epistemic transitions.

3.1.2. Current extended Science-based qualifications

In phase two, the research focussed on the current practices in EXT BSc curricula (extended 4-year curricula) in their relevant institutional contexts. An applied-science diploma (DipAS) was included to add depth to the understanding of the curricular structures from the perspective of both knowledge domain and qualification type.

Table 3 Summary of EXT-Science structural features

Institution/ Qualification	Structure	EXT Placement	Exams	Pedagogy
UJ - BSc	MS Sem 1 = EXT Sem 2&3	NSC	Different from MS	Small classes; more contact time
UFH - BSc	MS Yr 1 = EXT Yr 1&2	NSC	Same as MS	Small classes; more contact time
UCT - BSc	MS Sem 1 = EXT Yr 1	Late – based on Term 1 assessment	Different from MS	Small classes; more contact time
CPUT – DipAS	MS Yr 1 = EXT Yr 1&2	NSC & NBT	Same as MS	Small classes; more contact time

The structure of each EXT programme in the BSc qualifications sees the mainstream (MS) Semester 1 becoming EXT Year 1 (UCT), or MS Year 1 becoming EXT Year 1 and 2 (UFH), or MS Semester 1 becoming EXT Semesters 2 and 3 (UJ) with a first semester high school revision and HE induction programme. The CPUT DipAS similarly stretches the 1st MS year over 2 years. In other words, structurally, the MS 'content' for the first semester or year is stretched into double

[7] A more detailed discussion of the phase one findings can be found Shay, S., Wolff, K. & Clarence-Fincham, J. (2016 in press). Curriculum reform in South Africa: More time for what? *Critical Studies in Teaching and Learning*.

time. Placement of students on EXT programmes varies across the institutions, with UJ and UFH allocating places based on NSC academic scores. CPUT accepts students based on NSC scores, but uses the NBT to place students onto the EXT track[8]. UCT implements a later placement (formerly referred to as the 'decant' model) whereby students are all accepted onto the MS programme and then are streamed after 1st term assessments, or are advised to do so. All UCT BSc students also write the NBTs. All the EXT programmes feature smaller class sizes, with more staff contact time, in the EXT phase of the programme. Two of the institutions (CPUT and UFH) set the same examinations for the EXT and MS cohorts, while UJ and UCT set different examinations in the 1st year, but of equivalent standard.

3.1.3. Foundation provision

All the BSc/Applied Science case studies start with a lighter workload, allowing EXT students more time for revision of high school ('stretching back'), contextualisation and more time-on-task. The key factor in terms of how time is used is evident in a different form of pedagogy, as evidenced by a range of interviewees:

> *"Because the lecturers have more time, they are more patient and use different tools" (UJ)*
>
> *"The pace is much slower [and allows for being] interactive" (UCT)*
>
> *"[More time] makes them think deeper. And the moment you start thinking deeper, your insight in the whole subject is deeper" (CPUT)*
>
> *"…we have some additional material to enhance understanding of scientific concepts because we have more time" (UFH)*

There is also significant attention to bridging the gap between secondary and higher education by way of induction courses for both MS and EXT students:

> *"…psycho-social skills, like time management, like study skills, note taking skills, and just how to cope in the university for all the first year students" (CPUT)*
>
> *"The Life, Knowledge and Action module is compulsory" (UFH)*

3.1.4. Epistemic transitions

With the sciences representing a fairly universally accepted set of concepts that function as building blocks towards the grasp of overarching scientific principles or laws, it comes as no surprise that in the EXT programmes the same 'topics' emerge across curricula with a physics, chemistry or biology disciplinary base, and there is a strong focus on the grasp of the 'building blocks':

[8] One of the recommendations of this study would be a more detailed study across a wider range of institutions of current placement practices onto MS and ECP programmes. This is particularly important to inform the DHET proposal for placement policies as part of the revised ECP Funding policy

"You cannot start with genetics before you know what a gene looks like… so there is a logic in how it is set up…" (UJ)

It emerged, however, that the "biggest challenge in the BSc is not into 1st year, but from 1st to 2nd year[9]... it's like going from engineering to philosophy" (UCT). Currently, this is a 'transition' not explicitly addressed by the EXT BSc curriculum model.

In the case of the 'newer' sciences such as the UCT BSc in Computer Science, "the further constraint is that the computing world is developing and innovations are happening so fast … [that] there is a lot of pressure in the rest of the degree to put things in". In other words, in this field there is pressure to address epistemic transitions at the applied stage in the qualification. This is similar to the explicitly profession-facing CPUT DipAS, where the transition from theory to application is facilitated in the 2nd year through a 'service-learning' project which sees the EXT students facilitate community workshops.

3.1.5. Enrichment & enhancement[10]

There is a great deal of debate about the need for and location of the literacies in the sciences. Where 'literacies' are integrated into an existing discipline-based module (CPUT) or literacies specialists collaborate with discipline-based colleagues (UCT), the support is seen as effective. Other models are critiqued by science-based academics who question the 'add-on' nature: "somebody who would just focus on language may lose sight of the fact there's a very specific way of using the language" (CPUT). This suggests awareness of 'curriculum enrichment through key literacies' from the perspective of epistemic access.

The different institutions expressed different views on 'what counts', from the view that an ideal BSc graduate is "well developed to address the needs of their communities" to the ideal graduate as "a well-trained scientist, a scientist that knows the content of the work, that knows how to conduct themselves within any research environment". These different values have implications for how the epistemic progression of the curriculum is designed. A BSc that needs to be enhanced in order to 'address the needs of the community' suggests enhancement that takes the community into account (such as, for example, the CPUT service-learning project), and this has implications for a focus on the epistemic transition associated with 'applied science'. On the other hand, a BSc that focuses on a 'well-trained scientist, conducting research' would see greater attention to foundation provision and the earlier epistemic transitions.

3.1.6. Summary

In summary, the science-based EXT programme analysis at the collaborating institutions sees the use of extra time primarily as a means to reinforce foundational concepts. This is not surprising given the relatively stable disciplinary bases in the sciences consisting of established

[9] This is a reference to 200-level courses, i.e. AYOS 2.
[10] For the purpose of the case study analyses, these two principles are combined in discussion as it emerged that they are often implemented hand-in-hand; the tabular summaries, however, separate the two principles.

hierarchical ‘concept chains’, each element of which needs to be grasped in order to progress conceptually. Where the purpose of the qualification is professional (such as the CPUT DipAS) or the nature of the ‘sciences’ is such that there is greater pressure for relevance to the world beyond the qualification, we see evidence of the need to address epistemic transitions at the later points in the curriculum, but which are currently not addressed in the EXT BSc cases. That this transition is addressed in the diploma case points to the second key differentiating feature with respect to curriculum structure: the purpose of the qualification, namely, professional as opposed to formative. The following table (4) summarises the extent to which the current science-based EXT models implement the general principles recommended by the CHE proposal:

- foundational provision
- epistemic transitions
- enhancement
- curriculum enrichment through key literacies

Table 4 Science: EXT vs FDP recommendations

Institution	Qualification	Foundation	Transitions	Enhancement	Literacies
UJ	BSc	Yes	No	No	Yes, Add-on
UFH	BSc	Yes	No	No	Yes, Add-on (Digital)
UCT	BSc	Yes	No	No	Yes, Add-on
CPUT	DipAS	Yes	Yes	Yes	Yes, integrated

An analysis of the percentage of EXT students progressing from year 1 to year 2 of study (figure 2) shows particularly high retention in the CPUT DipAS, the only one in this knowledge domain where all suggested FDP principles are implemented.

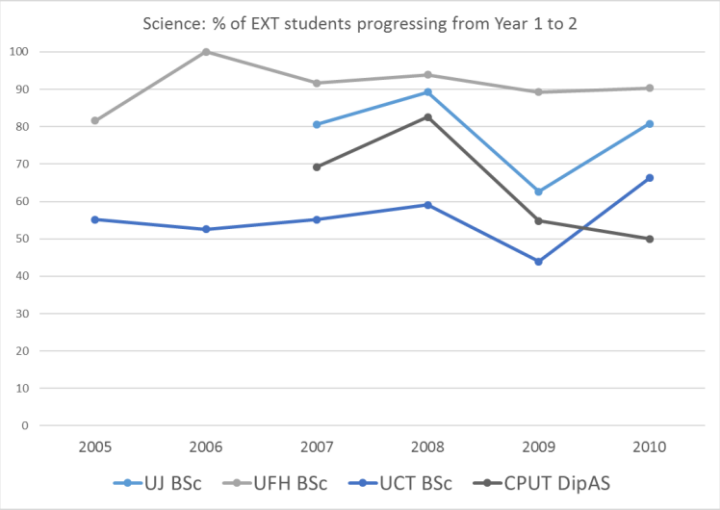

Figure 2 Science qualification Yr 1 to 2 progression

A graphic summary of the percentages of students completing the qualifications in minimum time (N) and N+3 (figure 3) indicates similar performance patterns irrespective of contextual factors. Across all four case studies, on average more MS students graduate within both (N) and (N+3) than those on the EXT programmes.

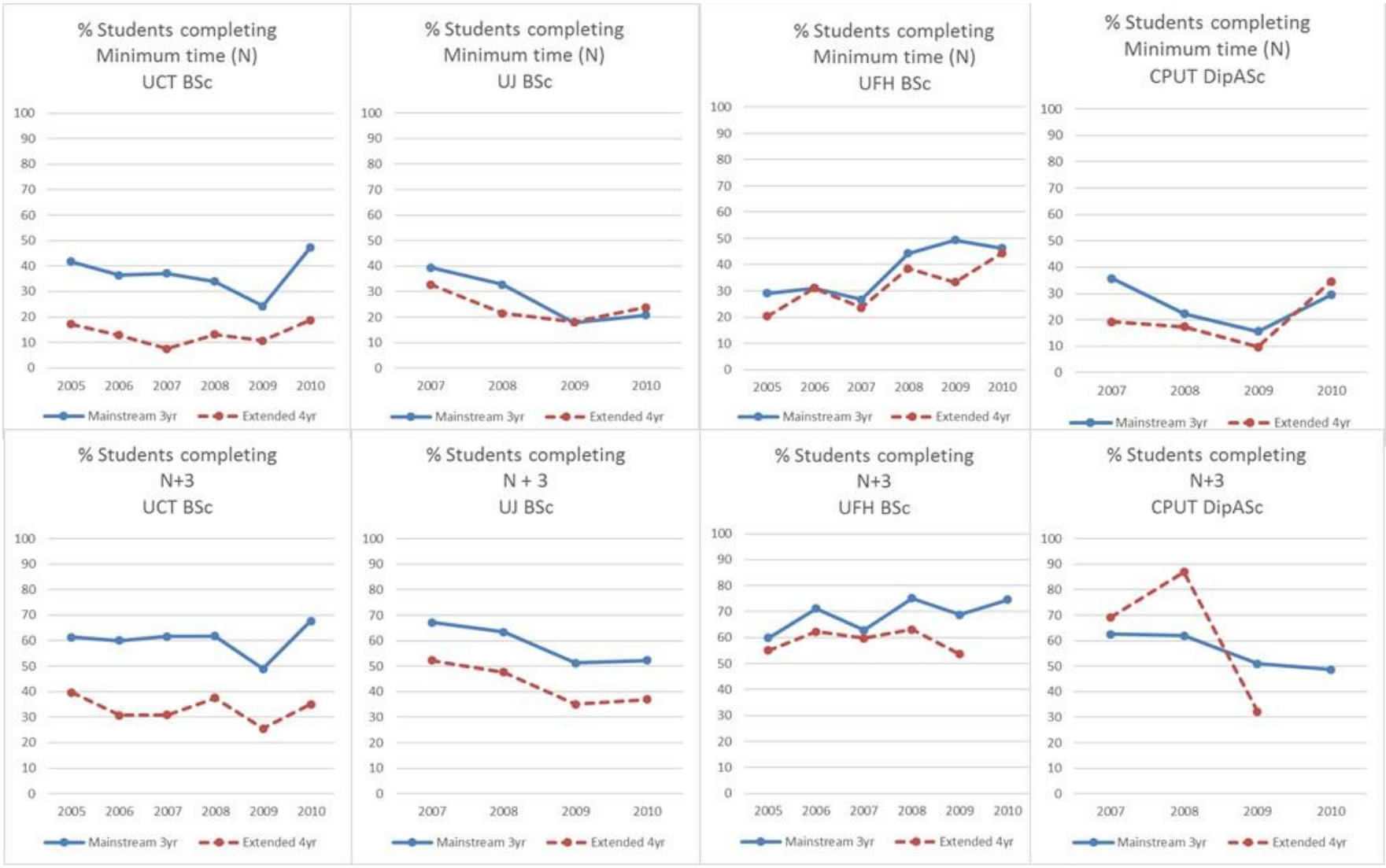

Figure 3 Science qualification completion patterns

3.2. Engineering

3.2.1. Principles of the FDP BEng & DipEng exemplars

Phase one of the research project established that in engineering the epistemic journey experiences a number of key transitions, and secondly, the professional purpose of the degree/diploma means that the curriculum logic is both conceptual *and* contextual. In engineering there are marked differences in the 'know that' and 'know how' as the curriculum progresses. The FDP BEng exemplar is clear that extra time is needed to support "transition points at which students are expected to be able to think in different ways and deal with different types of knowledge" (CHE, 2013, p. 170). These are characterized as transitions from school to university, basic sciences to engineering sciences, engineering sciences to design, from knowledge of discrete subjects to analysis of systems and integration of knowledge (p. 170). The key difference between the existing extended programmes and the FDP BEng exemplar is the inclusion of what are called 'developmental courses'.

There are similarities in the proposal between the FDP BEng and DipEng in terms of the epistemic journey. Both curricula are premised on a progression from foundational basic sciences to integration across these knowledge domains for application and problem-solving. One of the differences however is that the Diploma has a stronger contextual coherence given its strong orientation towards practice: "the principle of progression is across the different knowledge areas towards increasingly complex integrated forms of practice" (CHE, 2013, p. 184). In other words, there is a defined pattern of theory/practice sequencing which sees more time for both conceptual development and contextual application, with the latter becoming increasingly complex and situated in relation to the profession itself.

At the risk of over-simplification, if the curriculum model in science could be characterized as a 'stretch', in engineering it is essentially a 'thickening' of support which enables a smoother passage across a changing epistemic topography. The exemplars demonstrate significant structural reform in addressing the need for the application of knowledge in complex, professional contexts through a 'woven' as opposed to 'add-on' approach to the required knowledge practice development.

3.2.2. Current extended Engineering qualifications

Phase two focussed on current practices in the following EXT curricula qualifications (table 5):

Table 5 Summary of EXT-Engineering structural features

Institution/ Qualification	Structure	EXT Placement	Exams	Pedagogy
UJ - DipEng	MS Sem 1 = EXT Sem 2&3	NSC	Different from MS	Small classes; more contact time; more practicals
CPUT – DipEng	MS Yr 1 = EXT Yr 1&2	NSC & NBT	Same as MS, but more	Small classes; more contact time; more practicals
UCT - BEng	MS Sem 1 = EXT Yr 1	Late - based on Term 1 assessment	Same as MS	Small classes; more contact time

As in the case of the BSc, the structure of each EXT programme in the engineering qualifications generally sees the MS Semester 1 becoming EXT Year 1 (UCT: BEng), or MS Semester 1 becoming EXT Semesters 2 and 3 (UJ: DipEng)[11] with a first semester high school revision and HE induction programme. In the case of CPUT (DipEng), there are three distinct structural models which different engineering departments have adopted:

- An augmented semesterised system (the project focus qualification) where students enrol for the same, but fewer, MS subjects, but with additional support;
- entirely separate MS and EXT programmes;
- a hybrid model which sees EXT students integrating into the MS programme in their 2nd year.

In all cases, structurally the core content of the first semester or year is allocated double time with additional support. In other words, structurally, the MS 'content' for the first semester or year is stretched into double time as in the case of the BSc.

Placement of students sees UJ allocating places based on NSC academic scores, and CPUT on NBTs following acceptance based on NSC scores. UCT -- where NBTs are used for admission purposes in conjunction with the NSC -- implements a later placement model whereby students are advised to shift to EXT after 1st term assessments. All the EXT programmes feature smaller class sizes, with more staff contact time, and a pedagogic focus on 'more examples, more contextualisation and more practicals'. The assessment practices are varied.

"We give them the same kind of questions... just the level of difficulty is different." (UJ)

"There is a more informal assessment taking place, compared to the mainstream. It is an augmentation to their learning." (CPUT)

"It's the same course content and assessment but we've got room to teach at our own pace." (UCT)

3.2.3. Foundation provision

In addition to the standard mathematics and science-based foundation subjects, which appear to have subjects with a clear sequence of core concepts, the three institutions provide different forms of induction into higher education. CPUT actively runs what is called a 'Step-up programme' for all students:

"…. inducting students into time management and self-actualization" (CPUT)

UJ, interestingly, covers induction into higher education by way of a subject designed to prepare students for the workplace (the final transition):

[11] It is worth noting that UJ phased out the EXT version of the BEng as "students could not adapt to the MS workload".

"We do workplace preparation. It is an extension of a subject at high school which was called Life Orientation – it helps with the students focus in the way in which they do their studies, their study skills, their time management skills." (UJ)

This addressing of later transitions within the foundation phase emerges in each of the engineering programme case studies – whether Bachelor's or Diploma. The introduction of engineering sub-field subjects in the mainstream second year marks the epistemic transition from the natural to engineering sciences. This transition is pre-empted during the EXT 'foundational' phase in the diploma cases with a specific selection of EXT subjects during the 1st year that allows for both the natural and engineering sciences. While the foundational provision of the UCT BEng EXT programme is essentially comprised of mathematics and science-based subjects (in other words no engineering subjects), there is a conscious focus on the early embedding of Graduate Attributes for engineering in both MS and EXT programmes, by way of initiatives such as holiday bootcamps.

3.2.4. Epistemic transitions

The key curriculum structural challenge in engineering qualifications is the question of significantly different and more epistemic transitions: from the sciences to engineering sciences to design to application. These transitions and the professional body governed 'competency' criteria suggest a more demanding curriculum, which participants across the case studies highlighted as problematic and as having implications for how the additional time is used:

"Now the work load for an engineering [MS] student especially in second and third year is – the expectation is around 60 – 70 hours per week of work" (UJ)

"If someone can juggle three balls and they're good at it, you can say great. Give them a fourth ball and they don't drop one ball, they drop everything" (UCT).

In the case of UJ, the BEng EXT programme has ceased to exist because "students could not adapt to the MS workload" (UJ). The view of all the interviewees was that the engineering qualifications should all officially be extended by a year:

"The average time to graduate for an Engineer is five years" (UCT)

"The government should allow the extra one year" (CPUT)

One approach to the workload problem is the CPUT scaffolded subject-loading model:

"They do 3 subjects per semester in 1 & 2, then 4 subjects per semester in 3 & 4, and then integrate into final year of mainstream where they have 1 less subject" (CPUT)

This model provides for developmental support further along in the EXT curriculum between the second and third year transition points. An additional difference between the Diplomas and Bachelors' EXT programmes is not only the explicit focus on the transition from science to

practice by way of integrated projects (CPUT) and industry exposure (UJ and CPUT), but also the specific tailoring to the sub-fields of engineering study:

> *"Where in the engineering degree it is very easy to do an extended degree across all disciplines, in the extended diplomas they are very specific and we have tailored our extended diplomas very specifically to each of the disciplines" (UJ)*

These structural differences highlight that although both engineering qualification types stretch from sciences to application, the Bachelor's is more strongly bounded by the base sciences (for eventual 'conceptual' application in design), whereas the Diploma is required to be more contextually-coherent.

It is evident that the UJ EXT DipEng attempts to include aspects of all three transition points across the programme in the EXT phase. The structure of the CPUT DipEng enables the different transition points to be addressed over a longer period.

> *"We do a lot more activities, experiential learning for example. More site visits. More reflection on that in EXT than in MS" (CPUT)"*

In contrast, it emerges that in the BEng (UCT) there is a distinct absence of support for the transition from science to engineering:

> *"There is no coherence between the support (EXT) programme and MS… [so] what is not yet working well is what happens to these students as they transition into the mainstream programmes. The early MS courses [too] need to change – they must actively transition students through…" (UCT)*

At a systemic level, however, participants across the engineering case studies alluded to staff motivation and inter-departmental collaboration as being key factors in maximising the value of the additional time afforded the EXT programmes:

> *"You can add on an extra year, you can add on an extra three years but as long as the people who are teaching these students are interested in their research and not in their students it is not going to make any difference." (UJ)*

3.2.5. Enrichment & enhancement

As in the case of the science qualifications, the different institutions select different forms of enrichment, support and developmental opportunities based on institutional resources, capacity and programme size. Additional support in the field of academic literacies plays out in different ways across the three institutions in question. CPUT has departmentally-based academic literacies facilitators:

> *"Well she has an integrated project, for example, with the computer skills lecturer, where they do an integrated project. When they go to industry they use PowerPoint to show their*

computer skills and communication skills to show … this is how to write as an engineer" (CPUT)

"Everything I do is contextualized within the bigger picture of what is happening in the physics and the chemistry and …Engineering as a career" (CPUT)

UJ, on the other hand, has reverted to a more traditional approach:

"We really look at reading, writing, listening, research and one other skill… we have gone back to the essay writing because even in report writing there needs to be paragraphs that are well integrated." (UJ)

Although UCT is busy "integrating academic literacies into the disciplinary modules", participants highlighted increasing challenges with levels of assumed literacy practices:

"What's not working, I think generally across the system, is focus on language ... [there is a] greater expectation that they are able to understand high level concepts in English and be able to express themselves in a very technical, complex, thorough way … So I think that's something that's not working, that ability to understand the discourse." (UCT)

As a disciplinary 'region' governed by a professional body, it is not surprising that all participants referred to the international 'Graduate Competency Profiles' which dictate the qualities of engineering practitioners at all levels, including aspects such as "problem solving and design, understanding and interacting with the world out there, professionalism and being able to communicate".

3.2.6. Summary

In summary, the engineering qualifications display more and clearer conceptual to contextual transition points across the curriculum. Not only are these recognised by all the participating staff interviewed, but there are attempts to address these (particularly in the UJ and CPUT diploma contexts) *within* the confines of the current EXT model. In other words, there are initiatives as early as the first year to pave the way for the second (science to engineering) and third (engineering to practice) key transitions. In essence, the **CPUT EXT DipEng is in fact closest to the FDP model, incorporating all the FDP principles recommended to address the key structural challenges.**

The following table (6) summarises the extent to which the current engineering EXT Degrees/diplomas address the recommendations made by the FDP.

Table 6 Engineering: EXT vs FDP recommendations

Institution	Qualification	Foundation	Transitions	Enhancement	Literacies
UJ	DipEng	Yes	Yes	Yes	Yes
CPUT	DipEng	Yes	Yes	Yes	Yes, integrated
UCT	BEng	Yes	No	Yes	Yes, integrated

The year 1 to 2 EXT progression data (figure 4) suggest a range similar to that in the science qualifications. When compared to overall retention and completion over N+3, the UCT BEng EXT and UJ DipEng EXT lose significant numbers (37% and 46% respectively finally complete), whereas the CPUT DipEng retains 90% of the 1st to 2nd year progressing cohorts (60% of initial intake), with 54% completing in N+3. The qualitative data suggest this may be attributed to a scaffolded workload model including explicit transitions across the curriculum.

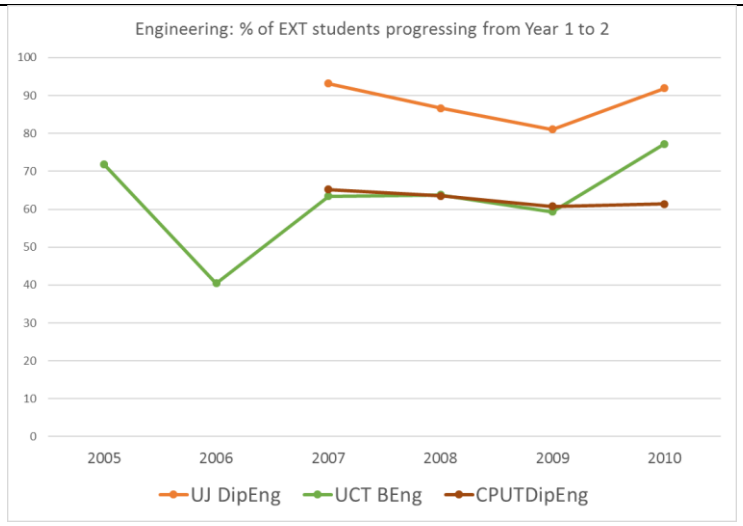

Figure 4 Engineering qualification Yr 1 to 2 progression

A graphic comparison (figure 5) of the percentage of students completing MS (blue) and EXT (red) programmes in minimum time (N) (the top row) and N+3 (the bottom row) suggests -- as in the case of the science-based qualifications -- that MS students generally fare better than EXT students. The average N+3 cohort completion rate on the extended engineering diplomas (CPUT and UJ) closely approximates the completion rates on the MS equivalents. This may be attributed to the qualification type moving towards the field of practice at a far earlier stage in the curriculum, as well as the attempts to address epistemic transitions more consciously. In contrast, there is a significant difference between MS and EXT performance in the case of the BEng (UCT), where the qualitative data indicate lack of provision for conceptual and contextual epistemic transitions beyond foundation provision.

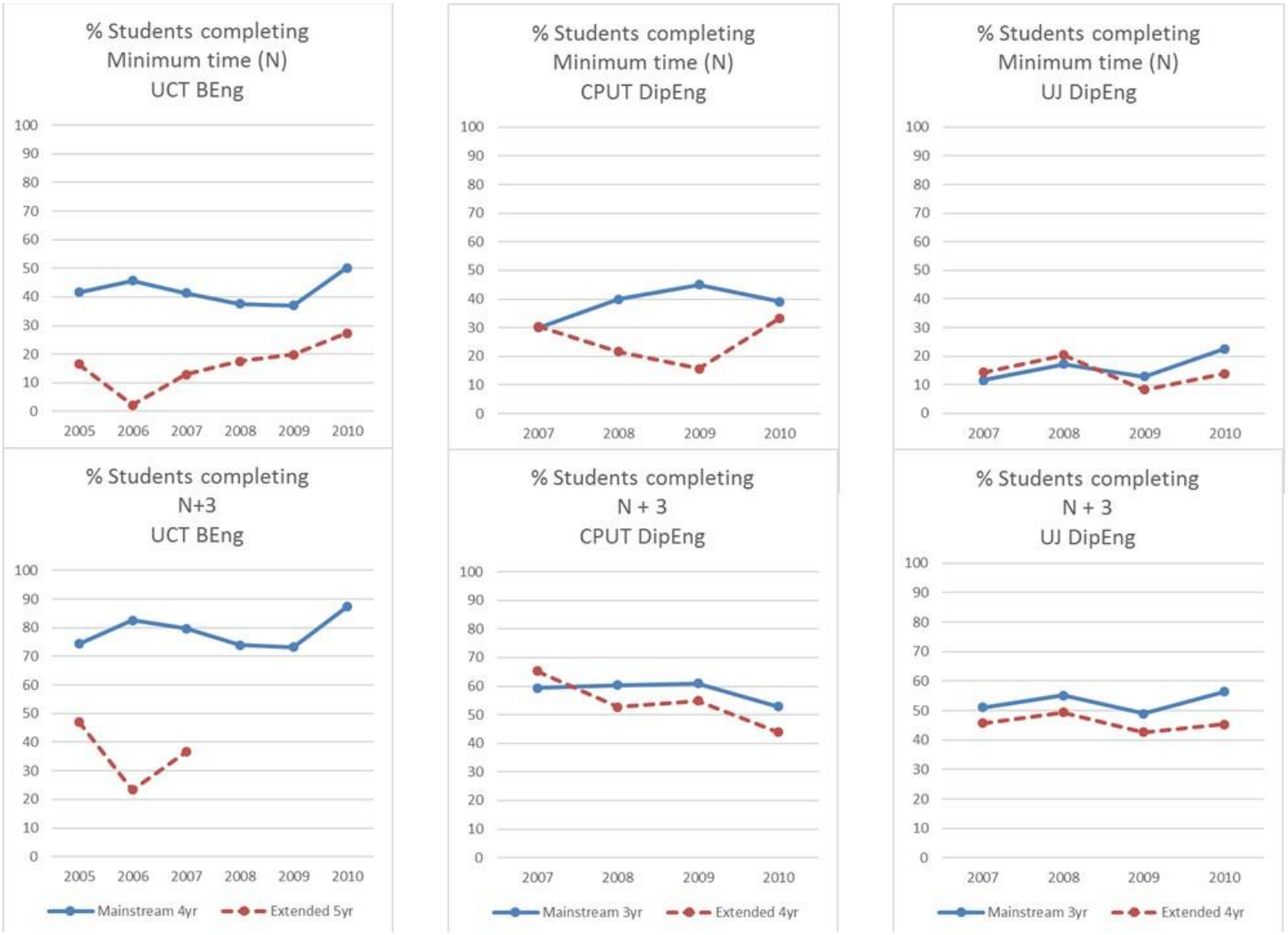

Figure 5 Engineering qualification completion patterns

3.3. Commerce

3.3.1. Principles of the FDP BCom exemplar

Phase one of the research highlighted that there are similarities between the FDP BSc(Eng) and the FDP BCom. They have common epistemic taproots in the sciences and mathematics in particular, and both have a professional orientation. The intention of the FDP BCom is two-fold. Given the under-preparedness of incoming students, particularly in mathematics but also in areas such as accounting and economics, some of the extra time is intended to strengthen conceptual foundations. The second aim is to broaden students' knowledge of the field. Like the FDP BEng there is an acknowledgment of "critical articulation and transition points" but these are not described as *epistemic* transitions. They appear to be more about transitions of 'context' – from school to University with its shift in volume and complexity of work, from university to the world of work and the need for graduate attributes. The key principles are thus foundation provision and curriculum enhancement.

3.3.2. Current extended Commerce qualifications

Structurally, the first MS year becomes 2 years EXT on the UFH BCom (Accounting). Essentially the 3-year workload is spread over four years, with the lightest load in Yr 1, followed by the heaviest load in Yr 2, and an equal load in the final 2 years. Both MS and EXT use exactly the same curriculum and write the same exams. However, there are more (formative) assessments for the EXT students.

Table 7 Summary of EXT-Commerce structural features

Institution/ Qualification	Structure	EXT Placement	Exams	Pedagogy
UFH BCom	MS Yr 1 = EXT Yr 1&2	NSC	Same as MS	Small classes; more contact time;
UCT BCom	MS Yr 1-3 = EXT Yr 1-4	NSC & NBT	Same as MS	Small classes; more contact time;

The UCT BCom EXT has the same workload for MS and EXT in Yr 1, with two MS modules being replaced by support modules. The remaining MS Yr 2 & 3 subjects are spread over three years. The key difference between the two institutional curriculum structures is the predominance of non-qualification specific subjects in the first year of the UFH BCom EXT, with only a single discipline-based subject (Economics) and the remaining subjects being HE induction-orientated subjects and school mathematics revision. In contrast, the UCT BCom EXT model (in addition to the two 'support' modules in the first year) comprises the same discipline-based subject range (Economics, Accounting, Taxation, Statistics, Law and Ethics). Structurally, the BCom EXT is significantly different from its BSc and BEng EXT counterparts at UCT in that students both choose to enter the EXT programme and it demonstrates a scaffolded workload structure over the qualification period.

3.3.3. Foundation provision

As in the previous two qualification types, foundation provision sees extra lecturer contact time, additional tutorial support and a reduced initial workload. From a disciplinary perspective, Mathematics is a primary concern:

> *"The Maths we are teaching our students is matric Maths, nothing else, and the students are really not performing well and that is a real concern" (UFH).*

> *"In the Maths, it's about going backwards before you can go forwards. I make sure that we have understood the foundations of matric Maths, because actually they don't have good matric Maths (UCT).*

There is a parallel focus on adapting to the HE environment:

> *"What the students need most in foundation is the bridging, adapting to university processes and studies" (UFH)*

The UFH BCom includes a significant number of foundational quantitative, academic and digital literacy support modules in the first year. The success of this support is attributed to staff collaboration and departmental autonomy:

> *"Although the English falls under the English Department, the person who teaches that works with us. The person who teaches the Maths is specifically for us and so he belongs to us" (UFH)*

> *"Students go on workshops and camps on soft skills … English skills, the ability to read, write, converse and debate and make presentations" (UFH).*

What is highlighted is that although the subjects may all appear the same across the MS and EXT programmes, it is essentially the pedagogy that is different

> *"There is more practical support [and] inclusive, engaged, active learning" (UCT)*

> *"We use different ways of explaining although the content is the same because we are dealing with a different kind of student" (UFH).*

3.3.4. Epistemic transitions

The core discipline-based modules are essentially the same on both MS and EXT programmes, with each stream (economics, accounting, taxation, and so on) following its own internal sequence. These are then epistemic transitions within a 'collection code' type curriculum, as opposed to the epistemic transitions of the engineering 'integrated code'.

As in the other profession-facing qualifications (engineering), commerce too sees an increasing challenge with workload, which has implications for epistemic transitions towards the world of work:

"Because of the professional pressures, more and more is actually pushed into the curriculum but I don't think there is necessarily a real good reflection [on] what can be ditched" (UCT).

"Now when they go to second year and they start with our four major courses, they have a problem with the workload" (UFH)

The issue of workload in the context of a collection code curriculum suggests a different kind of transition challenge: Each of the subject streams has its own internal conceptual chains, which may require forms of epistemic transitions at different points in relation to the discipline itself. This is significantly different from the 'integrated code' transitions of engineering, which may be aligned across disciplines (for example, the transition from engineering science to design is a multidisciplinary activity in the service of fulfilling a single purpose).

3.3.5. Enrichment & enhancement

There is a great deal of augmentation and enrichment. The UCT BCom EXT sees "literacies embedded in the Economics 1st year subject in collaboration with the lecturer". There is also a form of support called 'Step Up':

"We've got a Social Worker, we've got two Clinical Psychologists, but they don't just counsel. It's called Step Up - exposing students to lots and lots of skills and opportunities" (UCT).

UFH, too, has an integrated approach to literacies embedded in broader developmental initiatives:

"Students go on workshops and camps on soft skills... With soft skills, we are talking about English skills, the ability to read, write, converse and debate and make presentations" (UFH)

Both programmes allude to increasing pressure from the professional bodies, suggesting similar 'critical citizenship' attributes to those prescribed in engineering standards. However, the contextual differences represent a major challenge:

"I think the firms want more and if you have students who don't really have the background or exposure to how the work environment works, who come from a village and have never been exposed to invoices and delivery notes as part of the process, they can't picture the whole thing" (UFH)

As in the UFH BSc, the university's BCom staff refer to community-focussed attributes:

"Ethics, care for your fellow human beings, and not just being about profits" (UFH)

The 'care' ethic is echoed at UCT:

"We very strongly believe as a unit that it's not about assimilating students into the university and getting them to fit into the university, it's about us getting students in and transforming what we're doing" (UCT)

3.3.6. Summary

The commerce programmes appear to straddle the general/formative and professional degree divide. On the one hand, we have the 'stretch' of the sciences, particularly with respect to the mathematical foundations of the core disciplines. On the other hand, as in engineering, the demands of the profession suggest a necessary shift towards a more enhanced curriculum. Although the current curriculum structures do not explicitly focus on enabling 'multidisciplinary' epistemic transitions (such as the design, integration and application transitions in engineering), there are indications of a shift towards an 'integrated code' curriculum ethic in the increasingly lateral collaboration among staff:

"There's been a lot of cross-fertilisation, so a lot of things have happened in both Accounting and Economics as a result of our being there for a long time and building up some credibility and being able to bring about changes in those departments" (UCT).

Table 8 Commerce: EXT vs FDP recommendations

Institution	Qualification	Foundation	Transitions	Enhancement	Literacies
UFH	BCom	Yes	No	Yes	Yes, Add-on
UCT	BCom	Yes	Yes	Yes	Yes, integrated

The quantitative data for the Commerce qualifications show high retention of students as they progress from 1st to 2nd year (figure 6).

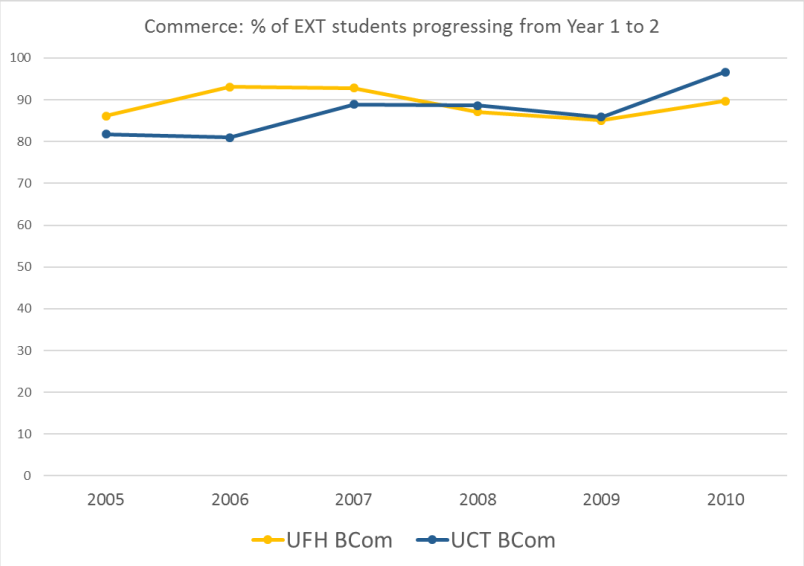

Figure 6 Commerce qualification Yr 1 to 2 progression

The completion rate data (figure 7) reveal the only case study (UCT) in this research where a higher percentage of students on an EXT programme have consistently managed to complete their qualification in the minimum (EXT) time - in other words, within 4 years.

The qualitative data support this through descriptions of attention to curriculum enhancement and enrichment initiatives across the curriculum[12].

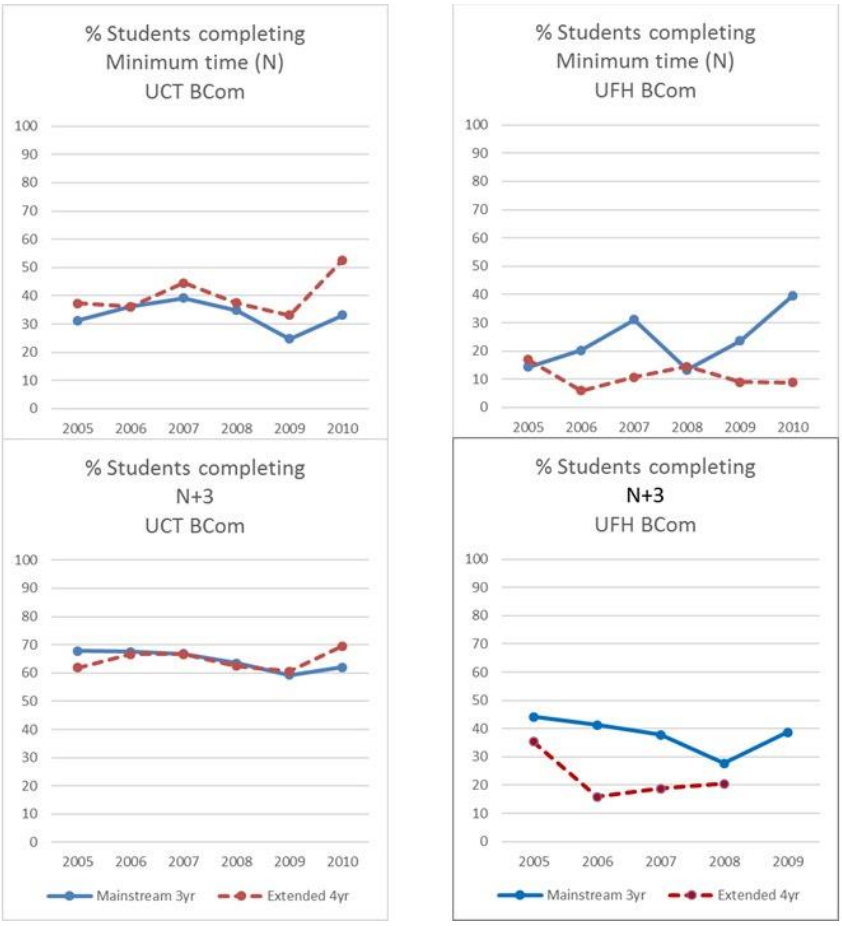

Figure 7 Commerce qualification completion patterns

3.4. Humanities/Social Sciences

3.4.1. Principles of the FDP BHum exemplar

Like the Bachelor of Science, the coherence of the BHum is conceptual but there are important differences given that the 'singulars' that make up the BHum are typically more 'horizontal' in their knowledge structure; they develop through the acquisition of different perspectives/theories. The exemplar summarizes the difference between the three-year and FDP BHum as the latter would include the same amount of "content" but the added credits "would allow for greater focus on a vertical 'spine' of concepts and practices running through the four years" (CHE, 2013, p. 247). There is a strong emphasis on the 'know how' but 'know how' that cannot be separated from the 'know that'. Thus the vertical 'spine' or 'thread' of the curriculum is in fact a 'braid' of 'know that' and 'know how'. The 'know-how' is referred to as 'discipline-related academic practices': these are the thinking/reading/writing practices of the disciplines (also referred to as 'academic literacies'). Their inseparability from the disciplines is stressed repeatedly: "At the root of

[12] The particularly poor completion rates of the UFH BCom require further investigation.

academic reading and writing, therefore, are a set of discipline-based principles and values related to what counts as knowledge and how knowledge can be known" (CHE, 2013, p. 245). The FDP BHum is designed using the following principles: keep the 'content' coverage the same but use this content to develop the vertical spine of concepts and practices identified as central to the disciplines. The added year allows for more time to develop the 'spine' of concepts and practices. It is argued that there is a "hierarchy of concepts and practices" which is necessary to build up a particular kind of knower/gaze, for example, a historical or sociological way of viewing a particular problem.

3.4.2. Current extended Humanities qualification

There is only one qualification briefly considered in this category, primarily as a means to establish any significant difference in approach to extended curriculum delivery from a disciplinary perspective.

The UCT BHum EXT programme comprises 22 modules as opposed to the 20 of the MS programmes. These 22 are spread over 4 years, which essentially means students are enrolled for the same MS courses and write the same assessments as their MS counterparts. Foundation provision is explicitly by way of two of four 'foundation modules', depending on the students' majors: Language in the Humanities, Numbers in the Humanities, Working with Texts in the Humanities, and Working with Concepts in the Social Sciences. The support is concentrated in the first year, but the feeling is that this support is insufficient:

> *"The skills take a while to get developed. So we feel it would be great to have more time. ... there needs to be support beyond the first year" (UCT)*

One challenge is that in the foundation courses, "the literacies may be too generic - not located in a specific discipline". However, contextual literacy practices are facilitated in the primary form of support: additional tutorials (called Plus Tuts) with dedicated teaching assistants.

> *"We try to make sure that the plus tuts, for example, are relevant to their own courses, all we're doing is increasing support time around course activities" (UCT)*

There is a strong social support and peer mentorship ethic in the faculty:

> *"We have teas and events… So we try to do a lot more social support as well… mentorship is a very important aspect of the extended degree programme" (UCT).*

The social (and conceptual support) in the BHum EXT suggests attention to the third principle described in the FDP exemplar: the question of curriculum enhancement for 'critical citizenship'. What is valued is a sense of 'critical identity', the ability to 'produce knowledge', and the importance of developing 'agency'.

4. Discussion

4.1. Summary of findings

The first key question of the study is, what are the key principles that need to inform undergraduate curriculum reform in South Africa? Drawing on the Flexible Degree Proposal (FDP) the research findings revealed the following **curriculum reform principles need to apply:**

- Foundation provision: at the entry level there is a recognition that serious knowledge gaps need to be filled given problematic curricular assumptions about students' prior knowledge.
- Epistemic transitions: there is further acknowledgment that addressing the entry-level gaps will not suffice; there is a need to scaffold students' epistemic development beyond foundation provision.
- Enhancement: there is a need for a structure that enables greater 'breadth' of exposure in order to produce graduates for the contemporary world.
- Enrichment: there is the necessity for 'curriculum enrichment through key literacies'.

The study further illuminated how these general principles vary across knowledge domains, qualification types and institutional contexts. In other words, there is no 'one-size-fits-all' reform template. Epistemic access and development in the sciences is different to that of the humanities, and that of the formative qualifications is different to that of the professional ones.

The second key question, **to what extent are the FDP curriculum reform principles being implemented in the existing EXT programmes**? The case study summaries (table 9) confirm the following:

- Finding 1: All the EXT programmes achieve the first principle of foundational provision primarily concerned with the revision and consolidation of the conceptual development of the requisite disciplines.
- Finding 2: The principles relating to epistemic transitions, enhancement and enrichment are generally not being implemented.
- Finding 3: Four of the EXT programmes conform to all of the principles of the FDP, these are CPUT DipEng, CPUT DipAS, UCT BCom and UJ DipEng.

Table 9 FDP principles vs EXT programmes

Domain	Institution	Qualification	Foundation	Transitions	Enhancement	Literacies
Science	UJ	BSc	Yes	No	No	Yes, Add-on
	CPUT	DipAS	Yes	Yes	Yes	Yes, integrated
	UFH	BSc	Yes	No	No	Digital
	UCT	BSc	Yes	No	No	Yes
Engineering	UJ	DipEng	Yes	Yes	Yes	Yes
	CPUT	DipEng	Yes	Yes	Yes	Yes, integrated
	UCT	BEng	Yes	No	Yes	Yes, integrated
Commerce	UFH	BCom	Yes	No	Yes	Yes
	UCT	BCom	Yes	Yes	Yes	Yes, integrated
Humanities	UCT	BHum	Yes	No	Yes	Yes

This analysis was complemented with quantitative cohort completion data across the case studies. The following findings emerge:

- Finding 4: In terms of Year 1 to 2 progression (table 10), the averages for the EXT cohorts across the 2005-2010 period show better performance than the MS, with the exception of the UCT and UJ BSc, and UCT BEng.

Table 10 Year 1 - 2 progression % EXT vs MS

INST	QUAL	YEARS	% EXT Yr1-2 Progression	% MS Yr1-2 Progression
UCT	BENG	2005-10	63%	80%
UCT	BSC	2005-10	55%	60%
UCT	BCOM	2005-10	87%	73%
CPUT	DIPAS	2007-10	64%	55%
CPUT	DIPENG	2007-10	63%	56%
UFH	BSC	2005-10	91%	87%
UFH	BCOM	2005-10	89%	77%
UJ	DIPENG	2007-10	88%	80%
UJ	BSC	2007-10	78%	80%
Average across case studies			**75%**	**72%**

- Finding 5: The EXT cohorts Year 1 to 2 progression is 63% and above across all the programmes, with the exception of UCT BSc.

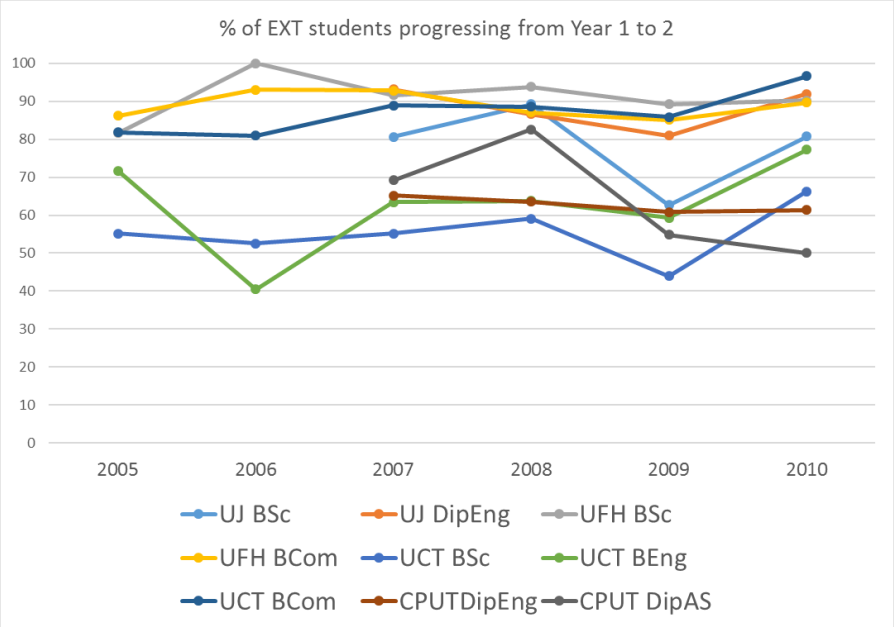

Figure 8 % EXT students progressing from Yr1 to Yr2

It can be concluded from findings 1, 4 and 5 that across these case studies there is relatively successful foundational provision across the existing programmes, with the exception of UCT BSc[13]. This provides a very strong base for future educational investment.

[13] During the period 2005-2010 the BSc EXT was admitting students with significantly lower APS scores than the MS. This could in part explain the poor Year 1 to 2 progression for this programme. As a result of the generally poor completion rates of the UCT EXT BSc the model was changed in 2013.

Given the assumption that MS cohorts are academically stronger than the EXT cohorts, one would expect the MS cohorts to outperform the EXT in terms of N completion (3 years for MS and 4 years for EXT).

- Finding 6: This expectation was confirmed in that the MS cohorts of all but one of the programmes outperformed the EXT in terms of N completion (the average completion across all the programmes for MS was 30% and for EXT 22%. The notable exception is UCT BCom where the EXT (40%) outperforms the MS (33%).

Given the assumption that the MS cohorts are academically stronger than the EXT cohorts, one would also expect the MS cohorts to outperform the EXT in terms of N + 3 completion (6 years for MS and 7 years for EXT +1 for BEng).

- Finding 7: This expectation was confirmed in that MS cohorts of all the programmes outperform the EXT in terms of N+3 (the average completion across all the programmes for MS was 59% and for EXT 47% see Table 11). The notable exceptions were UCT BCom where the EXT (65%) outperforms the MS (64%) and the CPUT DipAS where the EXT (63%) outperforms the MS (55%). The CPUT DipEng is also notable with only a 1% point difference between the EXT (54%) and the MS (55%).

Table 11 Case study cohort completion rates MS vs EXT

INST	QUAL	YEARS	% Cohort Completion Min Time (N)	Total % Cohort completion within N + 3
UCT	BENG MS	2005-10	42%	78%
UCT	BSC MS	2005-10	37%	60%
UCT	BCOM MS	2005-10	33%	64%
CPUT	DIPAS MS	2005-10	24%	55%
CPUT	DIPENG MS	2005-10	26%	55%
UFH	BSC MS	2005-10	38%	69%
UFH	BCOM MS	2005-10	24%	39%
UJ	DIPENG MS	2005-10	15%	51%
UJ	BSC MS	2005-10	29%	59%
Average across case studies			**30%**	**59%**

INST	QUAL	YEARS	% Cohort Completion Min Time (N)	Total % Cohort completion within N + 3
UCT	BENG EXT	2005-10	16%	37%
UCT	BSC EXT	2005-10	13%	33%
UCT	BCOM EXT	2005-10	40%	65%
CPUT	DIPAS EXT	2007-10	20%	63%
CPUT	DIPENG EXT	2007-10	25%	54%
UFH	BSC EXT	2005-10	32%	59%
UFH	BCOM EXT	2005-10	11%	22%
UJ	DIPENG EXT	2007-10	14%	46%
UJ	BSC EXT	2007-10	24%	43%
Average across case studies			**22%**	**47%**

We can conclude on the basis of findings 3, 6 and 7 that there appears to be a strong relationship between the EXT programmes which are applying all the FDP curriculum principles (UCT BCom, CPUT DipEng and CPUT DipAS) and those programmes that are more successful in terms of their N+3 completion rates. The one exception to this pattern is the UJ DipEng that appears to be applying all the principles but is not as successful (though nevertheless encouraging) in terms of N+3 completion rates.

This pattern leads us to conclude on the basis of this study that those EXT that are truly extended four-year programmes perform better than those which are confined to foundation provision only. This provides a strong rationale for informing the kind of curriculum reform agenda required for a 'new generation' of extended curriculum reform.

The data also serve to confirm an almost negligible improvement in completion rates based on the 2000 – 2008 studies reported in the CHE proposal. What the quantitative data overwhelmingly demonstrate is that the sector still loses more than 40% of enrolling undergraduate students, and that a minority are successful in minimum time.

A third research question which emerged during the course of the study is, **what are the enabling and constraining conditions for the implementation of FDP curriculum reform principles?** This question requires further in-depth investigation but the existing interview data pointed to some key enabling conditions that need to be tested in further study:

- Leadership and ownership – The EXT programmes which appear to be most successful all had heads of department (and to some extent deans) who strongly supported (even 'championed') the extended curriculum programmes. There was a strong sense of ownership and responsibility for the success of the programme. In contrast were programmes where the departments did not see it their responsibility; they rather expect the AD programme to deliver 'fixed' students by the end of the two years.
- Organizational arrangements between 'mainstream' and AD staff – The more successful extended programmes appeared to have greater organizational permeability between mainstream academic and AD staff. The latter are more likely to enjoy full-time permanent conditions of service like their mainstream counterparts and might even teach on mainstream courses. In contrast were programmes with strong 'silos' between these different groupings often resulting in the AD staff feeling undervalued and marginalized (not entirely dissimilar to the perceptions of AD students).
- Resource-intensive – There is no doubt that the successful extended programmes are resource-intensive. The DHET Foundation Grant acknowledges that it takes more resources to support under-prepared students. However, what is also apparent is the significant amount of resources that go into 'wrap-around' support in the form of, for example, counselling, curriculum advice and general community-building interventions. In addition to this is the on-going professional development of the highly specialized staff who teach on the extended curriculum programmes.
- Placement – A consistent feature of the successful programmes was carefully thought-out placement practices at entry – this included combinations of available data including NSC, NBT and in some cases additional qualitative information. This ensures that the students who will most benefit from the extended curriculum are placed accordingly thereby maximizing the investment of scare resources.

4.2. Project outputs

4.2.1. Institutional Workshops

Each case study was followed by an institutional workshop with the participating programme interviewees and EXT staff. The workshops were conducted by the Project Leader and Senior Researcher. The intention was both to provide feedback on findings and to allow for inter-departmental discussion. The findings functioned as a foundation for practice-sharing, as well as enabling a deeper understanding of systemic and disciplinary nuances impacting on the enablements and constraints with respect to programme curriculum design, teaching, learning and assessment practices in context.

4.2.2. Presentations and publications

The findings for Phase 1 were collaboratively drafted and disseminated among the collaborating researchers. Following a redrafting, a select group of national commentators were afforded the opportunity to comment on the paper via an online research publication forum. The final paper was submitted for journal publication (in progress) and presented at the national HELTASA 2015 conference.

The findings for Phase 2 are currently being drafted as a second publication.

5. Recommendations & Conclusions

In summary we recommend the following:

- Extended curricula programmes need to be designed as four/five-year degree/diplomas with strong foundational provision but developmental provision throughout the curriculum with enrichment and enhancement. If designed appropriately it is possible that this developmental provision can also be made available to mainstream students who would benefit, thereby further extending the reach of the investment.
- The revised policy framework for extended curricula programmes need to not only make this extended provision possible but should incentivize development provision at second/third year level.
- Placement practices onto extended curriculum programmes need to be informed by clear institutional policies that draw on full range of data available. More specifically, NSC results need to be complemented with other data, such as NBTs.
- Developmental provision higher up the curriculum will require significant organizational shifts in the way that Academic Development (AD) resources are currently deployed. This will require clear vision and strong leadership both from AD but as importantly from the department and faculties in which these programmes are located. The challenges of achieving these shifts should not be underestimated.

In conclusion, given the stated intention of strengthening the role of extended curricula, this research is an important contribution to the next phase of development of, what we refer to as, a 'new generation' of extended curricula. We echo the warning of Badat (2015) who, with specific reference to the CHE proposal argues, "unless much needed academic transformations are instituted, we will deny opportunities to people from socially subaltern groups, tragically waste the talents and potential of these individuals, and perpetuate injustice. This compromises democracy, which proclaims the promise of greater equality and a better life for all people." The demands for transformation initiated by the #RhodesMustFall and #FeesMustFall student protests during 2015 point to the very urgent need for research-informed, evidence-based, systemic and structural reform. It is hoped that this research will make a contribution to this reform.

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Appendix A: UCT Case Study

a) Analysis summary

Prog/ Aspect	BSc	BEng	BCom	BHum/SocSci
Structure	MS Sem1 = EXT Yr1 Workload spread over Yr 2 – 4 Placement after Term 1	MS Sem1 = EXT Yr1 Workload spread over Yr 2 – 4 Placement after Term 1	MS Sem1 = EXT Yr1 Workload spread over Yr 2 – 4 2 x Add modules; Placement based on NSC & NBT	MS Sem1 = EXT Yr1 Workload spread over Yr 2 – 4 2 x Add modules
Pace	Stretch of MS Sem 1; More contact & tutorials	Stretch of MS Sem 1; More contact & tutorials	Stretch of MS Sem 1; More contact & tutorials	
(Selection/ Sequence) & Support	As per MS; Add-on literacies	As per MS; Integrated literacies	As per MS; Integrated literacies	As per MS; Literacy support in 2 add modules
Criteria	Literacy, numeracy, ethics	International Graduate Attributes	Professional Graduate Attributes	Critical citizenship

b) Performance data

Inst.Qual.Year	COHORT	MIN COMP	N+1	N+2	N+3	% Cohort Completion Min Time	Total % Cohort completion N+3	Total Graduates	Exclusions/ Dropouts/ Transfers
UCT BEng MS 2005	339	141	75	24	12	42%	74%	252	87
UCT BENG MS 2006	298	136	73	27	10	46%	83%	246	52
UCT BENG MS 2007	344	142	87	30	15	41%	80%	274	70
UCT BENG MS 2008	346	130	80	30	16	38%	74%	256	90
UCT BENG MS 2009	495	183	109	50	20	37%	73%	362	133
UCT BENG MS 2010	355	178	98	34	0	50%	87%	310	45
UCT BENG EXT 2005	85	14	13	9	4	16%	47%	40	45
UCT BENG EXT 2006	47	1	5	2	3	2%	23%	11	36
UCT BENG EXT 2007	93	12	13	4	5	13%	37%	34	59
UCT BENG EXT 2008	80	14	8	5	0	18%	34%	27	53
UCT BENG EXT 2009	91	18	10	7	0	20%	38%	35	56
UCT BENG EXT 2010	66	18	10	0	0	27%	42%	28	38

Inst.Qual.Year	COHORT	MIN COMP	N+1	N+2	N+3	% Cohort Completion Min Time	Total % Cohort completion N+3	Total Graduates	Exclusions/ Dropouts/ Transfers
UCT BSC MS 2005	414	173	57	18	6	42%	61%	254	160
UCT BSC MS 2006	366	133	70	14	3	36%	60%	220	146
UCT BSC MS 2007	334	124	58	21	3	37%	62%	206	128
UCT BSC MS 2008	427	145	91	27	1	34%	62%	264	163
UCT BSC MS 2009	532	129	87	34	10	24%	49%	260	272
UCT BSC MS 2010	365	173	59	15	0	47%	68%	247	118
UCT BSC EXT 2005	116	20	17	6	3	17%	40%	46	70
UCT BSC EXT 2006	156	20	16	11	1	13%	31%	48	108
UCT BSC EXT 2007	107	8	13	11	1	7%	31%	33	74
UCT BSC EXT 2008	176	23	37	5	1	13%	38%	66	110
UCT BSC EXT 2009	141	15	16	5	0	11%	26%	36	105
UCT BSC EXT 2010	80	15	13	0	0	19%	35%	28	52

Inst.Qual.Year	COHORT	MIN COMP	N+1	N+2	N+3	% Cohort Completion Min Time	Total % Cohort completion within Min + 3 years	Total Graduates	Exclusions/ Dropouts/ Transfers
UCT BCOM MS 2005	314	98	81	24	10	31%	68%	213	101
UCT BCOM MS 2006	277	100	57	24	6	36%	68%	187	90
UCT BCOM MS 2007	235	92	49	13	3	39%	67%	157	78
UCT BCOM MS 2008	301	105	47	28	11	35%	63%	191	110
UCT BCOM MS 2009	255	63	59	25	4	25%	59%	151	104
UCT BCOM MS 2010	284	94	56	26	0	33%	62%	176	108
UCT BCOM EXT 2005	110	41	21	2	4	37%	62%	68	42
UCT BCOM EXT 2006	105	38	21	10	1	36%	67%	70	35
UCT BCOM EXT 2007	81	36	11	6	1	44%	67%	54	27
UCT BCOM EXT 2008	88	33	17	5	0	38%	63%	55	33
UCT BCOM EXT 2009	127	42	28	7	0	33%	61%	77	50
UCT BCOM EXT 2010	118	62	20	0	0	53%	69%	82	36

Appendix B: UJ Case Study

a) Analysis summary

Programme/ Aspect	BSc	DipEng
Structure	MS Sem 1 + School revision + Augmentation = 1st 3 semesters Ext	MS Sem 1 + Augmentation = Yr 1 Ext
Pace	Revision of High School More assessment More examples	Diagnostic testing Fewer subjects More staff contact time More detail & contextualisation
Content (Selection/ Sequence) & Support	Same as MS AD modules	Same as MS Integrated AcadLit Workplace prep
Evaluative Criteria	Being able to 'fit in' (BSc) Analytical (BSc)	Independence Confidence Self-discipline
Other		Collaboration between dept staff and AD staff

b) Performance data

Inst.Qual.Year	COHORT	MIN COMP	N+1	N+2	N+3	% Cohort Completion Min Time	Total % Cohort completion N+3	Total Graduates	Exclusions/ Dropouts/ Transfers
UJ DIPENG MS 2005	1279	146	230	157	80	11%	48%	613	666
UJ DIPENG MS 2006	1211	145	242	143	67	12%	49%	597	614
UJ DIPENG MS 2007	1066	124	240	140	41	12%	51%	545	521
UJ DIPENG MS 2008	956	165	170	122	70	17%	55%	527	429
UJ DIPENG MS 2009	1257	162	211	160	82	13%	49%	615	642
UJ DIPENG MS 2010	768	173	134	95	31	23%	56%	433	335
UJ DIPENG EXT 2007	175	25	26	21	8	14%	46%	80	95
UJ DIPENG EXT 2008	225	46	35	18	12	20%	49%	111	114
UJ DIPENG EXT 2009	253	21	45	31	11	8%	43%	108	145
UJ DIPENG EXT 2010	223	31	43	27	0	14%	45%	101	122
UJ BSC MS 2005	361	97	59	36	11	27%	56%	203	158
UJ BSC MS 2006	277	98	39	26	12	35%	63%	175	102
UJ BSC MS 2007	259	102	50	14	8	39%	67%	174	85
UJ BSC MS 2008	290	95	47	34	8	33%	63%	184	106
UJ BSC MS 2009	739	132	139	76	32	18%	51%	379	360
UJ BSC MS 2010	466	97	103	44	0	21%	52%	244	222
UJ BSC EXT 2007	67	22	9	2	2	33%	52%	35	32
UJ BSC EXT 2008	65	14	12	3	2	22%	48%	31	34
UJ BSC EXT 2009	182	33	18	13	0	18%	35%	64	118
UJ BSC EXT 2010	130	31	17	0	0	24%	37%	48	82

Appendix C: UFH Case Study

a) Analysis summary

Programme/ Aspect	BSc	BCom
Structure	MS Yr1 = FP Yr 1 & 2	MS Yr1 = FP Yr 1 & 2
Pace	High School revision English augmentation	Lighter load Additional work & examples
Content (Selection/ Sequence) & Support	All students do 'Life, Knowledge & Action' module Computer Literacy No Academic Literacies Includes mother-tongue instruction	All students do 'Life, Knowledge & Action' module English & Computer Literacy Profession-facing Soft skills courses
Evaluative Criteria	Ethics & Citizenship Employability	Employability Ethics & Citizenship Prof Body competency requirements
Other	Ford Foundation support Perception that Ext Programme students out-perform MS	Dept owns Maths, but it is a 'killer subject'

b) Performance data

Inst.Qual.Year	COHORT	MIN COMP	N+1	N+2	N+3	% Cohort Completion Min Time	Total % Cohort completion within Min + 3 years	Total Graduates	Exclusions/ Dropouts/ Transfers
UFH BSC MS 2005	117	34	15	16	5	29%	60%	70	47
UFH BSC MS 2006	132	41	32	17	4	31%	71%	94	38
UFH BSC MS 2007	86	23	21	7	3	27%	63%	54	32
UFH BSC MS 2008	133	59	25	10	6	44%	75%	100	33
UFH BSC MS 2009	144	71	17	10	1	49%	69%	99	45
UFH BSC MS 2010	134	62	27	10	1	46%	75%	100	34
UFH BSC EXT 2005	49	10	11	5	1	20%	55%	27	22
UFH BSC EXT 2006	45	14	10	4	0	31%	62%	28	17
UFH BSC EXT 2007	72	17	15	8	3	24%	60%	43	29
UFH BSC EXT 2008	65	25	13	3	0	38%	63%	41	24
UFH BSC EXT 2009	84	28	12	5	0	33%	54%	45	39
UFH BSC EXT 2010	72	32	11	1	n/a	44%	61%	44	28
UFH BCOM MS 2005	77	11	11	8	4	14%	44%	34	43
UFH BCOM MS 2006	109	22	15	6	2	20%	41%	45	64
UFH BCOM MS 2007	103	32	3	2	2	31%	38%	39	64
UFH BCOM MS 2008	90	12	7	4	2	13%	28%	25	65
UFH BCOM MS 2009	106	25	13	2	1	24%	39%	41	65
UFH BCOM MS 2010	96	38	3	3	n/a	40%	46%	44	52
UFH BCOM EXT 2005	130	22	20	3	1	17%	35%	46	84
UFH BCOM EXT 2006	101	6	7	3	0	6%	16%	16	85
UFH BCOM EXT 2007	112	12	8	1	0	11%	19%	21	91
UFH BCOM EXT 2008	132	19	7	1	0	14%	20%	27	105
UFH BCOM EXT 2009	67	6	9	1	n/a	9%	24%	16	51
UFH BCOM EXT 2010	68	6	8	n/a	n/a	9%	21%	14	54

Appendix D: CPUT Case Study

a) Analysis summary

Programme/ Aspect	Dip AS	DipEng
Structure	MS Yr 1 = Ext Yr 1 & 2	MS Yr 1 = Ext Yr 1, 2 & 3
Pace	Lighter workload initially More depth & breadth	Lighter workload initially More depth & breadth
Content (Selection/ Sequence)	Same content – more practice & activities Literacies taught by disciplinary specialist Mentorship programme Psycho-social skills development	Same content – more practice & activities Contextualised Maths Social media & e-learning
Evaluative Criteria	Confidence Professionalism Enterprising	Citizenship Confidence Critical Ethical
Other	Strong leadership Collaborative ethic Small programme Subject 'ownership'	Strong leadership Collaborative ethic Small programme Subject 'ownership'

b) Performance data

Inst.Qual.Year	COHORT	MIN COMP	N+1	N+2	N+3	% Cohort Completion Min Time	Total % Cohort completion within Min + 3	Total Graduates	Exclusions/ Dropouts/ Transfers
CPUT DIPAS MS 2005	111	20	37	11	2	18%	63%	70	41
CPUT DIPAS MS 2006	92	21	15	4	0	23%	43%	40	52
CPUT DIPAS MS 2007	56	20	8	5	2	36%	63%	35	21
CPUT DIPAS MS 2008	63	14	16	6	3	22%	62%	39	24
CPUT DIPAS MS 2009	96	15	23	10	1	16%	51%	49	47
CPUT DIPAS MS 2010	78	23	12	3	0	29%	49%	38	40
CPUT DIPAS EXT 2007	26	5	7	5	1	19%	69%	18	8
CPUT DIPAS EXT 2008	23	4	13	1	2	17%	87%	20	3
CPUT DIPAS EXT 2009	31	3	4	3	0	10%	32%	10	21
CPUT DIPAS EXT 2010	26	9	0	0	0	35%	35%	9	17
CPUT DIPENG MS 2005	149	27	27	13	4	18%	48%	71	78
CPUT DIPENG MS 2006	154	33	25	13	7	21%	51%	78	76
CPUT DIPENG MS 2007	118	30	30	9	1	25%	59%	70	48
CPUT DIPENG MS 2008	136	40	23	15	4	29%	60%	82	54
CPUT DIPENG MS 2009	133	45	24	8	4	34%	61%	81	52
CPUT DIPENG MS 2010	138	39	23	11	0	28%	53%	73	65
CPUT DIPENG EXT 2007	23	7	2	4	2	30%	65%	15	8
CPUT DIPENG EXT 2008	74	16	15	4	4	22%	53%	39	35
CPUT DIPENG EXT 2009	51	8	11	9	0	16%	55%	28	23
CPUT DIPENG EXT 2010	57	19	6	0	0	33%	44%	25	32

Appendix E: Phase 2 Interview questions

Introductory comments: The purpose of this interview is to understand more fully how you understand the key differences between the extended and the traditional programme in which you are working and to explore why certain decisions were made rather than others, how selection of material was made, how it is sequenced and how the additional time in the extended programme is put to use. In terms of the initial selection and placement of students

- Which measures/scores are used in order to place students in either the mainstream or the accelerated curriculum?
- To what extent are students able to enter and exit the programme? How is flexibility be built into curriculum?
- Which criteria are used to make decisions about whether or not students may move from one programme to another?

Selection (includes probe into enrichment and enhancement)

- How were decisions made about what is included in the dev. modules?
- What has been included and why?
- How is academic literacy understood in your context?
- Which 'literacies' are prioritized and why?
- Was there explicit discussion about how these modules will articulate with the core modules which follow?

- How were decisions made about what is included in the core modules?
- What has been included and why?
- Was there explicit discussion about how these modules will articulate with the developmental modules?

- How were decisions made about what is included in the discretionary modules?
- What are the assumptions underpinning these modules?
- How was agreement reached about which topics should be covered?
- Are they really essential? The optimal use of additional time? What else might have been included instead of these?
- What is the key difference between these modules and the developmental modules?
- Explain how the capstone module will be developed and how it will articulate with the rest of the module

Sequence

- In the context of this curriculum, how important is the order in which material/concepts is/are presented/introduced?
- Is it strictly sequenced or is variation in the ordering of the material possible?
- Why is the way in which the material is sequenced important? Not a crucial consideration?
- In terms of placement in the curriculum structure when is placement negotiable? When not?
- If variation in the ordering of material is possible, how would a module placed in the first year and a module on exactly the same topic placed in second or third year differ?
- Where are the developmental modules placed?
- If they are spread throughout the degree why was this decision taken?
- At which point are the developmental modules withdrawn? Why?
- Aside from the transition from school to university, how many transition points need to be negotiated as students progress through the degree? How will the different transition points be achieved?

Pacing

- One of the central principles of the flexible curriculum is that is will provide the majority of students with additional time. Is additional time, in fact beneficial to students?
- How is this additional time used in the context of this curriculum? The same material/slowly/differently? In what ways?
- Is it, in your view used optimally?
- Is it important to make explicit decisions about how the additional time should be used? Why?
- How might it have been used differently?
- Explain the basis on which decisions about the "credit load" for students were taken? What assumptions were made about this and how was the curriculum load calculated?

Graduate attributes

- What kind of graduates are you hoping will emerge from this programme?
- How will you ensure that the development of student attributes are embedded in the curriculum?

Evaluation

- What mechanism will be put in place to ensure that appropriate exit levels are maintained?
- How will this be measured?

Appendix F: Research Consent Form

RESEARCH CONSENT FORM

Title of research project	**TDG collaboration project on the Flexible Degree**
Name of Principle Researcher	A/Prof Suellen Shay
Co-Researchers	Dr Noluthando Toni (UFH); Prof Chris Winberg (CPUT); Dr André van Zyl (UJ);
Senior Researcher	Prof. Jenny Clarence-Fincham
Department/ research address	Centre for Higher Education Development (CHED), Hoerikwaggo Bld., North Lane, University of Cape Town, South Africa
Contact details	021-6504073
Enquiry emails	Karin Wolff – Research Assistant: Wolff.ke@gmail.com
Nature of the research	The CHE's Flexible Degree policy has been put forward as a systemic solution to the crisis of low participation and high attrition in South African higher education. This study seeks to identify the key curriculum reform principles underpinning this policy and to test these principles across different degree/diploma domains and different institutional contexts.
Participant's involvement **1. What is involved:** **2. Risks:** **3. Benefits:** **4. Costs/Payment:**	1. Allowing the principal researcher: a. Access to existing extended curriculum exemplars at participating institutions b. To interview participating institutional stakeholders c. To engage relevant constituencies in each institution with the findings of the research. All interview recordings and transcriptions are intended to be anonymised where possible, and kept by the research team. 2. None 3. Institutional sharing of data to enable research-informed curriculum design & policy decisions 4. None

CONSENT:

- I agree to participate in this research project
- I have read this consent form and the information it contains and had the opportunity to ask questions about them
- I agree to my responses being used for research on condition my privacy is respected, subject to the following: in any dissemination that arises from the research,
  - the guiding principle of anonymity will be adopted, or
  - participants will not be readily identifiable unless prior agreement has been reached,
  - permission will be obtained from those indirectly affected
- I understand that I am under no obligation to take part in this research
- I understand that I have the right to withdraw from this project at any stage

Name of participant		**Signature**	**Date**
Name of researcher		**Signature**	**Date**