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A Phenomenological Study of Computer Science
Lecturers:
Lived Experiences of Curriculum Design

By

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A thesis submitted to the Dublin Institute of Technology,
for the degree of Doctor of Philosophy (PhD)

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DECLARATION

I certify that this thesis which I now submit for examination for the award of doctor of philosophy, is entirely my own work and has not been taken from the work of others, save and to the extent that such work has been cited and acknowledged within the text of my work.

This thesis was prepared according to the regulations for postgraduate study by research of the Dublin Institute of Technology and has not been submitted in whole or in part for another award in any other third level institution.

The work reported on in this thesis conforms to the principles and requirements of the DIT's guidelines for ethics in research.

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ABSTRACT

This hermeneutic phenomenological study presents a description of computer science lecturers' experiences of curriculum design of degree programmes during a time of transition in curriculum design policy, specifically in the context of Dublin Institute of Technology (DIT). It examines the lived experiences of computer science lecturers to highlight the issues and problems relating to lecturers' lived experiences of curriculum design, and it describes how it is to be a computer science lecturer in a time of policy change for curriculum design. The findings are that lecturers have been, and are, struggling to cope with the transition from year-long to semesterised courses, that they feel pressured and overworked, but continue to try to adapt from feelings of professionalism and concern to provide curricula that suit the courses. They feel resentful about the lack of preparation and information that might have been given to them prior to, and during, the change.

The literature has suggested that further investigation into the effects of institutional policy change on lecturers ought to be carried out. There have been recommendations for the design of degree programmes in Irish institutes, including DIT and its School of Computing. These recommendations form the basis for the quality assurance of the educational programmes to which they are applied. It follows that any divergence between recommended best practice and the experiences of those designing the curricula has serious implications for the assurance on offer. This study has two parts, conducted using hermeneutic phenomenological assumptions and methodology to collect, analyse and interpret data from semi-structured interview transcripts. The preliminary study involved twelve computer science lecturers. The findings of this work served the context to a more in-depth study of the same participants' experiences. This second study led to findings that describe the computer science lecturers' lived experiences as curriculum designers. Findings relate to conditions and issues of curriculum design, and lead to the identification of implications for groups and individuals associated with third-level education.

This research encourages readers to thoughtfully reflect on what is it like for these computer science lecturers as curriculum designers, and become better informed about what happens during the process of curriculum and module design. The full significance of such reflection will ideally promote further questioning and inquiry, in keeping with the provisional nature of phenomenological inquiry.

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DEDICATION

*For Julie, Sophia, Samuel and Luke,
with deep love and gratitude.*

Thank you for waiting...

XXXX

TABLE OF CONTENTS

CHAPTER 1 - INTRODUCTION AND CONTEXT	1
1.1 Introduction.....	1
1.2 Context of the Study.....	5
1.2.1 European and National Policy.....	5
1.2.2 National Framework of Qualifications and Dublin Institute of Technology Policy.....	10
1.2.3 Modularisation and Semesterisation at Dublin Institute of Technology	11
1.2.4 A Decline in the Progression Rates of First Year Students.....	13
1.2.5 Policy Change Within Other Irish Higher Education Institutes.....	17
1.3 Aims and Objectives	19
1.4 Contribution.....	23
1.5 Outline of the Thesis	23
CHAPTER 2 - LITERATURE REVIEW	26
2.1 Introduction.....	26
2.2 Curriculum and Curriculum Design.....	29
2.2.1 Definitions of Curriculum and its Aim.....	30
2.2.2 Curriculum Design and Curriculum Development.....	32
2.2.3 Issues Related to Curriculum Design.....	38
2.3 Lecturers as Curriculum Designers	39
2.3.1 Lecturers' Role in Curriculum Design	43
2.3.2 Curriculum Design and the Lecturer	46
2.3.3 Issues Relating to Lecturers as Curriculum Designers.....	50
2.4 Curriculum Design in Computer Science Education	51
2.4.1 Curriculum Design Guidelines Available to Computer Science Lecturers.....	54
2.4.2 Issues Related to Computer Science Curriculum Design.....	55
2.5 Approaches to Curriculum Design.....	56
2.5.1 Old Approaches and New Approaches.....	61
2.5.2 Learning Outcomes-Based Curriculum Design	62
2.5.3 Issues Related to Curriculum Design Approaches.....	65
2.6 Curriculum Design Policy and Strategy.....	67
2.6.1 Modularisation and Semesterisation as Programme Design Strategies.....	69

2.6.2 Academic Quality and Curriculum Design	71
2.6.3 Issues Related to Curriculum Design Policy and Strategy	72
2.7 Phenomenology in Education Research	77
2.8 Summary	83
CHAPTER 3 - RESEARCH DESIGN	85
3.1 Introduction	85
3.2 Theoretical Perspective	88
3.3 Theoretical Assumptions	90
3.3.1 Objectivist and Subjectivist Epistemologies	91
3.3.2 Constructivist and Constructionist Epistemologies	95
3.4 Research Methodologies	99
3.4.1 Qualitative Methods Considered for this Research	100
3.4.2 Phenomenology	103
3.4.3 History and Critiques of Phenomenology	108
3.4.4 Rationale and Use of Hermeneutic Phenomenology in this Research	111
3.5 Data Collection Method	113
3.5.1 Individual Interviews	113
3.5.2 Piloting the Interviews	114
3.5.3 Two Sets of Interviews	115
3.6 Research Participants	118
3.7 Ethical Considerations	120
3.8 Summary	125
CHAPTER 4 - RESEARCH METHOD AND DATA ANALYSIS FOR INTERVIEW SET 1	127
4.1 Introduction	127
4.2 Interview Set 1 and Hermeneutic Phenomenology Method	129
4.3 Interview Analysis – the Hermeneutic Phenomenology Procedure	131
4.3.1 Reading the Transcripts	132
4.3.2 Reflexivity and the Hermeneutic Circle	133
4.3.3 Beginning the Reductions	135
4.3.4 Refining the Reductions	137
4.3.5 Emergent Themes	138
4.4 Summary of the use of Hermeneutic Phenomenology	141
4.5 A Summary of the Findings of the Qualitative Data Analysis of Interview Set 1	144
4.6 Using the Interview Set 1 Study Findings to Inform the Interview Questions of Interview Set 2	146

4.7	Summary	148
CHAPTER 5 - RESEARCH METHOD AND DATA ANALYSIS FOR INTERVIEW SET 2		151
5.1	Introduction.....	151
5.2	Interview Set 2 and the Hermeneutic Phenomenology Method	155
5.3	Interview Analysis – Hermeneutic Phenomenology	158
5.3.1	Writing the Transcripts	159
5.3.2	Reflexivity and the Hermeneutic Circle	160
5.3.3	Beginning the Reductions.....	161
5.3.4	Refining the Reductions	164
5.3.5	Emergent Themes	164
5.3.6	Comparing the Themes to the Interview Questions.....	167
5.3.7	Summary of the use of Hermeneutic Phenomenology	168
5.4	Summary	171
CHAPTER 6 - FINDINGS – HERMENEUTIC PHENOMENOLOGICAL ANALYSIS		173
6.1	Introduction.....	173
6.2	The Hermeneutic Phenomenological Themes	175
6.2.1	Lecturers’ Sense of Their Roles.....	175
6.2.1.1	A Sense of Responsibility	175
6.2.1.2	A Sense of Professionalism.....	177
6.2.1.3	Experiences of Module Design Difficulties	179
6.2.3	Experiencing Difficulty in Adapting to Semesterisation.....	181
6.2.3.1	The First Move to Outcomes-Based Design: a Haphazard Approach.....	187
6.2.3.2	Lecturers Feel Compelled to Strategise Curriculum Design.....	189
6.2.4	Lecturers’ Anxiety about Student Attrition.....	191
6.2.5	Lecturers’ Reaction to Time Pressures or Constraints on Module Design	193
6.2.6	Lecturers’ Feelings about Efficacy in their Module Design	198
6.2.7	Lecturers’ Feelings of Mistrust in Institute Management/Administration	200
6.2.8	Important Aspects of Curriculum Design.....	203
6.2.9	What the Curriculum Design Approach Transition Means to Lecturers	208
6.2.10	Conceptualising the New, Learning Outcomes-Based Approach.....	210
6.2.11	Conceptualising Curriculum Design Policy and Strategy	212
6.2.12	How Lecturers Relate to Academic Quality	215
6.3	Depicting an Overview of Themes and Their Relationships.....	218
CHAPTER 7 - DISCUSSION OF COLLECTED DATA OF THE SECOND ANALYSIS		220

7.1	Introduction.....	220
7.2	The Role of the Lecturer	222
7.2.1	A Sense of Responsibility	223
7.2.2	A Sense of Professionalism.....	224
7.2.3	Experiences of Module Design Difficulties	226
7.3	Experiencing Difficulty in Adapting to Semesterisation	227
7.3.1	The First Move to Outcomes-Based Design: a Haphazard Approach.....	229
7.3.2	Lecturers Feel Compelled to Strategise Curriculum Design.....	230
7.4	Lecturers’ Anxiety about Student Attrition	231
7.5	Lecturers’ Reaction to Time Pressures or Constraints on Module Design	232
7.6	Lecturers’ Feelings about Efficacy in their Module Design.....	234
7.7	Lecturers’ Feelings of Mistrust in Institute Management/Administration	235
7.8	Important Aspects of Curriculum Design	236
7.9	What the Curriculum Design Approach Transition Means to Lecturers	239
7.10	Conceptualising the New, Learning Outcomes-Based Approach	241
7.11	Conceptualising Curriculum Design Policy and Strategy.....	243
7.12	How Lecturers Relate to Academic Quality	244
7.13	Thematic Interpretation Synopsis.....	247
7.14	Summary	250
CHAPTER 8 - CONCLUSIONS AND IMPLICATIONS		252
8.1	Introduction.....	252
8.2	Summary of Findings.....	254
8.3	Implications and Recommendations	258
8.3.1	Implications for the Curriculum Design Research Community.....	259
8.3.2	Implications for Curriculum Design	260
8.3.3	Implications for Lecturers	262
8.3.4	Implications for Students.....	262
8.3.5	Implications for DIT School of Computing	263
8.4	Limitations of the Study.....	265
8.5	Further Work.....	266
8.6	Unique Contribution.....	267
8.6.1	New and Original Findings	267
8.6.2	Connectedness to Dublin Institute of Technology Policy Initiatives	268
8.7	Concluding Remarks	269

REFERENCES	272
APPENDIX - A - National Qualifications – a 10 Level Framework.....	298
APPENDIX - B - The Study Participants’ Invitation to Take Part	302
APPENDIX - C – Interview Set 1 Questions for Lecturers.....	303
APPENDIX - D - Interview Transcript Example – Interview Set 1	305
APPENDIX - E – Hermeneutic Phenomenological Reduction (The ‘Focus’ Documents).....	324
APPENDIX - F – Findings of Phase 1 Analysis – Thematic Reports	352
APPENDIX - G - Interview Set 2 Questions for Lecturers	361
APPENDIX - H - Interview Transcript Example – Interview Set 2	363
APPENDIX - I - Ethics Statement	390

CHAPTER 1

INTRODUCTION AND CONTEXT

1.1 Introduction

This research study set out to examine lecturers' experiences of curriculum design during a time of dramatic and abrupt changes in the academic calendar, structure of programmes, pedagogical approaches and curriculum design processes. The study was designed to identify, describe and examine a group of Dublin Institute of Technology's (DIT's) computer science lecturers' lived experiences of curriculum design, in the context of a volatile change from a year-long academic calendar to a semesterised and modularised calendar and, more significantly, a move from content-focused curriculum design to learning outcome-based curriculum design. The context of this study is set against a specific context of prescribed curriculum design within a particular framework of quality assurance, with the aim of establishing whether there is parity of recommended practice with actual experience. The methodology chosen for the study was hermeneutic phenomenology as this methodology allowed me to describe the participant lecturers' experiences. The data were the texts of interview transcripts of twelve participant lecturers as curriculum designers. The experiences that emerged from analysis of the data grouped naturally in identifiable and presentable themes and these themes represent the findings of the study: computer science lecturers' lived experiences as curriculum designers in a time of curriculum design policy change. Findings relate to conditions and issues of curriculum design,

and include the concern that lecturers have for producing good quality programme documents and providing suitable curricula. Lecturers are able to describe how they experience the role of the curriculum designer, and to highlight the difficulties they encounter in this task. Also, lecturers feel that not all curriculum design criteria of the revised curriculum design strategy work well or are appropriate for their curriculum design – semesterisation, for example. The findings lead to the identification of implications for groups and individuals associated with third-level education.

Previous research has examined curriculum design change, subsequent to policy change at several universities, but has not investigated the experiences of lecturers during or subsequent to the policy change. At the heart of curriculum design is the lecturer who is responsible for curriculum design, teaching and student assessment. Better understanding lecturers' experiences of curriculum design at a time of transition is important, as it will inform curriculum design policy. Also, a better understanding of such experiences will lead to a better understanding of the implications of curriculum design policy.

Investigation of lecturers' experiences of curriculum design, through hermeneutic phenomenology, allowed me to focus on concepts specific to those experiences. This helped me to understand the meaning that individuals made of those concepts. The interpretive paradigm of hermeneutic phenomenology allows an understanding, through identification of 'meaning-making', of the subjective world of human experience. Thus the study sheds light on the circumstances of computer science lecturers, in their role as curriculum designers, and in the context of dramatic change in institutional curriculum design policy.

The participants of this study, the twelve lecturers, were directly involved with curriculum design as per the curriculum design policy transition. By the end of the academic year following the transition there was a noticeable and dramatic decline in the progression rates of first year students across all disciplines within DIT. This is an important observation for lecturers, such as me, who are concerned about student achievement. A research study of the experiences of lecturers involved in that transition would allow insight into what it is like to be a lecturer performing the task of curriculum design with radically new design policy. This type of investigation provides valuable contribution to a better understanding of the effects of changes in academic policy of the type described in this chapter.

Previous research has shown the importance of studying curriculum design, and the complexity of computer science curriculum design. For example, curriculum design has a whole system of classroom, departmental level and institutional level (Biggs, 2003a) so the effects of curriculum design, good and bad, are to be felt in the lecture hall, the laboratory and so among the students. Meanwhile, in many third-level institutes, programme (also known as ‘course’) curriculum design is not well defined by anybody, and poorly understood as a lecturer’s duty (Harden and Crosby 2000). Computer science education has an array of technical as well as pedagogic complexity (Dijkstra, 2001). This means that computer science lecturers must look beyond the basics, such as module content and examination questions, in terms of module design, to improve their curricula (Sahami *et al*, 2012). Sheard *et al* have looked at computer science curriculum design at a global level, choosing to critically analyse issues of teaching and learning in terms of student engagement (Sheard *et al*, 2009). The technicality of computer science, as a

curriculum of education, calls for specific curriculum design strategies. The computer science lecturer must understand those design strategies and be equal to design challenges.

Many who read this thesis will be interested in and/or understand curriculum design, some who read this will have experienced curriculum design by, for example, writing module descriptors for a programme document. Those with such experience will appreciate the importance of ‘getting it right’ – there are implications for the administration of the programme and, more importantly, for the involvement and learning of the students of the programme. All factors of curriculum design are important to the curriculum designer, the administration of the department who represent the academic programme, and to the institution itself. The curriculum designer; the lecturer, for example, plays a pivotal role in the success of a programme and the students participating in it. Research focused on the curriculum designer is, therefore, important and valuable. This study focuses on the lecturer in their role as curriculum designer.

The study is unique as an examination of computer science lecturers’ experiences of curriculum design, rather than how one might theorise about their experiences. It is hoped that its implications provoke thoughtful reflection by lecturers and academic administrators on the very important area of curriculum development, and the impact academic policies, such as those described in this chapter, have on lecturers’ approaches to, and experiences of, curriculum development. Husserl described the use of phenomenology to get ‘to the things themselves’ (Langdridge, 2007): the essential descriptions of lived experience, and this study endeavours to express the essence of curriculum design experience of computer science lecturers through its findings. It highlights important aspects of curriculum design experience in a time of institutional

policy change, and invites deep thought and debate through its discussion of those findings. It endeavours to extend that insight into the field of curriculum development beyond the School of Computing in which the research was carried out.

As I engaged in this research I did so as a lecturer and curriculum designer with my own history of curriculum design in the same context: I have engaged in the phenomena under investigation, thus enriching the use of hermeneutic phenomenology as a research methodology. The purpose of the study is to provide what Savin-Baden and Howell Major (2013) call ‘contextual’ truth: describing the form or nature of what exists.

This chapter outlines the context in which the research was set and the aims and objectives of the research. It also includes brief descriptions of the chapters that follow.

1.2 Context of the Study

1.2.1 European and National Policy

In 2001, the Bologna Agreement was established as the basis of principles of a Europe-wide consensus of higher education in the form of a document commonly known as the Bologna Declaration and also referred to as the Bologna Process (Patricio *et al*, 2008). This was an accord between educational representatives from all European Union (EU) member states and some others outside the EU. Hazelkorn (2009) describes the Bologna Agreement as a European educational model based on educational policy. The agreement was drawn up at the University of Bologna in June 1999 and its main goal, amongst other things, was to normalise tertiary

education internationally so that graduates in many countries could have their qualifications and skills recognised more globally than they had been before. The agreement document recommended to the education departments of the governments of the countries involved that they establish a European higher education agreement by 2010 (Patricio *et al*, 2008).

As a signatory in 1999, Ireland was committed to the European Higher Education Area (Boland and McIlrath, 2007) and the Bologna Agreement (Boland and McIlrath, 2007; McMahan, 2010). From that point, all Irish tertiary institutes could expect to become involved in the initiatives of the Bologna Agreement. The European Qualifications Framework (EQF) was suggested by the European Commission in 2005 and developed over several years afterward. The EQF has definitive educational levels of progression numbered 1 – 8 and, of these, levels 5 – 8 correspond to the cycle descriptors defined in the documentation of the Bologna Agreement (Maguire *et al*, 2008) thus demonstrating this framework as a response to Bologna Agreement initiatives at a European level.

The launch, in 2005, of the EQF coincided with legislation in Ireland from 1999: Ireland's Qualification (Education and Training) Act (McMahan, 2010): the principles of the EQF were similar to the principles legally established in the Act. The Act, with its contained directives, suggested a need for regularisation of qualifications, so led to the National Framework of Qualifications (NFQ) in Ireland, itself a legislative framework (Boland and McIlrath, 2007). The NFQ was launched in 2003 by a recently established national qualifications authority – the NQAI (see below). Although there was no legal obligation to align or attach a national framework to the EQF, it can be, and was, inferred that national framework initiatives ought to

match those of the ETF (Maguire *et al*, 2008) thus demonstrating the National Framework of Qualifications as a response to Bologna Agreement initiatives at an Irish, national level. The initiatives, such as the NFQ, and establishments, such as the NQAI, in Ireland were a timely match for the initiatives described by the Bologna Agreement (McMahon, 2010).

Established in 2001, the National Qualifications Authority of Ireland (NQAI) determined the policies and criteria for the NFQ in Ireland for the development, recognition and award of qualifications based on standards of knowledge, skills and competences to be acquired by students (Maguire *et al*, 2008). On 6th November 2012, Quality and Qualifications Ireland (QQI) was established as a new integrated agency replacing FETAC (the Further Education and Training Awards Council), HETAC (the Higher Education and Training Awards Council) and the NQAI, and incorporating the functions of IUQB (the Irish Universities Quality Board) (www.qqi.ie, accessed September 2013).

In 2009 the NQAI designed the qualifications framework on ten levels, where each level has a specified level indicator. The framework includes a set of ‘descriptors’ related to the ten levels. These descriptors are represented by documentation and are based upon learning outcomes (Boland and McIlrath, 2007; Maguire *et al*, 2008), i.e. the levels set out a range of standards of knowledge, skill and competence. In fact, the Bologna Agreement requires that all tertiary academic programmes are written in terms of learning outcomes (McMahon, 2010).

For tertiary education, and beginning with the normal exit point of secondary education, called the ‘Leaving Certificate’, the levels relating to higher education awards in Ireland are as follows:

Level 4/5: Leaving Certificate

Level 5: Level 5 Certificate

Level 6: Advanced Certificate and Higher Certificate

Level 7: Ordinary Bachelor Degree

Level 8: Honours Bachelor Degree and Higher Diploma

Level 9: Masters Degree and Post-graduate Diploma

Level 10: Doctoral Degree

The NQAI, in their publication entitled ‘Determinations for the Outline National Framework of Qualifications’ on the NQAI website (www.nqai.ie, accessed February 2014), describe the programme learning outcomes for these tertiary levels. Dublin Institute of Technology provides programmes from levels 6 – 10.

Learning outcomes at Level 6 include a comprehensive range of skills which may be vocationally-specific and/or of a general supervisory nature, and require detailed theoretical understanding. Learning outcomes at Level 7 relate to knowledge and critical understanding of the well-established principles in a field of study and the application of those principles in different contexts. Learning outcomes at Level 8 relate to being at the forefront of a field of learning in terms of knowledge and understanding. Learning outcomes at Level 9 relate to the demonstration of knowledge and understanding which is the forefront of a field of learning. Learning outcomes at Level 10 relate to the discovery and development of new knowledge and skills and delivering findings at the frontiers of knowledge and application (www.nqai.ie,

accessed February 2014). A complete description, including the details of these learning outcomes, as ‘Level Indicators’, can be found in Appendix A.

Part of the Bologna Agreement was a proposal that affiliated countries’ tertiary education systems adopt a Europe-wide credit system, namely the European Credit Transfer System (ECTS) (McMahon, 2010) which would be related to assessment. The ECTS credit system is a scoring system that allows students to accrue points, or credits, to allow them to progress from one level to the next, from Level 5 in the EQF’s 8-level system (www.eracon.info, accessed February 2014) and from Level 6 in Ireland’s NFQ 10-level system (Maguire *et al*, 2008). As it was, Irish public-sector education institutions had already agreed to adopt the ECTS during the 1990s (McMahon, 2010).

Described in their publication, ‘Determinations for the Outline National Framework of Qualifications’, the NQAI has determined that it is through the descriptors for the award-types that they will set the overall standards of the awards of Dublin Institute of Technology and that, by determining award-type descriptors, the overall standards are now set (www.nqai.ie, accessed February 2014). In other words, the NQAI expect DIT awards to match the award standards described in the NFQ. It can be inferred that the design of academic programmes and the development of curricula within the DIT will have been expected to move from aims and objectives-based curriculum design to learning outcomes-based curriculum design. In fact, the new approach was adopted readily by the DIT – academic programmes with an input approach (Aims and Objectives) were redesigned with the new output approach (Learning Outcomes) (McMahon, 2010) in 2005.

1.2.2 National Framework of Qualifications and Dublin Institute of Technology Policy

All DIT programmes of study are aligned to the National Framework of Qualifications (NFQ). Under the NFQ system of ten levels of education DIT offers academic programmes and makes awards from levels 6 to 10 inclusive. Each level is based on nationally agreed standards of knowledge, skill and competencies. This is a description what a student is expected to know, understand and be able to do following successful completion of a process of learning (DIT, www.modularisation.dit.ie, accessed November 2012).

When a programme is being proposed in DIT, academic staff members work together with School management and Faculty (now College) management to formulate the proposal through discussion and documentation (Duff *et al*, 2000). The documented curriculum design of lecturers is used as part of the programme document that is drafted after approval at College and Institute level of the programme proposal. Therefore nearly all of a degree programme's design comes from lecturers who participate in the draft document, and draws upon the expertise of lecturers and administration staff involved in drafting the programme document (Duff *et al*, 2000). The design autonomy of lecturers will affect the means and experiences of lecturers' curriculum and/or module design.

Describing the genesis of curriculum development as programme proposals for institutes of technology, Duff *et al* state that the inspiration for such a proposal may arise from the experience and observations of lecturers in their discipline, from their research activities or from the ways in which the discipline may be changing and how the relevant professional body may be developing

(Duff *et al*, 2000). This shows the personal involvement of the lecturers in curriculum design by contribution of module designs, for example. Their curriculum design can incorporate personal experience and/or research, thus giving ownership of curriculum design to lecturers within schools and departments of institutes of technology such as Dublin Institute of Technology. Toohey (1999) suggests that lecturers are involved in the design process to contribute their academic perspective and prior experience to the process.

How the curriculum is designed will have a direct effect on the student (Diamond, 2008). Hewitt (2006) suggests that what lecturers do, when they design a programme document, is to map out a student's educational plan for four years of his or her life, and it is important that the degree is 'as good as it can be', and that a great deal of the quality of a degree comes from its design.

1.2.3 Modularisation and Semesterisation at Dublin Institute of Technology

Around the time of the establishment of the NQAI a sub-committee was set up in DIT to investigate modularisation and a report on modularisation was submitted in December 2001. Five months later the DIT's Academic Council agreed at a special meeting to adopt a modularised structure for DIT's academic programmes. Modularisation was discussed at Academic Council meetings through to 2005. In a meeting in October 2004, a modularisation implementation target of September 2005 was discussed (www.dit.ie, accessed February 2014).

The 112th meeting of the Academic Council, on 13th April 2005, introduced the idea of semesterisation integrated with modularisation. It was noted, but without elaboration, that there

may be curriculum design issues in the form of resource implications. Related to this, the minutes of the meeting (www.dit.ie, accessed February 2014) read:

In the context of the duration of modules it was noted that in a flexible structure some may span a full academic year while the duration of others will be one semester. It was pointed out that where modules are offered over two semesters then there has to be an academic justification for this. It was further pointed out that there may be resource implications when determining module duration.

In 2005 DIT's Academic Council introduced a policy of modularisation, the related academic calendar structure of semesterisation, and learning outcome-based curriculum design. This policy was not directly linked to the Bologna Agreement, however. Reading about the curriculum design changes in DIT historically, I have inferred that, while engaging NFQ initiatives related to the Bologna Agreement, i.e. moving to a learning outcomes-based curriculum design strategy, DIT management decided to include, in curriculum design of DIT programmes, the separate initiative of modularisation – extending the idea to implement semesterisation.

The initiative and directives related to the new policies of learning outcomes-based curriculum design, and modularisation/semesterisation curriculum design, were themes of school and departmental meetings about the modification of current programme designs and the initiation of new programme modules, as part of a programme review in this year. Therefore the move to modularised programmes by School of Computing meant that curriculum design strategies were discussed at meetings of members of the School of Computing for a year, starting in 2005.

When the schools of DIT began to employ the semesterised calendar in 2005, the debate about the academic calendar that began ahead of the proposal for modularisation did not end. As late as May 2014, at the Academic Council meeting, the question of how the academic calendar ought to be structured was discussed. One can expect that the academic calendar, as a policy issue will continue to be debated at Academic Council in 2014.

1.2.4 A Decline in the Progression Rates of First Year Students

In the first academic year of DIT's modularisation/semesterisation initiative (2006 – 2007) there was a dramatic increase in examination 'referrals' for DIT's First Year students – where students had failed their first attempt at module examinations – from a steady 12% over the last three years of year-long modules, to 22% in the first instance of the modules in a modularised and semesterised programme. Degree programme Years Two – Four were much less affected. In the year following (2007 – 2008) First Year referrals reduced to 17% and in the third year of the initiative the figure returned to 22% first-sitting failures. One could speculate that lecturers and examination administration over-compensated for high failure rates of 2007 in the academic year 2007 – 2008 by assessing the students on those modules with more leniency, causing the 5% reduction, and where a return to standard assessment practice brought the failure rate back to 22% in 2008 – 2009. Referral rates for First Year have stayed high subsequently, but are progressively improving since 2009. The following line graph shows the fluctuation, with comparison between First Year to Fourth Year of DIT's bachelor's degree programmes.

Examinations

Full Time ab initio 1st - 4th Year Referral Rates

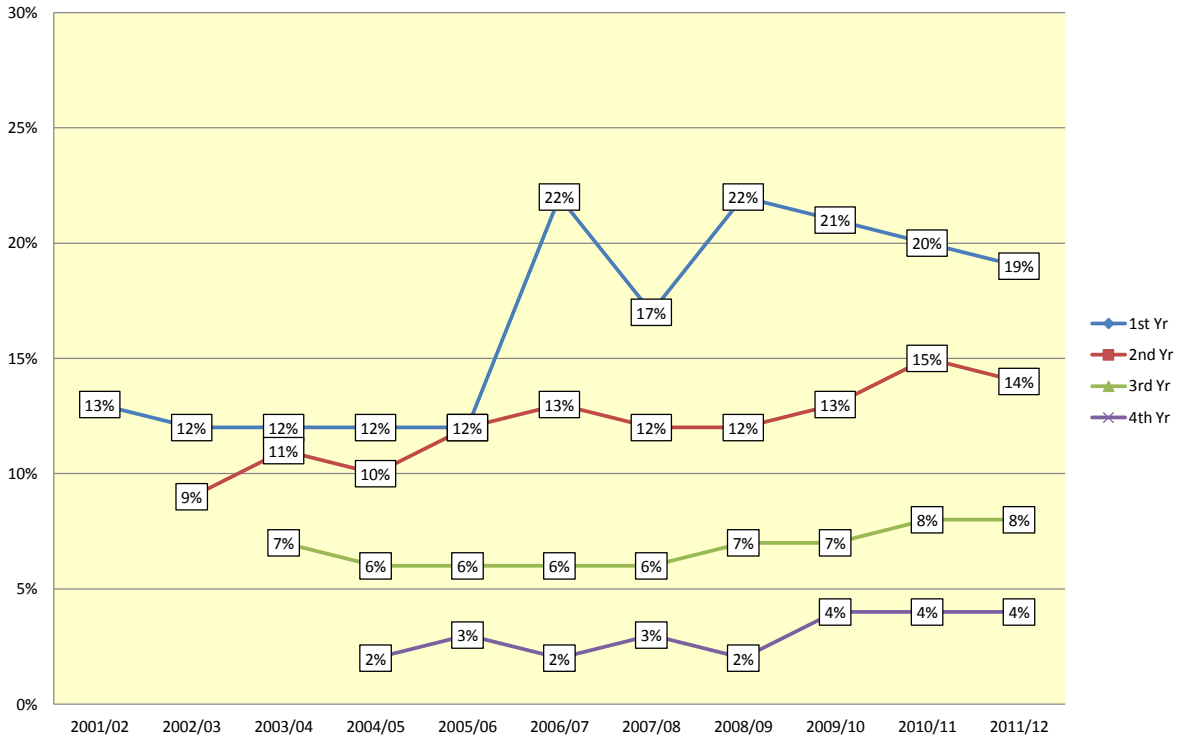


Figure 1.1 DIT Referral Rate Data for Examinations, 2001 – 20012. From personal correspondence with DIT’s Student Retention Officer (2013)

As can be seen in the data, there is a sudden 10% increase in first examination sitting failure of First Years in the academic year 2005 – 2006 – contemporary with the modularisation initiative at DIT and the curriculum design response of that initiative by DIT’s schools, departments and the lecturers of those schools.

As an example of the effects on students, during the transition of the academic calendar to semesterised programmes by the DIT in 2005 and 2006, we can look at the assessment data at faculty level, and at computer science degree programme level. The School of Computing, to

which the computer science lecturers of this study belong, was part of the Faculty of Science (now known as the College of Sciences and Health) during 2005 - 2007. The bar chart below, in Figure 1.3, shows module assessment (continuous assessment and examination) comparisons for first year, full time undergraduate students between the academic years 2005 - 2006 and 2006 - 2007 for the Faculty of Science. The drop in the success rate of students in the second of those two academic years is obvious in this chart.

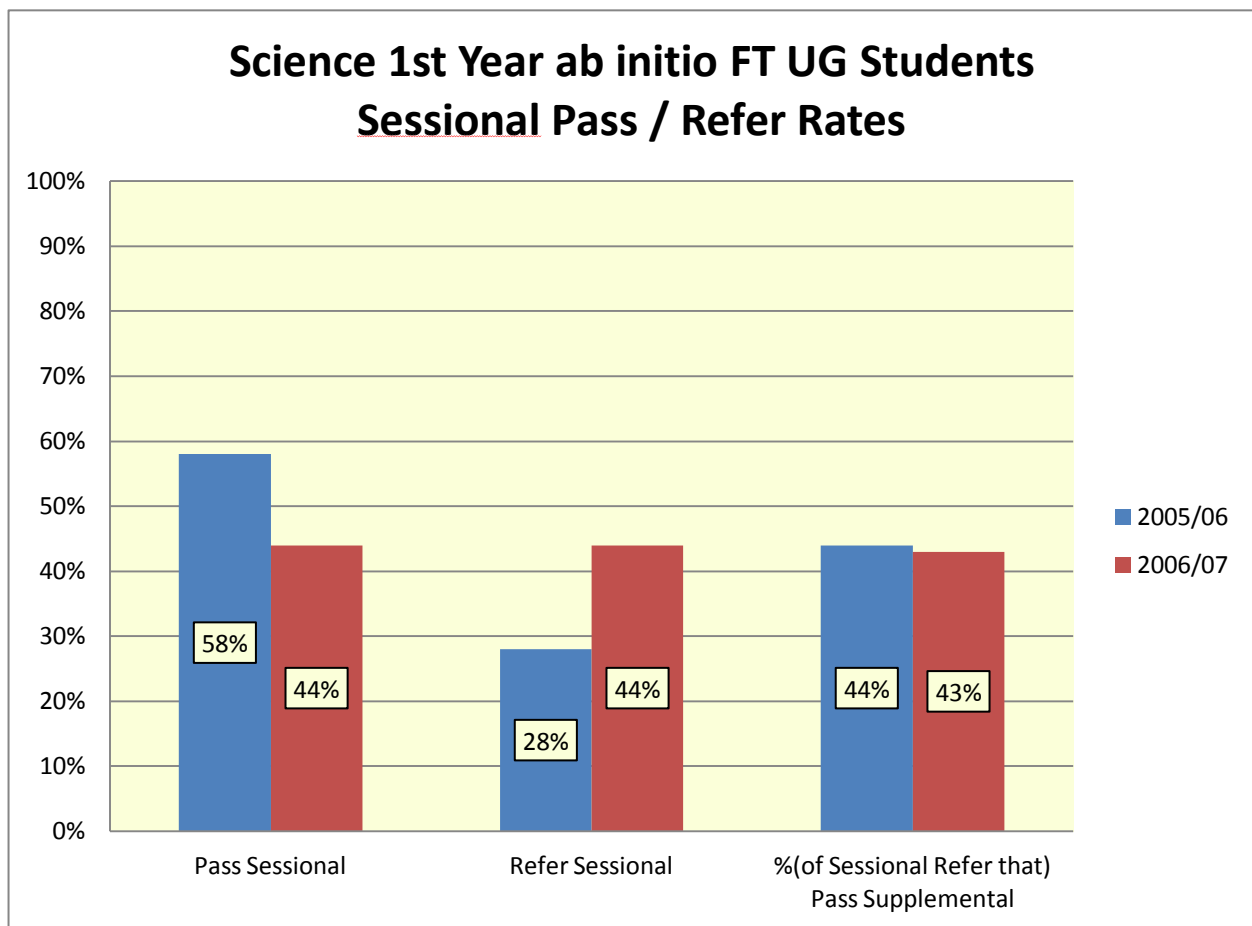


Figure 1.2 Faculty of Science Sessional Pass and Refer Rates for First Year Full Time Undergraduate Students. From personal correspondence with DIT's Student Retention Officer (2013)

Two of the School of Computing’s undergraduate programmes, during 2005 – 2006 were named ‘FT211 BSc in Computing’ and ‘FT228 BSc in Computer Science’. The pass and refer rates for first years during 2005 - 2006 and 2006 - 2007 in these two programmes were as follows:

FT211 Year 1

2005 – 2006		2006 - 2007	
Pass Sessional	Refer	Pass Sessional	Refer
60%	29%	50%	23%

Table 1.1 From personal correspondence with DIT’s Student Retention Officer (2013)

FT228 Year 1

2005 – 2006		2006 - 2007	
Pass Sessional	Refer	Pass Sessional	Refer
36%	36%	32%	58%

Table 1.2 From personal correspondence with DIT’s Student Retention Officer (2013)

At a computer science degree programme level, the statistics of these tables show that there was a disimprovement in the success rate of DIT computer science first year undergraduate students in module assessment in the year following the introduction of semesterisation. The most dramatic figure is that of the Refer rate of FT228 students: from 36% in 2005 to 58% in 2006, where it had previously (in 2004 – 2005) been as low as 22%. These effects can be aligned to the

change in academic calendar, and policy and procedure that included modularisation and semesterisation, for curriculum design.

1.2.5 Policy Change Within Other Irish Higher Education Institutes

While Dublin Institute of Technology was adopting a policy of modularisation, semesterisation, and learning outcome-based curriculum design, other Irish higher education institutes were also adopting curriculum design policies that were similar. University College Dublin (UCD) introduced modularisation for taught degree programmes in September 2005, and the modularised programmes became collectively known as ‘UCD Horizons’ (http://www.ucd.ie/ucdtoday/feb05/feb05/8ucdtodayfeb_05fa.pdf accessed February 2014).

Towards the end of the previous academic year, the College’s Board and University Council had given their support in principle to the recommendations of the Working Group on Modularisation and Academic Year Structure for the adoption of a new term structure based on two twelve-week teaching terms with a third term devoted to assessment and end-of-year examinations, and the introduction of a new core and elective curriculum structure (www.tcd.ie/about/content/pdf/tcd-annual-report-0708.pdf accessed February 2014).

University College Cork began a six-phase semesterisation programme in March 2013, to run until August 2015, and has set up the ‘Semesterisation Implementation Working Group’ to manage the change (www.ucc.ie/en/semesterisation/ accessed February 2014).

In a document published in June 2007 by the Higher Education Authority and Forfas entitled, ‘The Role of the Institutes of Technology in Enterprise Development: Profiles and emerging

findings' (HEA and Forfas, 2007), it is reported that Waterford Institute of Technology and Letterkenny Institute of Technology had, by 2007, completed modularisation of all programmes, Carlow Institute of Technology, Cork Institute of Technology and Tralee Institute of Technology were in the process of implementing modularisation and semesterisation on all of their programmes, Galway-Mayo Institute of Technology had introduced modularisation to all first year programmes and expected to have included all programme years by 2009/10, Limerick Institute of Technology intended to apply modularisation and Athlone Institute of Technology was described as having 80% of its programmes modularised.

Dundalk Institute of Technology published a document, in revised form, in March 2010 entitled, 'Dundalk Institute of Technology Learning and Teaching Strategy' (DkIT, 2010). The document lists an objective of becoming more accessible to learners and developing flexible approaches which support lifelong learning. One of the initiatives/actions pertaining to that objective is to 'implement full modularisation in all programmes' (DkIT, 2010; p. 7). Another publication, in June 2009, by Dundalk Institute of Technology is entitled, 'Submission to Higher Education Strategy Review Group'. In the context of programme delivery innovation, this document calls for '...a more open and flexible use of modularisation within the academic structure' (DkIT, 2009; p. 3).

The context of the policy changes in the Institutes of Technology is a context of institutional evolution, as can be inferred from 'The Role of the Institutes of Technology in Enterprise Development: Profiles and emerging findings' (HEA and Forfas, 2007). In the document, 'Dundalk Institute of Technology Learning and Teaching Strategy' (DkIT, 2010), the

responsibility for the strategic objective initiative of programme modularisation falls to ‘Dundalk Institute of Technology community, Executive Management Board and Academic Council’ (p. 7). It is fair to assume that the ‘community’ includes lecturers involved in curriculum design.

1.3 Aims and Objectives

In recent years in DIT there have been dramatic changes in the academic calendar, the structure of programmes, pedagogical approaches and curriculum design processes – including a move from content-focused curriculum design to learning outcome-based curriculum design. These policy changes have been adopted similarly in many Irish higher education institutes. During this time of transition there have been noticeable effects on the progression rates of students at DIT. First year students’ assessment results, particularly, fluctuated in the six years following implementation of the move to learning outcome-based curriculum design – with a negative spike in the first academic year of the change. Central to this curriculum design change is the role of the lecturer as curriculum designer. The lecturer is responsible for the design of modules of programmes, as well as the teaching and assessment of those modules. Since the quality of these programmes is dependent on the design process, the core value of this work is to elucidate and record the experiences of lecturers who were at the heart of this process. This record may then be considered against the consequent claims of quality attributed to the design process.

The research has suggested that further investigation ought to be carried out into the effects of institutional policy change on lecturers, as suggested by Trowler (1997), and their experiences, as can be inferred from the work of Billing (1996) and Hennessy *et al* (2010). Therefore this

thesis is an examination of experiences of computer science lecturers to highlight the issues and problems relating to lecturers' lived experiences of curriculum design. The intention of this thesis is to allow the reader to appreciate curriculum design in terms of the experience of lecturers, but to allow, also, computer science lecturers to have a clearer perspective on some individual and thematised module design experiences so that they can become better informed about what happens during the process of curriculum and module design. With that better information, one expects that computer science lecturers will be better able to design programmes and curricula. For example, Hennessy *et al* (2010) have established an overview of curriculum design change, at University College Dublin (UCD) subsequent to curriculum design policy change at that institute that included modularisation and semesterisation of programmes at UCD. This study included questioning of lecturers and students, but the study stopped short of investigating the experiences of lecturers during or subsequent to the policy change. Billing (1996) and Trowler (1997) have examined the effects of curriculum design policy change in British universities, but have not established what the lecturers experiences were, as part of their studies. It is important to better understand lecturers' experiences in this instance, as this new understanding will inform curriculum design policy, and lead to a better understanding of the implications of such policy.

Stemhagen *et al* (2013) have described computer science lecturers' feelings of responsibility in relation to their approach to curriculum and pedagogy. Hewitt (2006) relates to this type of responsibility and acknowledges the sense of professionalism that drives the lecturer to plan modules as best they can.

This research aimed to discover what it is like to be a DIT School of Computing lecturer designing curricula on behalf of the school by investigating the issues, concerns and experiences of those lecturers in relation to their design of curricula/modules, against the background of degree programme development in a tertiary-level institute which recently moved to a semesterised/ modularised and learning outcome-based curriculum design strategy. The main aim of the research was to establish whether there is parity between issues described in the literature and in relation to curriculum design and issues experienced by computer science lecturers.

The objective of the study was to achieve an overall description of the experiences of a sample group of DIT School of Computing lecturers from their descriptions of the task of module and curriculum design through their own mental reflections on the task and the attendant experiences. This study would describe the meaning that lecturers make of those experiences. This would be a deep investigation of what was happening for computer science lecturers during the policy change, with a view to elucidating how curriculum design is considered by computer science lecturers of DIT.

The research was conducted as a two-part investigation. The first part included investigation of lecturers' issues and concerns as curriculum designers to answer the following research questions:

1. How do lecturers approach curriculum design?
2. What is the importance of the curriculum design task to lecturers?
3. How do lecturers understand the implications of curriculum design?

The answers to these questions, and the attendant findings, informed further investigation in the research by setting the context. The further investigation focused on qualitative evaluations of the lecturers' experience of module and/or curriculum design during the period of transition (2005 – 2009). In order to achieve the overall research objective a hermeneutic phenomenological approach was used to answer the following research questions:

1. How do lecturers experience curriculum design?
2. How do lecturers understand the implications of policy change for curriculum design?
3. How can the meaning that lecturers make of their experiences of curriculum design be attributed to the effects of change in curriculum design policy?

All of these six questions can be summarised in the following, single research question:

What are the experiences of designing curricula in the context of a move to a semesterised/modularised calendar and a learning outcome-based approach to curriculum design?

Findings from the investigations of the study are compared to current research in the area in a discussion in Chapter Seven. The implications that the findings have for tertiary education are discussed in the final chapter. For example, with a stronger awareness of lecturers' experiences of curriculum design, programme administrators and curriculum designers will be able to make more informed curriculum design policy decisions.

1.4 Contribution

As an examination of experiences of computer science lecturers, highlighting the issues and problems relating to lecturers' lived experiences of curriculum design, this study elucidates the experience of meeting some of the challenges of curriculum design within a prescribed framework of curriculum design and educational policy. One would expect that this research encourages readers to use this framework to thoughtfully reflect on what professional responsibility is like for computer science lecturers, and to consider practice improvements that may support them in their role as programme developers and/or curriculum designers.

1.5 Outline of the Thesis

This chapter has set the context for the research, explained the focus of the study, the motivation and the aims and objectives of the study.

Chapter Two represents a structured discussion of the background to the research. This chapter is the literature review, and it draws from, and synthesises the relevant and pertinent literature. It introduces the context of this research work: curriculum design. Curriculum design is related to the lecturer in terms of being a personal task and a responsibility, and how it pertains to teaching and learning, assessment, learning outcomes and constructive alignment. The issues and problems of curriculum design, and the reason for the investigation of curriculum design are also reviewed.

Chapter Three discusses the theoretical perspective and the epistemological stance adopted in the research and describes and explains the methodological choices made. It details the research approach that was adopted to answer the research question.

Chapter Four begins with a presentation of the approach to the first round of interviews – the data gathering and analysis of Interview Set 1 using the qualitative research method of hermeneutic phenomenology. It continues to describe how the findings of this analysis informed the questions and process of research of the second set of interviews.

Chapter Five presents the approach to the second round of interviews – the data gathering and data analysis of Interview Set 2 and continuing the use of the hermeneutic phenomenology method.

Chapter Six presents the findings of Interview Set 2 using hermeneutic phenomenology.

Chapter Seven discusses the findings of the hermeneutic phenomenological analysis described in the fifth chapter in context of the research outlined in the literature review within Chapter Two.

The final chapter draws together the ideas of the earlier chapters and subjects, summing up the main findings and providing overall conclusions. This chapter also includes a discussion of the implications of the study for the people and institutes that involve themselves in curriculum design, and provides analysis in terms of the possibilities that the findings offer for a more holistic understanding of the complex and personal task of module design. The implications

continue with those for lecturers in terms of the insights offered for their curriculum design work, and the School of Computing. There are recommendations for further work.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This research is a study of the experiences of computer science lecturers as they design programme curricula. As outlined in Chapter One, the central questions of the study are concerned with the experiences of those lecturers in relation to their design of curricula/modules, in a tertiary-level institute which has recently moved to semesterised/modularised and learning outcome-based curriculum design. In this study I have chosen to investigate curriculum design in terms of the curriculum designers – the lecturers of the School of Computer Science in Dublin Institute of Technology (DIT). The purpose of ‘the lecturer perspective’, and the use of qualitative methods of investigation, is to provide a richer understanding of the task of curriculum design.

This study draws on previous research in education and in curriculum design in recent years. For example, Billing (1996) has examined the effects of modularisation on students and academic staff in a British university, while Trowler (1997), also in a British university context, has described the effect of institutional policy and curriculum change – focusing on the reaction of lecturers specifically and effects upon them. In relation to an Irish university, Hennessy *et al* (2010) have examined the experiences of students and staff, and the concept of teaching and learning, in a newly modularised university system. Hubball *et al* (2013) have given a recent

account of policy change and curriculum design in third level education worldwide, and what those changes mean to the academic. Lecturers are acutely affected by institutional policy changes, such as those related to curriculum design (Hennessy *et al*, 2010), yet his or her role is that of an important actor in the study of policy implementation in higher education (Trowler, 1997).

Lecturers of DIT participate in, or are affected by, institutional policy on curriculum design and have curriculum design responsibilities, much in parallel to lecturers in other tertiary-level institutes in Ireland, in Britain and worldwide. As the research progressed I endeavoured to review all of the pertinent and relevant literature within the field. This chapter, therefore, seeks to provide a succinct review of the relevant literature, including a review of current, but changing, practices in curriculum development.

To provide context for the main investigation this chapter begins with a review of literature pertaining to curriculum and curriculum design in Section 2.2. Section 2.3 continues with a review of the lecturer's role as a curriculum designer. Section 2.4 summarises literature pertaining to curriculum design for computer science education, and there is a review of literature relating to approaches to curriculum design in section 2.5. Section 2.6 reviews literature pertaining to curriculum design policy and strategy, including modularisation and semesterisation, and academic quality. Section 2.7 reviews previous studies of education and curriculum design, using phenomenology as a methodology. Section 2.8 is an overall summary of the chapter.

There are many contexts and considerations for curriculum design and the lecturer's role in it. There is value for the field of education in identifying and discussing some of these. For example, in relation to lecturers as curriculum designers: their philosophy influences interpretation and selection of objectives, selection and organisation of content, decisions about how to teach or deliver the curriculum content and judgements about how to evaluate the success of the developed curriculum (Ornstein and Hunkins, 2009). The reason for a lecturer wishing to understand teaching and learning is universal: to improve teaching, learning and education overall (Biggs, 2003b, Ramsden, 1992, Tyler, 1949).

In relation to curriculum design: while the operational curriculum is embodied in actual teaching practices and tests, the official curriculum is described in formal documents (Posner, 2004). The planned programme and the modules of that programme must be represented by documentation such as the Course Information Document (CID) (Forsyth *et al*, 1999) - a plan for achieving goals, dealing with the learner's experiences in education (Ornstein and Hunkins, 2009). So curriculum and its aims can be documented and reported upon: they can be designed.

In relation to approaches and policy: Stenhouse (1975) says that the curriculum should be grounded in practice, but the perspectives of, say, a lecturer and an administrator, where both are involved in curriculum development, may not be exactly the same. An example of that is the perspective on the nature and purpose of education for each of those parties (Ornstein and Hunkins, 2009). Academic administration might have criteria to divide and distribute accountability for curriculum development quite different to that of a lecturer (Posner, 2004). As well as the obvious syllabus and assessment issues for academics and management, there are

socio-political aspects to curriculum and curriculum design (Stenhouse, 1975). One ought to emphasise the role of the academic as an important actor in the study of policy implementation in higher education (Trowler, 1997).

In relation to curriculum design issues: higher education within which curricula are placed has a culture which might affect the education-provision culture at institutional level and socio-cultural structures which might reflect on teaching and learning (Trowler, 2008). Political effects at national level have changed the educational experience for students by affecting learning outcomes and assessment (Hussey and Smith, 2002). The philosophy of an institute or, by extension, a school within that institute and its people, will influence the goals, content and organisation of a curriculum (Ornstein and Hunkins, 2009).

The themes of these exemplar considerations and contexts will be examined throughout this chapter.

2.2 Curriculum and Curriculum Design

In this section the literature pertaining to curriculum and aspects of curriculum design is examined, giving a perspective of the curriculum to which a lecturer, as a curriculum designer, can readily relate.

To clarify curricula terminology, a ‘programme’ or a ‘course’ refers to an entire degree programme which is offered by the institute. ‘Modules’ are units of learning and each module is assigned a set number of ECTS (European Credit Transfer and Accumulation System) credits.

For example, within the four-year Computing programme, the first year has a Networking module; the second year has two Networking modules, making up Networking as a subject of a computer science programme, and each having ten ECTS credits.

2.2.1 Definitions of Curriculum and its Aim

In defining the concept of the curriculum, Knight (2007) refers to the curriculum succinctly as a plan for achievement, containing teaching, learning and assessment. Prideaux defines the curriculum in terms of a plan and the planned learning experiences (Prideaux, 2003), while Marsh (2004) notes that there are many definitions for an educational curriculum due to the evolutionary nature of curricula, but manages to generalise that a curriculum contains mainly the content and design of an educational programme. Similar to this, Posner (2004) suggests that there are different definitions for curriculum as there are different conceptions of curriculum, and Stenhouse's broad view of the curriculum is that it involves both content and method (Stenhouse, 1975). In other words, curriculum comes down to what will be taught, and a pedagogy for teaching.

When going into more detail on the curriculum, Posner (2004) states that it is seen as the content, standards or objectives for which students are held accountable – as the expected ends of education, and that we might view a curriculum as the product of a group of people making technical, economic and political decisions, guided and constrained by their own personal beliefs about what education is and what students should learn. He says that learning objectives are typified by intended learning outcomes (ILOs), or a set of instructional strategies that teachers

plan to use: the expected means to deliver and instructional plans, for example, or a report on students' actual opportunities and experiences of learning (Posner, 2004).

With that idea, Posner (2004) gives a more detailed list of the common concepts of what a curriculum contains:

- Scope and sequence
- Syllabus
- Content outline
- Standards
- Textbooks
- Course of study
- Planned experiences

The concept of scope and sequence relates to a programme's intended learning outcomes. Syllabus relates to a plan for the whole programme. Content outline relates to the suggestion that the content of instruction is equivalent to a curriculum plan. Standards relates to a description of what the student will be able to do and, possibly, processes towards achieving the learning outcomes. Textbooks relate to texts as a guide to instruction. Course of study relates to a 'students-taking-a-journey' metaphor. Planned experiences relate to the curriculum as being experiential (for students) rather than documented (for administration) (Posner, 2004). These concepts are meant to provide an *aide memoire* for curriculum designers.

The aim of an educational curriculum is to propose a means to educate students – to develop their understanding (Barnett and Coate, 2005) or to aid the process of learning by representing

instruction for education (Gagne *et al*, 2005). For Ornstein and Hunkins curriculum design should achieve scope, sequence, continuity, integration, articulation and balance (Ornstein and Hunkins, 2009). They also suggest that, in educational documentation, the curriculum will be documented as that which describes a structured series of learning objectives and intended learning outcomes for a given subject area. Those subject areas may, themselves, be collected. They say that the curriculum documentation usually includes a specification of what should be learned, how it should be taught and the plan for implementing and assessing the learning of the subjects. The planned learning experiences and intended learning outcomes will be complemented with guidance (Ornstein and Hunkins, 2009). In summary, the aim of curriculum is to provide a pedagogical plan (Squires, 1991).

2.2.2 Curriculum Design and Curriculum Development

This subsection reviews how the main theme of this study – curriculum design and development – has been described in the literature. Therefore this subsection reflects the focal point of my investigation and provides a basis for this investigation and a point of reference for knowledge-gathering.

Ornstein and Hunkins (2009) describe the domains of curriculum design and development as both representing curriculum's technical or theoretical aspects, and that understanding the domains is very important to understanding the field of curriculum. However, the terms of 'design' and 'development' are treated differently in the literature. Curriculum *design* is a plan, a shape or a gestalt and refers to the way we conceptualise the curriculum and arrange its components, such as content, instructional methods and learner experiences (Ornstein and

Hunkins, 2009). In other words it is plan that includes content, teaching strategy, sequencing, evaluation (Stenhouse, 1975). Curriculum design is started with, or is preceded by, the establishment of goals and objectives for the programme or curriculum (Pinar *et al*, 2004). More generally, curriculum design should provide a framework for planning what the curriculum will look like after curriculum development. It is concerned with the nature and arrangement of four basic parts: objectives, content, learning experiences and evaluation (assessment) (Ornstein and Hunkins, 2009).

Curriculum *development* refers to a collection of procedures that results in curriculum changes and usually has models or plans associated with it. It can be systematic and requires thoughtful action (Ornstein and Hunkins, 2009). As a procedural and systematic concept, curriculum design requires planning. Planning factors of curriculum development are: complexity, time for development, scale and personnel (Hewitt, 2006). Posner (2004) describes curriculum development as involving technical decisions about what the curriculum should include and suggests that the best people to make such technical decisions are the people with the most knowledge relevant to the decisions. This would include the lecturers who are knowledgeable on the programme modules.

Curriculum design may have specific considerations. For example, curricula can be designed at different levels (Gagne *et al*, 2005). That is to say that the curriculum for First Year might be designed with design considerations that the Second Year curriculum might be affected. Fourth Year curricula might be affected by curricula from previous years.

Teachers or lecturers should consider not only their teaching approaches, learning outcomes or learning objectives and module content, but the students also, and their needs (Buchmann, 1989). This consideration is for teaching, not directly for curriculum design, as Buchmann (1989) defines it, but it may have a direct effect on curriculum design in the larger context. For example, there are three universal types of learning among students: surface learning, deep learning and strategic learning (Cannon and Newble, 2000; Cook, 2001). Deep and surface learning approaches originated, historically, in Sweden with Marton and Saljo's studies of student groups' approaches to learning (Marton and Saljo in Marton *et al*, 1997). A third learning approach: 'strategic' was added to the field later and relates idea of a student's 'study contract', where assessment influences the approach a student takes to his or her work (Beaty *et al* in Marton *et al*, 1997). Rust (2002) describes students' approaches to learning as a theory and suggests that the theory ought to influence curriculum design. He cites surface and deep approaches, defining the surface approach as 'the student reduces what is to be learned to the status of unconnected facts to be memorised' (Rust, 2002; p. 148). The learning task becomes a requirement to reproduce the subject matter at a later date. A deep approach is defined as 'the student attempts to make sense of what is to be learnt, which consists of ideas and concepts and involves the student in thinking, seeking integration between components and between tasks, and playing with ideas' (Rust, 2002; p. 149).

Then there are the design approaches: one might take a scientific approach to the design, a societal approach, a content-centred approach or a student-centred approach – an approach that relates to designers' wish to create curricula valuable to students (Ornstein and Hunkins, 2009). Pinar *et al* (2004) suggest that the designs might focus on:

- Subject matter or disciplines;
- Specific competencies or technology;
- Human traits or processes;
- Social functions or activities;
- Individual needs and interests or activities

Another consideration for curriculum design is validation. After curriculum design and implementation, the validation of a programme curriculum is done by ‘trying it out’ with comparative influences such as curriculum materials and teaching approach. The validation must take into account the dynamic nature of the teaching environment – the ‘fluid’ nature of a classroom setting, for example (Hewitt, 2006). One would expect these considerations to be represented in descriptions of lecturers’ experiences of curriculum design – along with others not noted here. These considerations, therefore, exemplify the experiential nature of curriculum design.

Where curriculum design has a prescriptive feel to it, curriculum development takes a more subjective view of how a curriculum might be established. For example, Tyler’s (1949) seminal work on curriculum development poses four key questions that have endured throughout the literature on academic programme design for more than sixty years:

1. What educational purposes should the school seek to attain?
2. How can learning experiences be selected which are likely to be useful in attaining these objectives?
3. How can learning experiences be organised for effective instruction?

4. How can the effectiveness of learning experiences be evaluated?

In asking these questions, Tyler was asking what form curricula should take. In his study, Tyler does not answer these questions but posits procedures that may help an observer to answer the questions for themselves. Ornstein and Hunkins (2009; p. 182) pose similar questions for their take on curriculum development:

1. What should be done?
2. What subject matter should be included?
3. What teaching strategies, resources and activities should be employed?
4. What methods and instruments should be used to appraise the results of the curriculum?

Instead of questions, but providing broad terms, Pinar *et al* (2004) give a sequential list of events that represent curriculum development which reads:

1. The establishment of processes and roles in curriculum planning
2. Data collection for curriculum planning
3. Defining goals and objectives
4. Selecting appropriate curriculum designs
5. Planning curriculum implementation (instruction)
6. Evaluating the curriculum
7. Curriculum planning for the future

The common aspect of the questions and the sequential list above is that they are procedural. Posner (1998) describes Tyler's questions for curriculum development as representing a

procedural view of curriculum development. Prideaux (2003) describes Tyler's four questions as a prescriptive model and names it as the 'Objectives Model'. Prideaux goes on to criticise this model, saying that it is restrictive as a curriculum development model due to its emphasis on student skills as behavioural objectives (Prideaux, 2003). Ramsden (1992) suggests that whichever model is used during curriculum development, it is common for programmes to be structured around a series of lectures, seminars, tutorials and practicals because of tradition and administrative convenience. He says that this is a teacher-dominated view of subject content. Ramsden (1992) makes these curriculum development recommendations: the ordering of content should be educationally justifiable; it must be possible to defend a particular order and structure in which material is tackled from the point of view of its favourable effects on student learning. Ramsden (1992) says that an effective programme will have its material arranged in such a way that the issues addressed generate confidence and interest in the student. He also suggests that a programme should be designed to allow a student to progress over time and have feedback mechanisms to allow the student to get a sense of their own progress (Ramsden, 1992). For Rust (2002), factors such as programme design and programme specification, realistic workload, intrinsic motivation, provision of feedback and peer assessment are useful in creating an improved learning environment. Feedback from the student population can be used to revise the design to make it more effective (Gagne *et al*, 2005).

In very simple terms, the curriculum can be seen as a plan for a programme of education (Knight in Boud and Falchikov, 2007). An educational curriculum does entail some specification and some planning (Cannon and Newble, 2000) as it represents the students' learning experiences that are planned by the lecturer (Light and Cox, 2001). However, for Stenhouse the curriculum is

not so much the prescriptive plan, but what happens during the teaching process and what the student learns as a consequence (Stenhouse, 1975). This is a philosophical view, rather than a definition. The philosophical view can be compared to the specification of the curriculum. Lecturers provide some detail of the plan for a curriculum, and they specify content, learning outcomes and assessment. Often these details and specifications take the form of the documentation of their curriculum design.

2.2.3 Issues Related to Curriculum Design

As with many dynamic aspects of education, curriculum design has its issues, problems and considerations. Hubball *et al* (2013) say that educational reforms and curriculum design problems have been discussed *for* universities around the world, but much less inquiry has focused on programme level educational reforms that are occurring *in* universities around the world (my emphasis), and that educational leaders call for more institutional research in this area. In recent times, ‘systematic and scholarly inquiry into curriculum practice has not been prioritised or enacted within academe’ (Hubball *et al*, 2013; p. 42). There are many important factors that affect the design, such as student capability or aptitude, quality of teaching resources and instruction and time allowed to deliver the curriculum (Gagne *et al*, 2005).

An example of specific curriculum design problems include dealing with the structure of programmes – where they may inhibit deep approaches to learning, where a deep approach is required, or the placement of curricula in modularised programmes – where semesters are too short to coordinate coursework and other learning experiences (Harvey and Knight, 1996). In their experiences of recent curriculum design, Hubball *et al* (2013) report that programmes were

often based on modular experiences with neither strategic alignment nor integration with programme level learning experiences and outcomes. The programmes frequently lack the theoretical underpinnings and systematic and scholarly inquiry that would allow for evidence-based decision-making to enhance the effectiveness and efficiency of curricula (Hubball *et al*, 2013). To contextualise some of these problems, Gagne *et al* (2005) suggest that the constraints and problems of curriculum design are set against educational requirements and stakeholder requirements.

In the future, there may be entirely reconceptualised curriculum designs. However, they likely will contain the same basic components of design (Ornstein and Hunkins, 2009), but there is a need for curriculum development scrutiny presently, due to the emerging educational environment of rapid technological change, limited and competing resources and the diversity in the student body in higher education (Hubball *et al*, 2013).

2.3 Lecturers as Curriculum Designers

In this section the literature that relates the lecturer to the curriculum and, specifically, the lecturer's role as a curriculum designer is examined, while situating the lecturer in the process of curriculum design.

What a lecturer does, as a module/curriculum designer, might be related to the areas of third-level education, curriculum design and development, and curriculum design approaches - including learning outcomes-based curriculum design and the constructive alignment approach.

Examples of this are the roles of the lecturer as ‘curriculum planner’, or ‘course planner’ (Harden and Crosby, 2000), or Graham’s (2004) role of the lecturer being an assessment designer.

To begin with a view of the lecturer’s role most generally: Ramsden (1992) has described the role of the lecturer as being one of teacher using a process of working co-operatively with students to help them change their understanding. He goes on to suggest that a lecturer is a facilitator of learning, and that good lecturing implies clear and orderly presentation. Lecturers want their students to learn how to analyse what is unfamiliar to them, to assess proposed solutions to problems critically, to recognise the style and persuasiveness of concepts that describe the physical or social world, and to be able to apply ideas learned in formal classes to the world outside the classroom. They expect students to change their interpretations of the world in which they live through developing their understanding of the subjects they have studied (Ramsden, 1992). In summary of Ramsden’s ideas, a lecturer will have general aims to develop a well-educated person in the student (Tyler, 1949). Designing learning is considered one of the most fundamental activities of a teaching practitioner and the aim of such a design process is to assist in the development of conscious and purposeful teaching and learning (Tepper 2006).

As to teaching approaches, teaching is the provision of opportunities for students to learn. It is an interactive process and an intentional activity (Brown and Atkins, 1988). Teaching is defined by Harvey and Knight (1996) as the planned efforts to bring about learning in others. It is described as being one part of educational instruction - instruction in the broad term that includes a range of activities that a teacher might do (Gagne *et al*, 2005). There is good quality teaching and bad

quality teaching (Biggs, 2003b, Ramsden, 1992, Tyler, 1949) and this might be paraphrased as effective and ineffective teaching (Ramsden, 1992). In terms of curriculum design, Ramsden (1992) qualifies his pronouncements on teaching by suggesting that good teaching involves measuring and improving the effectiveness of the curriculum, how it is taught, and how students are assessed. Principles of good teaching do not describe or proscribe certain techniques, but rather point towards or away from certain procedures in particular situations (Ramsden, 1992). Some of these procedures are related to curriculum and have to be designed by the lecturer.

It is the lecturer's approaches to teaching, and his or her attitudes towards the task of imparting knowledge, that will have a major impact on the quality of the students' learning (Biggs, 2003b, Tyler, 1949). For Stenhouse, teaching is not merely instruction, but the systematic promotion of learning by whatever means, and teaching strategy is an important aspect of curriculum (Stenhouse, 1975). He sees a direct link between curriculum and teaching strategies: a curriculum specification (design) may be presented with a described teaching strategy included (Stenhouse, 1975). When designing curricula there needs to be a focus on how lecturers conceive of their teaching and students' learning (Trigwell and Prosser, 1996). Allan (1996) says, very specifically, that curriculum planning should begin with what is learnt rather than what is taught.

These devised activities – and many other aspects of teaching strategy – can be reflected in the designed curriculum. Stenhouse sees a direct link between curriculum and teaching strategies: a curriculum specification (design) may be presented with a described teaching strategy included (Stenhouse, 1975). Trigwell and Prosser (1996) have noticed relationships between conceptions of teaching and approaches to teaching, conceptions of teaching and conceptions of learning, and

conceptions of learning and approaches to teaching. When designing curricula there needs to be a focus on how lecturers conceive of their teaching and students' learning (Trigwell and Prosser, 1996). Teaching approaches, therefore, have an identifiable and important impact on curriculum design – certainly in its broadest context.

Assessment is an important consideration of curriculum design and teaching (Sadler, 1989). As to assessment, good teaching is about supporting students' engagement with the subject and motivating students to work hard and purposefully (Harvey and Knight, 1996). The results of tests and assignments ought to be used to change instruction so that it more accurately addresses students' errors and misunderstandings (Sadler, 1989). This means knowing how to devise activities that will increase the probability that students will adopt appropriate approaches to learning (Cannon and Newble, 2000; Ramsden, 1992).

The lecturer's teaching approach, extended to his or her curriculum design approach, requires the lecturer to be what D'Andrea and Gosling (2001) describe as a 'reflective practitioner'. Repeating this idea, Light and Cox (2001) suggest that the lecturer's curriculum design represents an epistemic framework as the product of professional reflection. In other words, the lecturer must reflect on his or her own knowledge in order to carry out curriculum design. As an example of this, Tyler proposes viewing learning approaches for the purpose of being reflective about programme design, and developing learning objectives that may have pertinent learning experiences applied to them (Tyler, 1949). Considering reflective practice in this context more broadly, D'Andrea and Gosling (2001) recommend that the lecturer needs to reflect critically on his or her own performance in a continuous process of review and evaluation, leading to further

planning and implementation. Meanwhile, he or she ought to remain open to change in the light of his or her own reflections and be willing to subject his or her practice, as an educator, to critical examination (D'Anrdea and Gosling, 2001).

2.3.1 Lecturers' Role in Curriculum Design

The lecturer will often be considerate and analytical about his or her teaching role, and that extends out to his or her role as curriculum designer (Stenhouse, 1975). It is clear from the literature that the lecturer is the protagonist of the curriculum design task and is dealing with complexity and change associated with many aspects of education, teaching and learning (Light and Cox, 2001).

The curriculum designer must, at the earliest part of curriculum design, ask himself or herself what the aims and goals of the curriculum are (Forsyth *et al*, 1995). Keeping the curriculum balanced requires continuous fine-tuning as well as balance in one's philosophy and psychology of learning (Ornstein and Hunkins, 2009). In other words, as D'Andrea and Gosling (2001) suggest for the reflective practitioner, the curriculum designer must be aware of, and amenable to, changes and improvements as they become obvious from initial design to review, over the academic years. They must also have a world view of learning and be able to apply their understanding of learning to the task of curriculum design (Ornstein and Hunkins, 2009).

Throughout curriculum design, lecturers have responsibilities. Through analysis, design, implementation and evaluation, lecturers, as curriculum developers, set goals, plan learning experiences, select content and assess outcomes of educational programmes. These constant

processes have contributed to the emergence of the structure in curriculum planning (Wiles and Bondi, 2007). Lecturers are the people, in place in an institutional department, designing their own curricula – their own modules, very often. They have an obligation to have a sense of the knowledge they wish to impart, and to have or be involved in a structure that will support learning (Wheelaan, 2010). Educational programmes ought to be designed to allow a student to progress over time, have feedback mechanisms to, as Ramsden (1992) suggests, allow the student to ‘get a feel’ for their progress, and allow them to feel secure in their learning. It is the lecturer’s responsibility as a professional to provide that security (Ramsden, 1992). Establishing that lecturers are responsible for formulating plans for teaching and for students’ learning outcomes also establishes a rationale for holding lecturers accountable both for the effectiveness of their plans and for the implementation of curricula in a predetermined manner (Posner, 2004). The responsibility ought to be shared among peers and administration, and usually is (Cannon and Newble, 2000), as the responsibility for the design of degree programmes of third-level education is considerable.

The lecturer may strive to better understand teaching and learning. The reason for a lecturer wishing to understand learning approaches is universal: to improve teaching, learning and education overall (Biggs, 2003b, Ramsden, 1992, Tyler, 1949). Such understanding will colour curriculum design choices and thus contribute to the improvement of teaching, learning and education overall. Mahnken (1995) says that the human and professional qualities of a teacher or lecturer are care, concern, humour, individual experience, and the ability to manage the social milieu of the classroom. Such aspects of professionalism might be affected by levels of prescription in their curricula, from high to low, and set the conditions for teacher

professionalism (Luke *et al*, 2013). For example, over-prescription in the technical form of curriculum has the effect of constraining teacher professionalism and deskilling teachers over time, and the net effect might be less equitable educational outcomes (Luke *et al*, 2013).

In terms of lecturers' experiences, these are often identified in terms of the lecturer's discipline, and so we are offered a model of academics as largely driven by the epistemological characteristics of their discipline (Trowler, 1997). The attitudes, activities and cognitive styles of groups of academics representing a particular discipline are closely bound up with the characteristics and structures of the knowledge domains within which such groups are professionally concerned (Trowler, 1997). In other words, a lecturer's experiences will often be subjective to the lecturer's specific subjects. This may have a direct effect on their curriculum design efforts.

There are implications related to lecturer as curriculum developer. Examples of implications are: the lecturer's curriculum will need to contain different ways of encouraging students to learn and ought to have different sequences of material, so that individual differences between learners can be fitted into the general goal of helping students to change their understanding (Ramsden, 1992). To prepare for teaching the teacher or lecturer must think about their teaching and have a vision of the right course of action for the task of teaching (Buchmann, 1989). The thought process might include those of imagining, remembering, judging, interpreting and caring – considering what they know of the subject (Buchmann, 1989). Good teaching brings learners to transformation (Harvey and Knight, 1996) – transformation into learned individuals. Lecturers who teach well think carefully about their students' understanding of the subject matter and their

students' reactions to how it is taught. They are able to apply this knowledge in the classroom through a variety of different strategies. They are willing to listen to and learn from their students. In the meantime, a lecturer might posit questions about what they want the students to know; the changes in understanding that they wish to see recurring (Light and Cox, 2001; Ramsden, 1992).

The main implication of this subsection is that curriculum design is carried out by individual lecturers. However, while curriculum design and development ought to belong to the lecturer (Stenhouse, 1975), curriculum design can be an individual task, a team task, and institutional task (Gagne *et al*, 2005). References to curriculum designers in this thesis are to individual curriculum designers, mainly.

2.3.2 Curriculum Design and the Lecturer

The lecturer – as curriculum designer – must also have a world view of learning and be able to apply their understanding of learning to the task of curriculum design, but ensuring continuous high quality teaching and learning is not easy for a lecturer. Ramsden (1992) says that the lecturer will need to be vigilant for threats to good teaching and opportunities for good teaching as they do their work as a teacher. Intervention might be required to avoid threats and take opportunities. The intervention is usually in the context of programme design; changing programme content or modifying teaching and assessment strategies, as can be inferred from Ramsden's suggestions for good teaching practice (Ramsden, 1992).

Lecturers are individuals, and their personal experiences and perspectives will affect the designed curriculum module. Ornstein and Hunkins (2009) suggest that the way people design is partly a product of their view of curriculum. For example a lecturer who takes a behaviourist view will design differently to one who takes a people-management view. Those who take a psychological view will present differently to one who views it in social or political terms. For example, for idealists learning is an intellectual process of recall and concerned with conceptual matters. For realists learning is objective and content is presented as objects and the learner can apply concepts to the objects. An example is the scientific perspective. For pragmatists learning occurs through engagement with subject matter. Rather than observing objective truths, the pragmatic teacher will offer learning through problem-solving, for example. For existentialists the learning perspective is on personal self-fulfillment. Existentialists advocate freedom in how students choose to study and what they study. This is typified by study in the field of the arts (Ornstein and Hunkins, 2009). This suggests that the view a lecturer takes of his or her curriculum design will be influenced by their personal concepts and lived experiences. A philosophy might be considered by some as important to any meaningful curriculum development effort. Lecturers, as curriculum designers, who are aware of their own beliefs about education and learning will make better decisions about curricula (Wiles and Bondi, 2007).

Taking a more specific perspective on curriculum design, Tyler (1949) and, later, Biggs (2003b) use the design of learning outcomes as the focal point for learning experiences and curriculum design that might be used by the curriculum designer. Tyler has said that curriculum planning is a continuous process. As materials and procedures are developed they are tried out, their results appraised their inadequacies are identified and suggested improvements indicated. Then there is

replanning redevelopment and reappraisal. Around this kind of continuing cycle it is possible for the curriculum and instructional programme to be continuously improved over the years. The hope is for the curriculum designer to develop an increasingly more effective educational programme, rather than depending so much upon hit and miss judgment as a basis for curriculum development (Tyler, 1949). Another example is from Biggs' (2003b) description of learning objectives: in organising a list of important learning objectives it is desirable to state these objectives in a form which makes them helpful in selecting learning experiences and in guiding teaching. The most useful form for stating objectives is to express them in terms which are identified both the kind of behaviour to be developed in the student and the content or area of life in which this behaviour is to operate. Statements of objectives that seem to be clear and to provide guidance in teaching include behaviour and content aspects of the objectives (Biggs and Tang, 2007). The selection of these objectives, for their appropriateness to the curriculum, is an important role that the lecturer has (Stenhouse, 1975). The activity of expressing aims and objectives should enable lecturers to think more critically and deliberately about student progress and the manner of its connection with what they do in their teaching. The results of the exercise should make clear to students exactly what they have to learn to succeed and what they can learn on the side (Ramsden, 1992).

Hewitt (2006) states that the curriculum designer desires that a curriculum is sound and that it does what is expected of it for learners. The 'vagueness of soundness' (Hewitt, 2006; p. 265) is an issue that concerns curriculum developers. He suggests that it is not possible to establish curriculum soundness definitively, so curriculum designers must work to the expectations of stakeholders and that, as well as considering the stakeholders associated with education, for

curriculum designers there are many contextual possibilities for design problems (Hewitt, 2006). There is a responsibility for curriculum designers to deal with these problems and take on others.

Lecturers, in their roles as curriculum designers need to:

- Develop technical methods for curriculum planning
- Agree on what is involved in curriculum design and development
- Be a change agent who sees the context in which the curriculum is set
- Be open to curriculum trends and new design opportunities
- Confer with other stakeholders
- Integrate with modules (Ornstein and Hunkins, 2009)

Curriculum, education, teaching, learning, learning outcomes, assessment and constructive alignment are important aspects of curriculum design. How one contemplates education, curriculum and curriculum design is influenced by myriad realms of knowing and feeling. Individuals who design curricula draw from their experiences, their lived histories, their values, their belief systems, their social interactions and their imaginations (Ornstein and Hunkins, 2009). There are many and complex criteria associated with curriculum design, when the lecturer sets about the task. The complexity seems to be increasing over the years (Light and Cox, 2001). Meanwhile, for lecturers, the curriculum is a personal plan that they might adopt in relation to their taught modules, and this personal conceptualisation might be reflected in their curriculum development or module design (Posner, 2004). Among all tertiary curriculum design is computer science curriculum specifically. Some of those lecturers will be computer science curriculum designers.

2.3.3 Issues Relating to Lecturers as Curriculum Designers

Developing a curriculum requires that the lecturer understands what curricula are, and, going beyond simply understanding the nature of teaching and learning, they need to understand the nature of the things that affect the curriculum and the development of the curriculum (Slattery, 2006). This would include an awareness of education, teaching and learning, learning outcomes and assessment. Referring to the curriculum, Wheelahan (2010) says that academics must keep exploring, to come to an understanding of what is best and most useful, and, on the knowledge that they want to impart to students:

'Knowledge is a social product and marked by the conditions under which it is produced'
(Wheelahan, 2010; p. 162).

The logic, identity and rationality of the academic profession are rooted in the evolving organisation of categories of knowledge within disciplines (Trowler, 1997). Curriculum designers must choose the best elements of curriculum and see the value of their choice. Beyond objectives, content and assessment, there are many other factors to consider and the curriculum designer designs modules and degree programmes while being philosophical and practical.

When the academic profession is subject to change, due to institutional policy, for example, there are effects (Billing, 1996; Hennessy *et al*, 2010; Trowler, 1997). Rapid curriculum change can be unsettling and confusing for academic staff affected by change (Billing, 1996). Changes of this sort are often likely to involve challenges for teaching staff (Hennessy *et al*, 2010). Responses to change, by academics, can be varied in their positivity and negativity, and they can be intentional or unintentional (Trowler, 1997). Trowler (1997) goes on to describe the unpleasant changes in work practices for lecturers, and their increased workload, as is often the case with curriculum

policy change. When policy is imposed, and individual academics are passive and unwilling participants, they may employ curriculum design strategies to offset their increased workload (Hennessy *et al*, 2010). An example is the ‘regressive’ strategy of reducing the number of optional modules available to students by simply deleting options from a programme, perhaps reducing the element of optionality altogether in one or more years. Another example strategy is to take the approach of ‘tightening up’ the co- and/or prerequisites required to study any particular module, thus constraining choice and effectively structuring students’ programmes much more stringently (Trowler, 1997).

Trowler (1997) says that academics may feel dispirited, undervalued, diminished in their autonomy and so employ what he calls ‘coping strategies’ to manage their work. Meanwhile, those lecturers may come to a point where they lack empathy for the goals of their institutions – if the curriculum changes are inherently antagonistic in nature: if there are policy developments which are damaging to them (Trowler, 1997).

2.4 Curriculum Design in Computer Science Education

This section examines the relevant literature pertaining to curriculum design in the field of computer science. This perspective highlights the nuances of curriculum design applicable to Computing as a technical subject.

Gibbs and Tucker (1986) distinguish computer science from computer engineering and information technology as a specific technical education domain, or discipline, defining computer science as the systematic study of algorithms and data structures – specifically:

1. their formal properties,
2. their mechanical and linguistic realisations, and
3. their applications.

Posner cites the curricula associated with computer science as a discipline, as being developed in response to a growing sense in society that computers are becoming part of everyday life and that computer literacy is associated with ‘what it now means to be well educated’ (Posner, 2004; p 37).

The discipline of computer science requires a specific type of academic in the computer science lecturer – computer scientists - with the ability to teach the skills that they, themselves have acquired (Gibbs and Tucker, 1986). Technology and programming skills-driven degrees in computer science might best be matched to specific competencies or technology-type of curriculum design (Pinar *et al*, 2004).

Computer science education has an array of technical as well as pedagogic complexity (Dijkstra, 2001), and the rapidly changing field of computing, and the growing number of computing topics, means that regular revisions of computer science curricula recommendations are necessary (Sahami *et al*, 2012). The frequency of curriculum revision in computer science among institutes is a reflection of its rapid evolution as an academic discipline (Gibbs and Tucker, 1986). This means that computer science lecturers must look beyond the obvious, in

terms of module design, to improve their curricula (Sahami *et al*, 2012). For example, Robins (2010) notes that designing computer science modules could be improved by focusing research on the learning needs of students. Sheard *et al* have looked at a computer science degree curriculum in terms of the teaching and learning environment, critically analysing issues of teaching and learning related to student engagement. Among their findings is the fact that computer science lecturers competing with students' use of technology to remedy their own lack of engagement (Sheard *et al*, 2009). The study highlights the problematic environment in which the computer science lecturer tries to set an agenda, and for which education the lecturer designs curricula.

Part of the computer science lecturer's personal remit to teach to the best of their ability and to design modules that will be efficacious in student learning, by being innovative, seeking out new, better approaches to teaching, assessing and mentoring (Fee and Holland-Minkley, 2010; Luxton-Reilly and Denny, 2010). The complexity of teaching computer science and the module/curriculum design associated with this area of technology (or science, if one takes the academic view of technology) is evident enough in the literature (see Chen *et al*, 2005; Fee and Holland-Minkley, 2010). All the more complexity and cause for concern, perhaps, for the lecturer tasked with designing computer science curricula, and very often computer science lecturers are expected to engage in innovations in teaching computer science (Kolikant, 2010) – or to design them, more especially. These approaches and innovations are often prescribed through module design. The technicality of computer science, as a curriculum of education, may call for specific curriculum design strategies, and the computer science lecturer must be equal to the design challenges.

Pinar *et al* (2004) suggest that there is often a need or an inclination to design computer science modules in isolation. In other degree patterns there may be opportunities for correlational subject design - building on relationships between and among subjects, or a multidisciplinary, ‘broad field’ pattern - a unified design across a broad domain of knowledge (Pinar *et al*, 2004). These are the complexities and occasional requirements of the design of computer science curricula.

2.4.1 Curriculum Design Guidelines Available to Computer Science Lecturers

If we consider that computing and information systems have been developing commercially from the 1950s and that there was academic research and some teaching of aspects of information systems since then, it was not until around 1968 that international bodies in Europe, specifically the International Federation for Information Processing (IFIP), and the Association for Computing Machinery (ACM) in the United States, began to formalise guidelines for information systems curricula. The ACM published their first graduate curriculum in 1972 and IFIP working group published their report on information systems curriculum guidelines in 1974 (Hirschheim and Klein, 2012). Since then there have been several revisional versions of information systems guidelines from the ACM, in association with the AIS – the Association for Information Systems (Topi *et al*, 2010).

Historically there have also been curriculum guidelines published for Computing – to incorporate computer science – by Institute for Electrical and Electronic Engineers (IEEE-CS) and the Association for Computing Machinery (ACM) in 1991, with updates in 2001 and again in 2005 (Topi *et al*, 2010).

Computer science was the nexus of information systems, but was and is a discipline separate from information systems and computing (Hirschheim and Klein, 2012). Computer science has a history of its own curriculum guidelines (Topi *et al*, 2010), with publications by the ACM/IEEE-CS in 1968, 1978, 1991, 2001, with an interim revision in 2008 (ACM/IEEE-CS, 2008), and the most recent curriculum guidelines for computer science by the ACM and IEEE (for 2013) being called the ‘Ironman Draft’ (ACM/IEEE-CS, 2013). Computer science curriculum guidelines include a description of computer science as a discipline, contextualise computer science as part of academia, and programme exemplars include curriculum models and sample programme descriptions. The guidelines include recommendations to consider the institutional needs and the ‘characteristics of graduates’ (ACM/IEEE-CS, 2013). The characteristics of graduates are, in essence, a list of learning outcomes in relation to graduates – describing their expected competencies in computer science at the point of graduation.

2.4.2 Issues Related to Computer Science Curriculum Design

Computer science education’s pedagogic complexity (Dijkstra, 2001), means that computer science curriculum development has another dimension of technicality that needs to be added to the regular considerations of curriculum design. Technology and programming skills-driven degrees in computer science might best be matched to specific competencies or technology-type curriculum design (Pinar *et al*, 2004).

Another important consideration for the computer science curriculum is student retention. Gibbs and Tucker (1986) have found that, in terms of retention of first year computer science students,

the success of a computer science curriculum greatly depends on the quality of its introductory sequence – the earliest parts of a computer science degree. They also noted that the content and approach to the first year curriculum tend to affect the later stages of the curriculum across the four years (Gibbs and Tucker, 1986).

2.5 Approaches to Curriculum Design

In this section the literature pertaining to the approaches taken to curriculum design is examined. These approaches are associated with the process of curriculum design of which lecturers are a part. Reference to this literature gives a narrower, more focused perspective of curriculum design.

Ornstein and Hunkins (2009) see curriculum design as a complex activity conceptually and in its implementation. Designing requires a vision of education's meaning and purposes. Curriculum design must be carefully considered so that the curriculum will impart concepts, attitudes and skills to students (Ornstein and Hunkins, 2009). Approaches to curriculum design can be viewed from an institutional level, a departmental level or from the perspective of an individual academic (D'Andrea and Gosling, 2005). Some of the literature describes the approach to curriculum design as matching the level of the institution (see Lewis 1998; Long and Crookes, 1992; Squires, 1991). The reason for a whole-institutional approach to curriculum development is that it links key aspects of institutional policy with appropriate institutional structures and practices so that they work together to achieve the agreed aims of the institution (D'Andrea and Gosling, 2001).

More recent literature describes curriculum design approaches as belonging to institutional departments or individual lecturers (Hubball *et al*, 2013; Meyers and Nulty, 2009; Papatsiba, 2014). For example, the traditional, discipline-based paradigm has been changing in recent years due to the growth of interdisciplinary studies, generic approaches to learning and teaching, and lecturers, as learning and teaching specialists, taking charge of curriculum design (D'Andrea and Gosling, 2001). The reason for the lecturer-as-curriculum-designer approach might be due the fact that the lecturer is seen as a consultant or expert, who, by virtue of specialist knowledge and experience, is able to advise academic and management staff on 'best practice' (D'Andrea and Gosling, 2001). With that role, the problem for the lecturer of specifying a curriculum is one of understanding and describing what is going on in the classroom, in the school or college (Stenhouse, 1975). In fact, for curriculum designers, there are many contextual possibilities for design problems (Hewitt, 2006).

What is often important for education is the context of the curriculum being designed. For example, Posner (2004) says that curricula should be understood in terms of their historical context: who designed them before, what guided their design and what set of problems was the curriculum addressing? One could ask, what set of problems is the new design addressing? (Posner, 2004). As an individual curriculum designer, the lecturer might be able to deal with those questions.

Whether the curriculum approach is taken at an institutional level, a departmental level or from the perspective of an individual academic, what is required is consistency of approach to achieve fairness for students (D'Andrea and Gosling, 2005).

Watson acknowledges that, in curriculum design there is a link between learning outcomes, curriculum delivery and assessment (Watson, 2002). As it happens, this is the basis of constructive alignment. Constructive alignment is the term coined by John Biggs originally (Biggs, 1996 in Biggs and Tang, 2007), to represent a concept that can be related to design requirements for programme specification, declarations of intended learning outcomes and assessment criteria, and the use of criterion-based assessment. The combination of constructivist theory and aligned instruction is the model for constructive alignment (Jervis and Jervis, 2005). Tepper (2006) defines constructive alignment as an outcome-based methodology developed by John Biggs for designing, promoting and assessing deep student learning – based on assumptions that:

- Students constructs his or her own learning through relevant learning activities
- Teachers create a learning environment that supports learning activities appropriate to achieving the desired learning outcomes

The constructive aspect of constructive alignment refers to the idea that students construct meaning through these learning activities, and the alignment aspect refers to what the lecturer does in relation to identified activities - to set up a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes (Biggs, 2003a; Walsh, 2007). All components in the teaching system - the curriculum and its intended learning

outcomes, the teaching methods and assessment tasks - are aligned to each other, see Figure 2.1. All components are compared to learning activities associated with the desired learning outcomes (Biggs, 2003a).

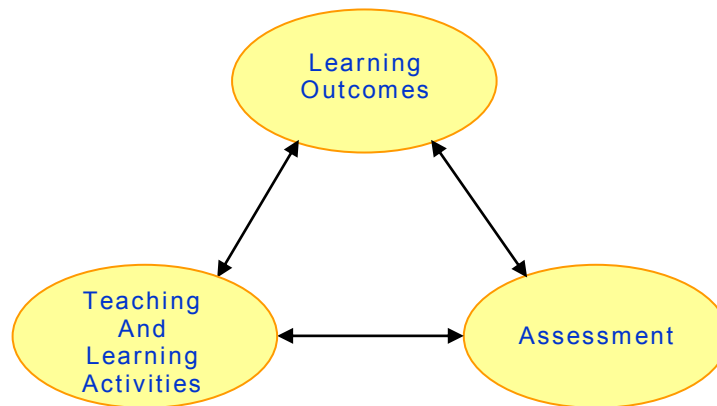


Figure 2.1 A Basic Model of Constructive Alignment

The relationship is such that any of these curriculum aspects can be related to any other. Constructive alignment represents ‘consistency of purpose’ between learning outcomes, teaching and learning and assessment (Boud and Falchikov, 2006; p. 410).

Tepper (2006) sees constructive alignment as a framework, devised by Biggs, and based the integration of instructional design with constructivist principles that systematically operationalises the important characteristics of a good teaching practitioner, which are to:

- be able to define what the teacher wants the student to learn and achieve (learning outcomes)
- be aware of the different cognitive skills that each of the teaching and learning activities elicit from the student, and be able to instantiate them according to the learning objectives defined (student-centred teaching and learning activities)

- be able to define what students have to do to demonstrate they have learned the objectives to the required level (assessment tasks)

Rust takes the view that effective and appropriate measurement of the achievement by students of the intended learning outcomes might be seen as constructive alignment (Rust, 2002).

Biggs (2003b) recommends that, in setting up an aligned system, one would specify the desired outcomes of teaching in terms not only of topic content, but in the level of understanding required for students to achieve. Rust (2002) has proposed a three stage model to aid such alignment:

1. Identify clear learning outcomes
2. Design appropriate assessment tasks
3. Design appropriate learning opportunities

Aligning all aspects of the curriculum to deliver stated learning outcomes seems to be inimical to science education in higher education (Jervis and Jervis, 2005). In other words, the need for rigour and accountability in science education has drawn in the concept of alignment of curricular features as a means of guiding curriculum design in science education at institutes.

Constructive alignment brings together tenets of constructivism and instructional design to ensure that not only are the assessment tasks aligned with the learning outcomes, but so too are the teaching and learning activities in which a student engages (Tepper, 2006). So, as Jervis and Jervis (2005) point out, there is a clear link between constructive alignment and curriculum

design. Constructive alignment is not just a subcomponent of curriculum design, but a concept integral to the concept of curriculum design. Tepper (2006) sees constructive alignment as a widely accepted outcomes-based approach that can facilitate lecturers to meet some of the challenges faced by them, and associated with programme and module development within higher education.

2.5.1 Old Approaches and New Approaches

In the context of curriculum design, and attributed to the institution, D'Andrea and Gosling (2001) say, 'Educational development must not just 'do the right thing', it must find a way of 'doing it right' (D'Andrea and Gosling, 2001; p. 66). Squires (1991) has also attributed traditional, discipline-based approaches to curriculum design to the perspective of the institution. He goes on to describe discipline-based curriculum design as being of either an 'incremental' type or 'rational' or 'systems' type (Squires, 1991). The incremental type is similar to Long and Crookes' (1992) 'procedural' type of syllabus, the rational type being similar to Long and Crookes' (1992) 'process' type of syllabus. In all cases, the curriculum design focus is on programme content.

Lewis (1998) notes a change in curriculum design ethos after 1997 and the 'Dearing Report' of that year that was commissioned by the National Committee of Inquiry into Higher Education (NCIHE) (Dearing, 1997). Some of the NCIHE recommendations allude to the design of programmes 'to give the intended outcomes in terms of knowledge and skills' (Lewis, 1998; p. 39). Tepper (2006) says that there was widespread adoption of the outcome-based learning approach to educational design in higher education after The Dearing Report accepted the

findings and recommendations made by Higher Education Quality Council (HEQC). Dearing subsequently recommended that learning intentions were to be expressed as learning outcomes in programme specifications (Tepper, 2006). This is not to say that there was a switch to outcome-based curriculum design in 1997 – there were recommendations to focus curriculum design on learning outcomes as far back as Tyler (Allan, 1996).

Comparing the ‘old’ approach to the ‘new’ approach, Allan (1996) says that there are fundamental conceptual differences between the traditional tertiary-institute approach, which emphasised content input and process and the newer, outcome-led curriculum design. One would expect that those conceptual differences would provide the improvement in the experiences of students hoped for by D’Andrea and Gosling (2005).

2.5.2 Learning Outcomes-Based Curriculum Design

The curriculum designer can use the learning outcome as a document item or as a design concept. In either case, learning outcomes can act as a guide or as a proof for the design of the curriculum or programme module. A learning outcome is defined as being something that students can now do, that they could not do previously and can be regarded as changes within a person as a result of learning experience (Watson, 2002). It can be viewed as a product of the learning process within the student – a specified, observable product (Hussey and Smith, 2002). These are conceptual views of learning outcomes. They can be given an objective definition: ‘Learning outcomes are broad statements of what is achieved and assessed at the end of a course of study’ (Harden, 2002; p. 151). Also objective is Hussey and Smith’s (2002) description of learning outcomes as prescriptions of the curriculum – or module content.

As already suggested by Allan's (1996) reference to Tyler (1949), learning outcomes have become readily associated with curriculum design since the mid-20th century (Hussey and Smith, 2002). Gagne *et al* suggest that learning outcomes can be a starting and an ending point for curriculum design. It is against the accomplishments of the objectives that the effectiveness of the design is assessed (Gagne *et al*, 2005). An example of this is validation – determining the degree to which the curriculum meets intended outcomes. Outcomes, in this case, might include the match between curriculum materials and student and/or teacher performance, represented in data (Hewitt, 2006).

Biggs and Tang (2007) take a student-centred view of curriculum design and development with a comprehensive list of recommendations for this type of design – particularly in relation to intended learning outcomes (ILOs) or 'outcome statements'. Such an outcome statement can be made at three levels: as graduate attributes, as programme outcomes and as module outcomes (Biggs and Tang, 2007). The outcome statement is a statement of what the graduates of particular degree programmes are supposed to be able to do. Programme outcomes may guide the teaching and assessment processes that take place between the lecturer and the students. The outcome statement of programme outcomes is a statement of what the students should be able to do on completion of a given programme and is a documented design principle of the teaching strategy of Outcomes-Based Teaching and Learning (OBTL) (Biggs and Tang, 2007).

Prideaux (2000) outlines a curriculum design approach called Outcomes-Based Education (OBE) where the curriculum designer begins with considered outcomes, working backwards –

‘designing down’ - towards learning experiences which will lead to the stated outcomes. One would expect that these learning experiences constitute teaching and assessment practices and module content. Using a learning outcomes approach forces the lecturer, as curriculum designer, to think about what students will do and plan their curricula accordingly (Prideaux, 2000). These approaches to intended learning outcomes are scientific, analytic and pragmatic. The goal is to methodically ensure learning and skill-acquisition in the student. The way to enhance the possibility of instilling positive characteristics and skill in students is to have a well-designed curriculum with clear, appropriate learning outcomes (Rust, 2002).

In relation to assessment, Rust (2002) states that an outcome-based model of programme design should be an assessment system that assesses explicitly against each individual learning outcome, and whether they have not been met, while Allan (1996) considers that the use of learning outcomes does emphasise student achievement. This achievement would be measured through student assessment (Watson, 2002), and assessment remains at the core of curricula designed in learning outcome form (Allan, 1996).

Allan (1996) says that learning outcomes have evolved from the rational curriculum design. This is the rational curriculum design described by Squires (1991). She describes the evolution as beginning with educational objectives of content-based curriculum design, and ending with transferable outcomes or generic academic outcomes of outcomes-based curriculum design. Part of this development is that learning outcomes have subsumed a form of traditional learning objectives (Allan, 1996).

2.5.3 Issues Related to Curriculum Design Approaches

For centuries, the approach to science curricula improvement has been simply to update the subject matter of traditional disciplines (Hurd, 1998). There was no sophistication in the method or understanding of curriculum design approaches.

There have been, since the 1950s, quite general and universal trends in inquiry into curriculum practice, from quantitative, causal models, through qualitative inquiry methods of the 1970s and 1980s, to diverse methods post 2010, including curriculum analytics (Hubball *et al*, 2013). This is a history that moves from statistical-type analysis to broad, sophisticated analysis that might include combinations of quantitative and qualitative methods, perhaps to include situatedness (of students, usually) as an example of diverse inquiry methods (Hubball *et al*, 2013). The point being made here is that research into curriculum practice has become broader, with more features in the approaches remit. One of the effects of this evolution in research into curriculum practice is that it has been possible to examine such things as curriculum efficiency (Hubball *et al*, 2013).

An examination of ‘constructs of *curriculum efficiency* (their emphasis) might include strategic alignment of curriculum learning experiences with intended outcomes; maximal use of available budget and other resources to enhance student learning; optimal instructor/coordinator/leadership -to-costs ratio; strategic use of learning technologies; and sustainability, including the ability to attract high quality students and minimise attrition’ (Hubball *et al*, 2013; p. 44-45).

Issues related to learning outcomes-based curriculum design

Learning outcomes are used as a basis for curriculum design for pragmatic reasons. For example, although there is a dichotomy between learning and teaching intentions, the process of defining and expressing learning outcomes should enable lecturers to reflect upon what they intend their students to learn and be able to describe the relationship between what they teach and what students learn in practice (Allan, 1996).

Learning outcomes-based curriculum design need not always be lecturer-centric; Gagne *et al* (2005) describe involving the students in tasks to develop elements of the curriculum. In other words, student input might have an effect on the way learning outcomes are presented in a particular curriculum. However, in the main, the challenge to designers of curricula in higher education is to use of learning outcomes to view learning from the perspective of the learner, rather than the lecturer, and thereby to enrich the quality of learning experienced by students (Allan, 1996).

There is a relationship between learning outcomes-based curriculum design and modularisation (Cornford, 1997; Hennessy *et al*, 2010), but it may be the case that learning outcomes do not properly represent the best design for a programme module (Cornford, 1997). In other words, one cannot assume that modularisation and learning outcomes provide a panacea for curriculum design.

Issues related to constructive alignment

With or next to the considerations for curriculum design and development that the academic must deal with are considerations for constructive alignment. Biggs (2003b) says that the

principle of alignment is that lecturers ought to make sure that their methods of assessment contain the content they want students to learn, and remember that assessment can be reflective of teaching. Alignment is the key to issues around students' and lecturers' approaches to assessment (Biggs, 2003b).

The lecturer, as curriculum designer, may make it his or her aim to include constructive alignment in his or her module design. When there is alignment between what lecturers want from learning activities, how they teach and how they assess, teaching is likely to be much more effective than when it is not (Biggs, 2003b).

2.6 Curriculum Design Policy and Strategy

This section examines the literature pertaining to institutional policy and strategy, in relation to curriculum design, in recent years. This perspective of curriculum design provides an extra context for curriculum design and the lecturer operating in that process.

European educational policy, though the Bologna Process, has found its way to more local levels - i.e. institutional policy and strategy - within the European signatory countries of the Bologna Process (Papatsiba, 2014). At an institutional level, there are policies and strategies that directly affect curricula (Papatsiba, 2014), or the lecturers that design them – i.e. lecturers operate in an institution, and often there are local or institutional policies associated with their programmes: how they are delivered and how they are designed (Wheelahan, 2010). Related to this, Wiles and Bondi (2007) say that the structure of curriculum development has always involved process. The

principles of curriculum have evolved from practice rather than enlightenment, so the theory of curriculum has followed the practice found in school (institutional) environments (Wiles and Bondi, 2007). For Luxon and Peelo (2009), institutional policy and strategy is an important aspect of educational management, but their benefits may not transmit effectively to the teaching and learning experience of lecturers and students in lecture theatres if there is too much focus on systemic changes.

Since the mid-1990s in the UK, and more recently in Ireland, university degrees have, as a matter of policy, increasingly been structured into credit-based, modular systems (Hennessy *et al*, 2010). Brehony and Deem (2005) also describe modularisation and semesterisation in terms of institutional policy. Such policy and strategy by tertiary-level institutes have caused (or facilitated) restructuring within the institute in response to economic demands and growing numbers of third-level students (Hennessy *et al*, 2010).

Academic quality is part of academic policy, and can be related in parallel to modularisation as a feature of the same policy (Hedges *et al*, 2014). Academic quality, or quality assurance, more generally, is a policy consideration that devolved from European educational policy to institutional level (Papatsiba, 2014) and so is an important curriculum design consideration.

Implementation of any curricular change is likely to involve challenges for teaching staff (Hennessy *et al*, 2010). Trowler (1997) says that, to achieve greater sophistication in our understanding of change related to education that features curriculum design, we need to investigate institutions and consider the implementation of different aspects of policy, teaching

and learning, the student experience and the life worlds of academics, administrators, managers - the participants in the 'small and different' worlds of academic life (Trowler, 1997).

2.6.1 Modularisation and Semesterisation as Programme Design Strategies

Modularisation of programmes involves the packaging of programme content (theory or practical) into shorter, logically self-contained units which, together, cover the content which would be covered by a conventional, year-long programme (Cornford, 1997). Morris (2000) says that modularisation and semesterisation are often treated as coterminous, but that they are actually separate phenomena: modularisation may be defined as the process by which educational awards are broken up into component parts of a more or less standard size, whereas semesterisation can be defined as a change in the pattern of programme delivery. This can be a change from year-long degree programme subjects – perhaps three terms of between eight to twelve weeks duration, to two semesters of between twelve and sixteen weeks (Morris, 2000). Brehony and Deem (2005) distinguish modularisation from semesterisation by describing modularisation in terms of a ‘menu’ of study options for students, and describe semesterisation as longer blocks of teaching time. University College Dublin has fitted elective modules into single semesters (Hennessy *et al*, 2010), and one can infer that this programme-management strategy is common among many tertiary-level institutes as changes involving modularisation and semesters have occurred in many UK universities (Brehony and Deem, 2005).

The reason most commonly cited for an institute choosing to modularise degree programmes is to offer flexibility to students in their choice of study (see Brehony and Deem, 2005; Cornford, 1997; Gold, 1991; Hennessy *et al*, 2010; Lindsay *et al*, 2002). Provision of short, self-contained

units permits students to enroll for as many or as few as they consider that they can handle (Cornford, 1997). Modularised degrees have advantages for students – for example, if they wish to combine grades for learning in different institutions (e.g. via Erasmus exchanges), and they can reduce boundaries between disciplines by permitting students to combine modules from different disciplines, and promote integration of transferrable skills and discipline-based knowledge (Hennessy *et al*, 2010).

Other reasons often cited are those related to costing (Lindsay *et al*, 2002; Smith, 1992) and managerial control of programmes (Cornford, 1997; Lindsay *et al*, 2002; Roberts, 2004). There are major administrative advantages stemming from the modularisation approach, such as the potential to meet the needs of industry relatively quickly as modules can be designed to satisfy employer demands for skills and knowledge which are required to be developed immediately (Cornford, 1997), while achieving efficient programme delivery through centralised administration and economies of scale (Lindsay *et al*, 2002).

Modular degrees are generally designed to allow students an appropriate degree of choice in managing their own studies (Hennessy *et al*, 2010). Modularisation might be part of the degree programme design strategy of the institution, but it needs to be handled judiciously as it can cause problems (Hodgson and Spours, 1997). For example, modularisation can be a tool for organising opportunities for breadth of learning – but only if there are other curriculum design strategies that encourage broad learning, such as consideration of study content and learner types (Hodgson and Spours, 1997).

2.6.2 Academic Quality and Curriculum Design

The concept of quality is important to curriculum design. More specifically, quality assurance procedures are closely associated with the process of programme development: these procedures begin with an academic programme's initial design and evaluation (Duff *et al*, 2000). Being able to relate curriculum design features, such as graduate attributes, to a documented plan is associated with academic quality and quality assurance procedures: some aspects of curriculum design are integral to quality assurance procedures (Bath *et al*, 2004).

In the context of curriculum development, Duff *et al* (2000) state that academic quality could be described as encompassing concepts of standards, excellence, effectiveness, value for money and fitness for purpose. The standards set must refer to the level, appropriateness and effectiveness of each element of an academic programme, and to the aims and objectives of that programme (Duff *et al*, 2000). These relationships are described by Maher (2004) as being a focal point for the teacher or lecturer when they consider their specification of learning outcomes, for example. The lecturer may be involved in quality assurance in their institution, or informed of it, at least.

Harlen (2007) says there is a basic reason for quality assurance: it affords accountability. If the educational system is to achieve acceptable levels of consistency in the ways that academic judgements are made then it needs effective quality management procedures. These will include moderation of the procedures that are in place to prevent error and bias and moderation of the outcomes of assessment to detect any inconsistency in the way that criteria have been applied: thus you have quality assurance and quality control (Harlen, 2007). Quality assurance is a process through which an institution guarantees to itself and stakeholders that its teaching,

learning and other services consistently reach a standard of excellence. Assurance is a necessary goal for the institution itself (Duff *et al*, 2000). Quality assurance requires that criteria be defined, and that moderators be involved - external and internal – to oversee the specification of procedures. These external moderators might be, for example, visiting professors expert in the field of the curriculum. Internal moderators might be the programme design group (Harlen, 2004), and this group might include the lecturers whom designed each module of the programme.

As an example of quality assurance in curriculum design, Tan (2010) describes the quality associated with curriculum design as a major consideration for the programme design team of a university. In this example, the university's generic framework guidelines on module design offered broad guidance but did not give specific direction in module or curriculum design (Tan, 2010).

2.6.3 Issues Related to Curriculum Design Policy and Strategy

Institutional policy on curriculum, and change in that policy, will have effects on many aspects of the institute: the structure of the institute, its faculties and departments (Billing, 1996), the programmes (Billing, 1996; Lindsay *et al*, 2002), academic staff (Hennessy *et al*, 2010; Trowler, 1997) and students (Lindsay *et al*, 2002) where policy is imposed (Trowler, 1997). There are advantages in policy change, such as improved logistics (Gibbs and Tucker, 1986), improving administrative effectiveness and efficiency (Hubball *et al*, 2013) and attracting increased student numbers (Hennessy *et al*, 2010). There are also well documented and extensive examples of negative issues (see Billing, 1996; Trowler, 1997).

Examples of generic issues that can be related directly to institutional policy are: the added workload burdens for lecturers brought by franchised provision, accreditation of prior learning processes and modular assessment on a semester basis (Trowler, 1997); many academic staff find it difficult to adapt to the demands of curriculum change, finding an increased workload and becoming disillusioned, so these changes can have a significant impact on staff morale (Hennessy *et al*, 2010). Trowler (1997) goes so far as to describe incidents of stress and illness resulting from upheavals in lecturers' working lives, and that they often have deleterious consequences for students and others.

Among the abundance of research on education, and on curriculum approaches and change, there is proportionately little research specific to the situation of lecturers affected by change – or even on lecturers and their relationship to curriculum design. Trowler (1997) reports that there are little empirical data on lecturers' responses to change in higher education policy and procedure, and we lack data on the discursive positions taken up by rank and file academics. Also, there is a lack of research on the the demands that are placed on teaching staff in curriculum change (Hennessy *et al*, 2010). To achieve better understanding of curriculum change we need to look more closely inside real institutions (Trowler, 1997).

Issues related to modularisation and semesterisation

Modular systems that are based on credit accumulation and transfer share an underlying philosophy that teaching and learning activities can be quantified, and that units of instruction (modules) can be defined, measured and evaluated in terms of size, equivalence and learning

outcomes (Hennessy *et al*, 2010). This imposes a discipline on lecturers to devise modules very carefully, often to a common remit, as a basis for student choice, but this advantage is available to any programme that takes programme design seriously (Gold, 1991).

Modularisation and semesterisation has tended to shorten programmes and has reduced the timescale within which it is possible to set assignments and provide feedback, while increasing the number of examinations (Gibbs and Simpson, 2004). Modular programmes, because they tend to be intensely concentrated particularly in terms of time and content, rarely have enough time allocated to ensure adequate practice and feedback (Cornford, 1997). Design of modular programmes needs to ensure that there is sufficient time for the teaching of theory relevant to mastery of skills and sufficient practice to ensure that the skills become securely established (Cornford, 1997). This indicates that the designers of modular programmes also need to plan content and process very carefully, bearing in mind both the characteristics of students and the relevant level of expertise which the curriculum is aiming to develop (Cornford, 1997).

Hennessy *et al* (2010) describe their concern that unwisely chosen modules can yield an intellectually fragmented or incoherent degree. Modules, by their very structure, tend to fragment knowledge rather than to integrate it (Cornford, 1997). For Gold (1991), fragmentation thwarts intellectual progression, and so modular schemes are unsuitable for vocationally-based subjects. Practical experience indicates that, where there are instructions to review previous modules, time pressures in teaching content in the new module tends to reduce the review to token coverage (Cornford, 1997). Fragmentation of previously cohesive degrees of year-long programmes may imperil student capability and skill development, especially if the modules and/or programmes

are poorly designed, such as when the modules on offer end up fostering extrinsic motivations that outweigh intrinsic motivations (Hedges *et al*, 2013). That is to say, modularisation and semesterisation, for the sake of administration, may be at the cost of pedagogic effectiveness.

Of modularisation and semesterisation, Lindsay *et al* (2002) say that little or no account appears to have been taken of the impact of the programme delivery framework upon such things as the effectiveness of teaching, the quality of learning, or student achievement. In the process of learning and developing effective schemes to guide performance, forgetting and retention need to be considered consciously in the design of programmes (Cornford, 1997). It might be appropriate to adopt a critical attitude towards modularisation and draw upon the psychology of learning to provide insights to assist in effective modular programme design and implementation (Cornford, 1997).

In year-long programmes, over a semester or year there is often more time to assist students via resubmission, feedback and coaching before final assessment. These options are less available in the more pressured, tightly constructed modular programmes where assessment occurs at the end of each module (Cornford, 1997). Hennessy *et al* (2010) found that lecturers preferred terms to semesters because they were aware of pedagogic benefits of short learning/assessment units of year-long programmes, and terms follow 'natural' breaks in the calendar year.

The problems inherent in modularisation and semesterisation, and lecturers' concerns about the efficacy of this academic policy, raise doubts as to whether the current fashion for semesterisation is rationally grounded (Hennessy *et al*, 2010).

Issues related to academic quality and curriculum design

There are national or regional bodies that determine quality of institutional programmes by setting parameters that will limit what can and cannot be done for a programme to be approved, but there are also informal limitations for institutional curriculum design review; i.e. a peer review process such as the external examiner system (D'Andrea and Gosling, 2005). With these informal systems, institutional quality assurance regimes can sometimes be more restrictive than the national system requires. This can be experienced as a significant barrier to change and innovation. For example, the bureaucratic requirements of quality assurance systems serving as a disciplinary function, creating a culture of compliance and negativity that is damaging to academic culture (D'Andrea and Gosling, 2005).

In creating a quality learning environment through curriculum design, Ladwig (2009) suggests that the curriculum designer needs to answer questions related to curriculum design. For example, for learning outcomes; is each outcome something which will challenge all the students? For learning experiences; are the experiences structured to support all students to meet the challenge posed? For the organisation and management of learning experiences; are the principles of scope and sequence made explicit, open and negotiable? For assessment; is the curriculum structured to build cyclically from itself - formative, summative, diagnostic? (Ladwig, 2009)

2.7 Phenomenology in Education Research

Historically, the term ‘phenomenology’, in relation to educational research, has appeared in the literature as a philosophical perspective. Cook uses the philosophy to identify problematic phenomena in the classroom (Cook, 1977) and Bates questions the philosophy for identifying or, more specifically, enumerating sociological features of education (Bates, 1980). Small has suggested that philosophical phenomenology may prove useful for describing the philosophy of education in general terms (Small, 1987).

The literature would suggest that phenomenology in education research has taken the form of methodologies – mainly hermeneutic or empirical – and much of the research has described phenomenology’s place in educational research as a ‘reflexive method’ (my emphasis) – based upon common references to phenomenology as having ‘reflexivity’, ‘reflective practice’ or simply ‘reflection’ (Baird, 1999; Bleakley, 1999; Ostergaard *et al*, 2008; Rasmussen, 1998; Silen, 2006; Willis, 1999). Other broad references to phenomenology have addressed student experience specifically, for example Ashworth (1999) and Ganeson and Ehrich (2009), or have addressed teacher/lecturer experience specifically, for example Baird (1999) and Silen (2006).

There are qualitative studies in the literature that examine the experiences of teachers working in secondary education and lecturers in tertiary education and which use phenomenology as a methodology. Phenomenology is a systematic attempt to uncover and describe the structures, the internal meaning structures, of lived experience (van Manen, 1997) and it has been used successfully in educational research (Bourke, 2007; van Manen, 1997).

For instance, Baird (1999) and Willis (1999) have, independently, conducted research to study the qualitatively different ways teachers or lecturers approach their teaching and/or assessment and the different ways they perceive the learning environment. Baird uses phenomenological methods to analyse the work of twelve secondary teachers in the field of science. Baird's study is part of a longitudinal study on teaching quality. The phenomenological reflection – part of the interview technique used – highlights the experience of these teachers as, broadly, being able to identify a need for change in the teaching system, yet having no opportunity or support to make useful change at an administrative level (Baird, 1999). Willis uses a phenomenological method on reflective practice as a means of analysing his work as a university lecturer and concludes that the exercise gave him a new perspective on his approach to education (Willis, 1999). These researchers were able to examine the data to find the relationship between how teachers or lecturers approach their teaching and/or assessment and how they perceive the learning environment.

In relation to teaching, phenomenology provides a means of expressing the idea of holistic reflexivity due to its own associations with philosophical reflection (Bleakley, 1999). To support the notion of reflexivity in teaching practice Bleakley (1999) uses interpretive (Heideggerian) phenomenology to help describe a holistic reflexivity. (A full explanation of interpretive phenomenology, as a branch of phenomenology that is a philosophy and a method, is given in Chapter Three.)

Looking at levels of education, one will find that the experiences of students in secondary and tertiary education has been well-documented in the literature. Examples of studies of secondary

education students and teachers using phenomenology as methodology include those of Volkmann and Anderson (1998), Metcalfe and Game (2006), Ostergaard *et al* (2008), Saevi and Eilifsen (2008) and Ganeson and Ehrich (2009).

Volkmann and Anderson examine the role and professional identity of a chemistry teacher using hermeneutic phenomenology to interpret her experiences, as documented in her teaching journal. They conclude that the description of professional identity of newly-qualified science teachers, and their experiences, has much to teach and inform educationalists, such as school administrators and committees (Volkmann and Anderson, 1998). Metcalfe and Game ask the questions: what happens between teachers and students in effective, engaged learning and teaching? What are the implications for teaching practice? They use phenomenology as a methodology to get closer to answers to these questions, expiating teachers' experiences as they do (Metcalfe and Game, 2006). Ostergaard *et al* (2008) review the use of phenomenology as a philosophy of knowledge and qualitative research approach to science education in the research literature. They conclude that 'phenomenology has a considerable potential as a method for investigating learning as a whole' (Ostergaard *et al*, 2008; p.115). Saevi and Eilifsen (2008) report on the experiences of students' experiences of their teachers as pedagogical facilitators, where they have gathered data by means of phenomenological interviews. Ganeson and Ehrich (2009) describe a case study of sixteen students in transition to high school, where the emphases were on the experiential challenges experienced by the cohort and the use phenomenological psychological research to gather data from participants' written journals. The outcome is a generic description of these students' experiences (Ganeson and Ehrich, 2009).

Examples of studies of tertiary education students, where the studies use phenomenological methods or methodologies include those of Ashworth (1999), Silen (2006), Greasley and Ashworth (2007) and Grant (2008). Ashworth uses the phenomenological method of bracketing to identify an aspect of the life-world of students; namely cheating (Ashworth, 1999). Silen analyses the concept of approach in tutoring in Problem-Based Learning using a phenomenological perspective. She concludes that it is essential for the tutor 'to experience the learning processes in Problem-Based Learning as a learner and as a tutor' (Silen, 2006; p.383). Greasley and Ashworth review the literature on the use of phenomenography to examine students' approaches to study, and they use phenomenology themselves to examine students' approaches to learning (Greasley and Ashworth, 2007). In her phenomenological case study of the lecturer as an assessor, Grant (2008) conducts five in-depth interviews that allow the participants to describe their experiences as assessors operating in tertiary-level education. Her findings describe lecturers' experiences as assessors in the context of a changing paradigm, where the paradigm change is caused by evolving practices in teaching and assessment in a tertiary-level institution (Grant, 2008).

At a postgraduate level, Brook (2009) has used phenomenology to examine his own experiences of moving from being a postgraduate student to a teacher in the job of teaching. He concludes that phenomenology has a lot to offer the researcher wishing to better understand learning from a Heideggerian perspective (Brook, 2009).

In relation to curriculum theory, Atkins (1988) examines how hermeneutics can elucidate the meanings inherent in curriculum, and how the hermeneutical interpretations offered by

interpretive phenomenology can explicate contexts of curricula. A good example of this principle is how the interpretation of educational experience can describe the meaning of the practical and intellectual aspects of curriculum theory (Atkins, 1988). Examples of studies of curriculum design, where the studies use phenomenological methods or methodologies include those of Dahlgren (2000), Ironside (2004), Dornan *et al* (2005) and Galvin and Todres (2007).

Dahlgren's (2000) study of the curriculum design documents of problem-based learning (PBL) for courses in physiotherapy, psychology and information technology uses interpretive phenomenology to examine students' experiences of the intentions and learning outcomes ascribed to each course. She concludes that the 'goal documents' (her term) of intentions and learning outcomes, and the learning process experienced by students cannot be ascribed solely to the pedagogical idea or methodological instrumentation of PBL (Dahlgren, 2000). In other words, the students' learning experiences are in the context of their disciplines, rather than in reflection of the curriculum design documents they read.

Ironside (2004) examines the relationship between covering the content of nursing courses and thinking by explicating the common experiences of teachers enacting interpretive pedagogies. In other words, teachers who contextualise their pedagogies to be more experiential than conventional 'content coverage' (my term) in teaching may feel that they are providing a better learning experience for students. She uses Heideggerian hermeneutics to explore how teachers and students experienced enacting a new pedagogy and how this pedagogy influenced their thinking. Ironside (2004) concludes that the study clarified participant teachers' views of their own teaching and content-design strategies and approaches (Ironside, 2004).

Doran *et al* (2005) use interpretive phenomenology to explore how clinicians perceive their roles in problem-based medical education, and how closely those perceptions link to the curriculum they teach. They conclude that the problem-based method, applied to the medical curriculum they examined, lacked some important conditions for professional teaching and learning. Also, medical students ought to have a better learning experience when they are immersed in medical education's community of practice. They need to be helped in constructing a professional identity through social interaction with practitioners, peers and patients (Doran *et al*, 2005). In other words, clinical teachers cannot rely on the design of curricula in the prescriptive terms associated with problem-based method, and need to include 'real world' (my term) practical learning experiences for medical students.

Drawing upon Heideggerian phenomenology, Galvin and Todres' (2007) study outlines some philosophical ideas that may be important when considering the characteristics of the kind of scholarship for caring practices of health and social care education. They attempt to clarify the nature of scholarly practice by drawing on '*phronesis*' (practical wisdom). Also, they highlight a meditative approach to the integration of knowledge, action and ethics (Galvin and Todres, 2007). In other words, because of the differentiation and contextual complexity of caring practices (medicine, social work, etc.), scholarship in health and social care education is possibly better defined as a 'way of being' (Galvin and Todres, 2007; p. 37) rather than a simple description of domains of knowledge. Though Galvin and Todres describe their study as serving 'scholarly practice' (their term), the relationship with curriculum development in health and social care education is clear. Their study leads to implications for scholarship, in which

scholarly integration may best be served by more contemplative ways of being and thinking (Galvin and Todres, 2007). In other words, curriculum developers of health and social care education can only do justice to that domain by applying a paradigm shift from prescriptive curricula to an interpretive, ‘world view’ (my term) representation of curricula.

2.8 Summary

This chapter has examined the research reported in academic literature related to the core issues of this study. It considered the findings from education research related to the overarching theme of this study; that computer science lecturers are curriculum designers, that their role as curriculum designers can be investigated in terms of the lecturers’ lived experiences. It discussed the many aspects of curriculum design for computer science lecturers, including curriculum design itself, the role of lecturer as curriculum designer, curriculum design for computer science, approaches to curriculum design and institutional policy and strategy – particularly the shift from year-long, ‘traditional’ curriculum design to outcome-based curriculum design.

The context throughout this chapter has been on the perspectives of the lecturer in his or her role as curriculum designer or developer. The chapter has presented arguments for the expectations of curriculum design to include the aspects of such design as mentioned above. These aspects will be discussed again in view of the findings from this research study in Chapter Seven.

The intention of this chapter is to allow the reader to appreciate the aspects and attributes of curriculum design. This thesis is an examination of experiences of computer science lecturers to

highlight the issues and problems relating to lecturers' lived experiences of curriculum design. It allows the reader, and computer science lecturers, to have a clearer perspective on some individual and thematised module design experiences so that they can become better informed about what happens during the process of curriculum and module design. This chapter has reviewed the important, current literature that relates to the investigation and explained the importance of that literature to the study.

The next chapter describes the design of the research, beginning with the theoretical assumptions and perspective, epistemology, giving detail of the research methodology and the practical aspects, such as declaring the sample size and contingent, data collection and analysis methods, and ethical issues.

CHAPTER 3

RESEARCH DESIGN

3.1 Introduction

Chapter Two reviewed the key literature pertinent to this research study into curriculum design and, in particular, issues related to the lecturer's role as a curriculum designer and change in curriculum design policy and strategy, such as the approach of modularisation and the policy of semesterisation. This chapter is concerned with how these issues might be investigated empirically in the context of this study.

This research study set out to explore computer science lecturers' experiences of curriculum design as curriculum designers during a time of curriculum policy transition at an institute. To contextualise this, the research question is repeated here:

What are the experiences of designing curricula in the context of a move to a semesterised/modularised calendar and a learning outcome-based approach to curriculum design?

Research has to be undertaken within the appropriate framework in order to answer the research question. The framework for this study, in broad terms, is education research. The framework can contextualise the research, but the capability to reliably answer the research question in a study such as this is deeply embedded in the strategy of inquiry which is employed. For this

study the strategy of inquiry was a methodology known as hermeneutic phenomenology. The reason that the study uses hermeneutic phenomenology is that the lecturers' lived experiences are readily represented in analysis by the interpretive nature of the hermeneutic phenomenology methodology as it allows experiential data to be reduced, reflected upon and interpreted. The findings of this reduction and interpretation were useful in enriching an academic understanding of curriculum design as a lifeworld experience – in getting to the essence of curriculum design for lecturers. The main objective of this study was to provide a richer understanding of the task of curriculum design. Therefore hermeneutic phenomenology was the best choice of methodology for the study.

There are two parts to this study, both of which involved the use of hermeneutic phenomenology as a strategy of enquiry. These are identified and expanded upon later in this chapter. Of the two parts, the first part produced data that shed light on the issues and considerations of curriculum design for lecturers and informed the investigative aspect of the second part. The second part of the study shed light on the experiences of lecturers as curriculum designers.

To situate the methodology in the research process one must consider one's philosophical stance; one must take a position of investigation represented by a theoretical perspective and an epistemology. These are represented by a framework for designing research. Different frameworks for designing education research have been presented in the literature, such as that of Crotty (1998) and Creswell (2003). For example, Crotty (1998) suggests that in designing research, we should consider the following four questions:

1. What epistemology – theory of knowledge embedded in the theoretical perspective – informs the research?
2. What theoretical perspective – philosophical stance – lies behind the methodology in question?
3. What methodology – strategy or plan of action that links methods to outcomes – governs our choice and use of methods?
4. What methods – techniques and procedures – do we propose to use?

Creswell (2003) takes these four questions to devise what he believes are the three questions central to the design of research:

1. What knowledge claims are being made by the research?
2. What strategies of inquiry will inform the procedures?
3. What methods of data collection and analysis will be used?

This thesis reflects Creswell's approach and so this chapter provides the answers to Creswell's three questions in the context of this research as well as providing specific descriptions of each aspect of the research design as outlined by Crotty above.

This chapter begins with a discussion of the assumptions attendant with the earliest considerations for this research, including, in Section 3.2, the theoretical perspective within which the research is grounded. The paradigm described in relation to the theoretical perspective is an introduction to the epistemological stance taken, and that stance is described as a review of theoretical assumptions in Section 3.3. In the section following, epistemology gives way to a

description of the methodology and the background to that methodology chosen for this study. Hermeneutic phenomenology is the most appropriate with which to answer my research questions and this choice will be fully justified in section 3.4 of this chapter. Section 3.5 describes in detail the methods of data collection and analysis which were employed in this research and the final sections in the chapter describe the participants who took part in the study and a discussion of the ethical considerations. This chapter is a necessary prelude to the remainder of the thesis as it places the research data, analysis and participants within the context of the study.

3.2 Theoretical Perspective

Cohen *et al* (2000) suggest three paradigms in which education research can be situated - positivist, critical theory and interpretive. It is my interpretation of the research problem and hence the purpose of the research that determined the choice of paradigm in which this research is situated – that paradigm being interpretive, or ‘interpretative’, as some researchers refer to it – such as Graham (2004) and Smith (2007). As discussed in Chapter One, this study stemmed from the observation that lecturers who are involved in curriculum design may have no formal training or guidance in curriculum design, but were involved in institutional policy changes in curriculum design, such as semesterisation. Another observation was that, in the two years following this transition there were retention issues among students. The research set out to identify, describe and examine a group of Dublin Institute of Technology's (DIT's) computer science lecturers' lived experiences of curriculum design, in the context of the transition from a

year-long academic calendar to a semesterised and modularised calendar, and a move from content-focused curriculum design to learning outcome-based curriculum design.

This research involved a study of people and their experiences. To take a positivist approach to the research, as discussed in Crotty (1998), to obtain this understanding would be inappropriate as the positivist perspective assumes that each individual person experiences these phenomena in the same way and hence their conceptions and perceptions would be quantifiable. A positivist approach to this study would also assume to strive towards the ‘truth’, but in this research the goal was to study lecturers’ experiences in which there are no ‘absolutes’. As Bogdan and Taylor put it, ‘The positivist seeks the facts or causes of social phenomena with little regard for the subjective states of individuals’ (Bogdan and Taylor, 1975; p. 2). For instance, a positivist study of lecturers’ approaches to teaching and assessment might examine what actually happens during teaching and/or assessment and how the lecturers behave in the teaching and assessment environments, and would not necessarily be interested in the lecturers’ teaching and assessment approaches or experiences. Positivism is particularly problematic for social science researchers investigating education, as pointed out by Cohen *et al* (2007) when they describe positivism as ‘less successful’ when applied to the complexity of human nature and the elusive and intangible quality of social phenomena. Walker (1985) has described the historical problem of representing contextual research, where ‘traditional’, positivist science approaches give way to interpretivism: ‘In place of this objectivist, absolutist and positivist approach, an “interpretive”, phenomenological epistemology was recommended’ (Walker, 1985; p. 60).

Interpretive social science has, in general terms, been used as a kind of methodology for examining self-understanding of actors, their common meanings, their social practices and their actions (Howe, 1992). Walsham (1995) sees interpretive methods of research as adopting the position that knowledge of reality is a social construction by human actors. He cautions against the researcher's preconceptions contaminating the findings from human subjects. Howe acknowledges this problem and suggests the solution is to 'give the insider's perspective, such that it supersedes the perspectives that researchers might bring to a given situation' (Howe, 1992; p. 248). Interpretivism is a valuable paradigm for helping understand human experience – even in some traditionally positivist scientific fields (Walsham, 2001) and is well placed in human science as a means of representing many aspects of human nature (Howe, 1992). Human experience, interpretation and understanding are well served by interpretivism. As this research aimed to examine how lecturers experience curriculum design, I felt that the interpretivist theoretical perspective was the most appropriate from which to ground this research as its aims are to 'understand and interpret the world in terms of its actors' (Cohen *et al*, 2007; p. 26). It was from the interpretivist perspective that I formulated the research questions to address the research problem and chose a research methodology.

3.3 Theoretical Assumptions

A paradigm is a set of beliefs that provides the principles for understanding the world and leads to a particular epistemological position taken: one's position with regard to what one can say one knows about something (Langdrige, 2007). Savin-Baden and Major (2013; p. 54) define epistemology as 'the justification of belief' - the study of the nature of 'knowledge and

justification' in the hope that one might discover what knowledge is and how it is obtained (Kvale and Brinkmann, 2009). Epistemology can also be described as 'what we can say we know about human nature' (Langdridge, 2007; p. 24). How one aligns oneself to an epistemology will profoundly affect the process of discovery of knowledge of social behaviour (Cohen *et al*, 2007). Identifying and using an appropriate epistemology for research is important, and the researcher must choose one in taking a 'philosophical stance' (Savin-Baden and Major 2013; p.54). Epistemologies that I considered were objectivism or subjectivism, and constructivism or constructionism, as described for research design by Cohen *et al* (2007) and Papert (1991). The choice of these for early consideration was reflected in the nature of the research. These epistemologies are associated with qualitative research in the field of education (Cohen *et al*, 2007).

3.3.1 Objectivist and Subjectivist Epistemologies

To consider objectivism firstly: objectivism suggests that there is mind-independent reality: that individual persons are in contact with this reality through sensory perception and that human beings gain objective knowledge from perception by measurement and form valid concepts by 'measurement omission' (Rand *et al*, 1990). Objectivism states that by the method of reason one can gain knowledge – which is the identification of the facts of reality and, thereby, one can achieve absolute knowledge of the environment.

Rand's main principles of objectivist epistemology are that 'existence is identity' and that 'knowledge is identification' (Rand *et al*, 1990). In other words, nothing can be known until it is proven by observation and recognition together. Objectivist epistemology studies how an

observer can translate perception - awareness acquired through the senses - into valid concepts that actually identify elements of reality (Rand *et al*, 1990).

I considered the objectivist epistemology because Cohen *et al* describe objectivity in the social science context as ‘discovering the universal laws of society and human conduct within it’ (Cohen *et al*, 2007; p. 10). Since my research includes the examination of some aspects of human conduct, namely curriculum design by lecturers, it might, at first, appear that an objectivist epistemology would be useful to the research. However, I believe there is a great deal of complexity in lecturers’ experiences of curriculum design that objectivism seems to ignore. For example, objectivity rejects philosophical scepticism and emotional feeling as means of attaining knowledge. Although Rand acknowledged emotion in humans, she sees the existence of emotion as part of our reality, not a separate means of achieving awareness of reality (Rand *et al*, 1990).

Objectivism takes the view that concepts and knowledge can have measurement applied to them, but since this research focused on interpretation rather than measurement – including the measurement of concepts and knowledge - it cannot be said to be positioned completely in the epistemology of objectivism. This research included the interpretation of the experiences of lecturers and the phenomena associated with those experiences. Objectively describing those interpretations and human experience is not properly scientific, so the behaviourist theory of objectivism would not create a ‘complete picture’ of my research. For example, Nunes and McPherson state that objectivism is a behaviourist theory that does not account for cognitive or

mental processes but does account for processes of communication and human behaviour (Nunes and McPherson, 2003).

Buchmann and Scwille (1983) concede that epistemological objectivism and subjectivism both depend on experience, but objectivism concerns itself with first-hand, sensory experience 'rather than the personal element in sense experience' (Buchmann and Scwille, 1983; p. 34). Consideration of objectivity as a useful epistemology gave way to a consideration of a subjectivist epistemology.

Dichotomous to objectivism, subjectivism suggests that truth and knowledge are accessible via individual subjectivity (Orange, 1995). In other words, one can make an observation and interpret one's own reality of it based on relative comparisons between the object or subject of the observation and other things, for example. That is not to say, however, that subjectivity relies on relativism (Orange, 1995). Properties whose presence or absence depend upon, and vary, with different observers or thinkers are said to be subjective. Alternatively, properties of the external world whose presence depends upon the existence of human minds are said to be objective (Fetzer and Almeder, 1993). Put another way, a subjectivist position towards research assumes that reality is constructed by individuals, whereas the objectivist position assumes that there is an external reality and the researcher maintains a detached, objective position (Savin-Baden and Major 2013).

Social science uses subjectivism to discover how different people interpret the world in which they live (Cohen *et al*, 2007). Methodologically, subjectivism is the interpretation of the

subjective meanings which individuals place upon their action while discovering the subjective rules for such action to find sets of meanings which people use to make sense of their world and behaviour within it (Cohen *et al*, 2007). This research sought to identify lecturers' experiences, whereby their personal perceptions about situations are sought in the gathering of data, and what I wanted to analyse from the data collected were feelings, perceptions and meanings. Subjectivism is already well represented in the educational area of the field of social sciences (Cohen *et al*, 2007). Therefore one might consider subjectivism as an epistemology to help in understanding lecturers' experiences. However, since this research did not simply focus on concepts and cognition, nor the emotional aspects of lecturers' experiences it could not be said to be positioned completely in the epistemology of subjectivism. Buchmann and Scwille suggest that, if a theory of knowledge assumes that subjectivity is sufficient for understanding something, 'this can lead to relativism, the absence of interpersonal, objective criteria for judging the validity of knowledge claims' (Buchmann and Scwille, 1983; p. 33).

Using subjectivism in a study, exclusively, implies that the study participant must define their own belief about truth, knowledge and research, but there is much at stake in how they decide what gets to count as knowledge (Gunzenhauser and Gerstl-Pepin, 2006). Similarly, a participant may provide their own belief, but, when a researcher takes a subjective position, the research is personal to the researcher and is based upon their values and perceptions (Savin-Baden and Major, 2013.) Ferree (1985) suggests that the introspective nature of subjective knowledge – introspective by the observing subject – means that the observer may be mistaken in his or her conviction – what Light (2002) calls subjective misinterpretation, 'due to the personal concerns, interests and focus with respect to the data, as well as errors in logical analysis' (Light, 2002; p.

263). The human subject is the weak point of the epistemology, and, as Holmes put it, subjectivism has ‘the vagaries of human will’ (Holmes, 1986; p. 538). The truth or value of the knowledge is, potentially, lost. This research needed to be situated in an epistemology whereby the data can be seen to be scientifically supported by the epistemology.

Cohen *et al* say of subjectivism, ‘The world exists but different people construe it in very different ways’ (Cohen *et al*, 2007, p. 10) and that it is strongly related to constructivism. Guba and Lincoln (1994) see subjectivism as being contained *in* constructivism. This led me to decide that subjectivity as an appropriate epistemology should give way to consideration of a constructivist epistemology.

3.3.2 Constructivist and Constructionist Epistemologies

Constructionism is related to the more commonly known constructivist perspective in that they both view meaning as something that is not discovered, but constructed (Papert, 1991). Different people may construct meaning in different ways, even in relation to the same phenomenon (Papert, 1991). The reason for my choice of epistemology for this research of constructionism, over constructivism, will be clarified by the comparison that follows.

Historically, the constructionist epistemology is based on constructivism (or constructivist learning theory). Constructivism, as an epistemology, or cognitive theory, was defined by Jean Piaget in the 1960s (Savin-Baden and Major 2013). In a learning context, its argument is that students construct meaning from current knowledge structures. The tenets and arguments relating to how students learn have guided constructivist learning theories and teaching methods in

education. For example, from the individual constructivist perspective, knowledge is constructed internally, and tested through interaction with the outside world (von Glaserfeld, 1995). This model does not describe a causal process but a continuously interacting system. The process of knowledge construction is driven internally through processes of assimilation (integrating new knowledge into existing knowledge structures) and accommodation (changing knowledge structures). From the social constructivist perspective, knowledge is thought to develop internally, but in a process driven by social interaction with the outside world (Vygotsky, 1978). From this perspective, the context, and particularly the social context, is of prime importance as it is the context that brings about the knowledge development. Constructivism, in practice, places learning that is initiated and directed by the learner where it is supported by a facilitator such as a lecturer – where the support is appropriate to progress.

Constructivism might have given a useful perspective of the current research as this study required a context in which to place the research question. Since this research attempts to identify lecturers' experiences in curriculum design, constructivism, as Piaget and Papert describe it, seemed to me to fit the context of this research. However, I wanted to compare constructivism to constructionism before making an epistemological choice.

Seymour Papert studied under Jean Piaget. Papert acknowledges the constructivist learning philosophy when he describes the difficulty of conveying a complex concept where the reader is going to construct their own meaning. He has extended the epistemology of constructivism to become constructionism. Papert makes the distinction between constructivism and constructionism as:

Constructionism... shares constructivism's connotation of learning as 'building knowledge structures' through progressive internalisation of actions... It then adds the idea that this happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity, whether it's a sand castle on the beach or a theory of the universe (Papert in Papert and Harel, 1991; p.1).

Piaget and Papert are both constructivists in that they view learners as the builders of their own cognitive tools as well as of their external realities. For them, knowledge and the world are both constructed and constantly reconstructed through personal experience. Piaget and Papert are also both developmentalists in that they share an incremental view of children's cognitive development. The common objective is to describe the processes by which children come to outgrow their current views of the world and to construct deeper understandings about themselves and their environment (Ackermann, 1991).

Despite important convergences, the approaches of the two researchers differ nonetheless. Both Piaget and Papert define intelligence as adaptation, or the ability to maintain a balance between stability and change, closure and openness, continuity and diversity, between assimilation and accommodation. Both see psychological theories as attempts to model how people handle such difficult balances, but Piaget's interest was mainly in the construction of internal stability, whereas Papert is more interested in the dynamics of change (Ackermann, 1991).

Papert focuses the fact that 'diving into' situations rather than looking at them from a distance, that connectedness rather than separation, are powerful means of gaining understanding.

Engaging with the phenomenon under study is, in his view, a key to learning (Ackermann, 1991). As the phenomenon of this research is curriculum design, I felt that engaging with the phenomenon, by gathering data about same and analysing it, will be a learning experience for me that will provide academic value and ‘newness’ in the report of the findings of this study.

For constructivism, Piaget had described the establishment of ‘internal mental stability’ in terms of successive plateaus of equilibrium, while Papert’s constructionism includes descriptions of how knowledge is formed and transformed within specific contexts, shaped and expressed through different media, and processed in different individuals’ minds - knowledge acquired based on the dynamics of change. Papert’s more holistic view of knowledge matched well the holistic perspective of my planned research. As mentioned before, this study is not merely a distillation of facts about lecturers’ duties as ‘academic designers’, but a broad perspective on lecturers’ experiences of curriculum design. I decided, therefore, that this research would be situated in that set of epistemological beliefs and assumptions termed ‘constructionism’

At a deeper level of the current research, to examine how the essence of lecturers’ experiences of curriculum design might be attributed to the effects of change in curriculum design policy, one would be well served by studying the phenomena that are lecturers’ experiences of curriculum design. As this research aimed to examine how lecturers experience and conceptualise a phenomenon, the constructionist epistemology was the most appropriate from which to ground my research. It was from this perspective that the research questions were formulated to address the research problem: thus the research methodology was chosen.

3.4 Research Methodologies

‘Methodology’ refers to the process, principles and procedures by which a researcher approaches problems and seeks answers (Bogdan and Taylor, 1975). Langdrige defines methodology as ‘a term referring to the general way to research a topic’, whereas method is ‘the specific technique(s) being employed’ (Langdrige, 2007, p. 4).

The research question of this study is grounded in the process of data analysis and interpretation to describe human experience. The subtlety of human experience, as data, requires a researcher to take a global view that is best served by qualitative methods. Qualitative approaches (or methodologies) seek to portray a world in which reality is socially constructed, complex and ever changing (Glesne, 1999). Therefore qualitative methodological approaches tend to be based on recognition of the subjective, experiential life-world of human beings and description of their experiences in depth (Patton, 2002). Further to the practicality of qualitative research being applicable to observation of socially-constructed reality, qualitative research is preferred by researchers of human science for its main features, such as text as data and foci on meanings and/or interpretation (Silverman, 2006). Qualitative methodologies may be used to elucidate issues of interpretation of the phenomena of human experience (Langdrige, 2007) and hence the methods are qualitative, since any analysis of lecturers’ experience will imply a need for a qualitative methodology.

Hermeneutic phenomenology has become a popular methodology in education research as it aims to help identify the experiences and conceptions of a phenomenon by a specific group of

individuals (van Manen, 1997). Both the objectivity and constructionist viewpoint of phenomenology made it an approach worth considering for this research as it might cast light on the main principle of the research question: the experiences of lecturers as curriculum designers. This approach, or method, warranted fuller investigation and description, with a view to using it as the main methodological approach to this research work.

3.4.1 Qualitative Methods Considered for this Research

As implied earlier in this chapter, my research would suit a qualitative methodology. Qualitative methods of research provides legitimate scientific grounds for researchers who eschew the positivist, objective science generically known as quantitative methods if their data cannot be properly represented by a positivist epistemology (Cohen *et al*, 2007).

Contextualised, qualitative methods of enquiry represent the experiential, for example (Kvale and Brinkmann, 2009). Qualitative methodologies contain research procedures which produce descriptive data – participants’ written or spoken words and/or observable behaviour (Bogdan and Taylor, 1975). Human behaviour is often the subject of qualitative research methods and sometimes these approaches are the only means of gathering and analysing the data pertinent to this area of sociology (Cohen *et al*, 2007). For example, we might use qualitative methods in research to retain sight of the subjective nature of human behaviour (Bogdan and Taylor, 1975) and we can experience, or get a sense of, what the participant experiences.

Qualitative research predominantly uses methods of enquiry that produces text rather than numbers, it requires interaction with the people of the study and usually involves a ‘flexible plan

of inquiry' (Avis in Holloway, 2005, p.7). Thus qualitative methods 'enable us to explore concepts whose essence is lost in other research approaches' (Bogdan and Taylor, 1975, p.5).

Grounded theory, discourse analysis, narrative analysis, phenomenography and phenomenology were the qualitative research approaches and/or methods that I considered for my research, as grounded theory, discourse analysis, narrative analysis and phenomenology are conducive to the data-gathering method of personal interviews (Kvale and Brinkmann, 2009) – as is phenomenography (Cousin, 2009). Personal interviews was the data-gathering method preferred for the experimental part of the research.

Grounded theory is a qualitative methodology where the theory, the testable set of concepts, is derived from prior observation of real life (Kane and O'Reilly-De Brun, 2001). The theory of grounded theory is not predetermined, so targeted pre-reading is not as influentially important as in other methodologies. With grounded theory, you do not know what you will find, so you cannot be sure what to read before using this method (Cohen *et al*, 2007). The systematic nature of data collection and the independence of pre-read research material of grounded theory, and the determination that theory is not the best way of answering the research question, I decided that grounded theory was not the method to choose for this research.

Researchers using discourse analysis explore the structure and contents of 'ordinary talk and everyday explanations' and the social actions associated with that talk and those explanations. Collecting, transcribing and analysing discourse data allows the researcher to view phenomena in which he or she is interested historically. In this context discourses are sets of linguistic material

that enable the researcher to construct meaning in social contexts (Cohen *et al*, 2007). The main aspect of discourse analysis is its social context (Cohen *et al*, 2007; Coyle in Lyons and Coyle, 2007; Kvale and Brinkmann, 2009). This is clearly a method oriented to sociological research studies and separate in context from the investigation I have chosen. Since my investigation answers questions about lecturers' experiences and the social aspects of those experiences may or may not be evident in any analysis, discourse analysis is too focused on one aspect of qualitative research to be of use to my research question.

Kvale and Brinkmann (2009) define a narrative as 'a story' and narratives as 'those thick descriptions that incorporate a temporal dimension in a storied form' and that they might situate an event temporally and socially. Narrative psychology is mainly concerned with the interpretation of the self and personal identity. 'Stories' are central to the process of identity construction (Crossley in Lyons and Coyle, 2007). Since narrative analysis has what Polkinghorne (1988) describes as 'a realm of meaning' in which individuals exist and which is structured according to linguistic forms (Polkinghorne, 1988), narrative analysis would seem to be a useful method or approach to use for my research, since it concerns itself with the meanings lecturers attribute to their experiences, but since there is no focus on the 'self' in this research – nor on any specific events – narrative analysis soon began to appear to be too scenario-specific for my purposes.

Phenomenography is a qualitative research approach and its aim is to identify the ways in which people see and experience things. Historically its earliest studies were in the area of student learning (Cousin, 2009). Phenomenography is not a method in itself but has some methodical

elements. It is an approach to identifying, formulating and dealing with certain types of research questions (Marton and Booth, 1997) - an approach designed to answer certain questions about thinking and learning (Sherman and Webb in Sherman and Webb, 1988). The approach can be readily applied to the phenomena associated with learning and understanding in an educational setting (Marton and Booth, 1997). In my research, I am not specifically interested in the content of thinking, as phenomenography is (Marton in Sherman and Webb, 1988), nor am I specifically concerned with the way in which an individual experiences something, as phenomenography is (Marton and Booth, 1997) and so I concluded that phenomenography is not the approach that best suits my research question.

3.4.2 Phenomenology

The broadest definition for phenomenology is that it is a theoretical point of view advocating the study of individuals' experiences because human behaviour is determined by the phenomena of experience rather than objective, physically described reality that is external to the individual (Cohen *et al*, 2007). Phenomenology is an objective path towards understanding the meaning that people attribute to their experiences.

To better determine what phenomenology is, or to define the term, one might ask the question: what is phenomenology's associated noun? It is a method, (Barnacle, 2001; Bogdan and Taylor, 1975; Langdrige, 2007; Coyle in Lyons and Coyle, 2007), an approach (Barnacle, 2001; Langdrige, 2007; Smith *et al*, 2009), a type of inquiry (Barnacle, 2001; Ihde, 1977), a philosophy (Ihde, 1977; Langdrige, 2007), an approach that is a method (Spinelli, 2005) and a philosophy and method of inquiry (Connelly, 2010). As a human individual lives, he or she has

experiences – experiences which they ‘live through’. A social science researcher might be interested in those ‘lived experiences’. Phenomenology is closely associated with lived experiences (Barnacle, 2001; Ihde, 1977; Langdrige, 2007; Smith *et al*, 2009). It can be seen as a methodology when employed to garner meanings for individuals through the analysis of their language as spoken or written (Kvale and Brinkmann, 2009; Langdrige, 2007).

When considering phenomenology in terms of epistemology it is interesting to note that Crotty suggests that phenomenology can easily be related to constructionism due to constructionism having a subjective relationship to meaning-making: ‘Truth, or meaning, comes into existence in and out of our engagement with the realities in our world’ (Crotty, 1998, p. 8). He even describes constructionism and phenomenology as being ‘so intertwined’ (Crotty, 1998, p. 12). Barnacle notes the fluid nature of phenomenology in relation to epistemology when she says that what distinguishes phenomenology from empiricism and rationalism is that it does not project a structure onto things in advance (Barnacle in Barnacle, 2001).

The aim of phenomenology is to get to an understanding of human beings from ‘inside’ their subjective experience, which cannot be adequately replaced by an external analysis or explanation. A view from within a person’s perspective might provide a comprehensive understanding of human behaviour. Phenomenologists see the acts of describing and interpreting human experience as valuable (Todres and Holloway in Gerrish and Lacey, 2010).

The objectives of phenomenological study include finding the meaning for individuals of their lived experiences of a concept or phenomenon, and what all participants have in common as they

experience a phenomenon (Cresswell, 2007). In its broadest sense, phenomenology is a theoretical point of view that advocates the study of people's direct experience taken at face value – as they represent the phenomena themselves (Cohen *et al*, 2007). It sees behaviour as determined by the phenomenon of experience rather than by external, objective and physically described reality (Cohen *et al*, 2007).

In phenomenology, everyday experiences that people have are termed 'lifeworld' or 'lived experiences'. Lived experiences are chosen as phenomena to be described and studied closely. The purpose of focussing on such phenomena is 'to find insights that apply more generally beyond the cases that were studied in order to emphasise what we may have in common as human beings' (Todres and Holloway in Gerrish and Lacey, 2010; p. 178). These common themes are often termed 'essences' and they are also known as 'essential structures' (Todres and Holloway in Gerrish and Lacey, 2010).

Phenomenology is often defined in terms of a study: the study of phenomena as people experience them - the interpretive study of human experience in which phenomena are examined and clarified through the human situations, events and experiences 'as they spontaneously occur in the course of daily life' (von Eckartsberg, 1998). With phenomenology, data are often found by using the techniques of personal interviewing, analysing written accounts such as documents or diaries and/or by making observations of subjects in contexts or environments (Langdrige, 2007). In using phenomenology as a research approach the intent is to reduce observed experiences to a description of a universal essence – phenomenological reductions from data (Savin-Baden and Major 2013). In other words, the basic purpose of phenomenology is to reduce

a subject's experiences with a phenomenon to a description of its 'essence' and so a qualitative researcher will identify a phenomenon as an 'object' of human experience (Cresswell, 2007). Phenomenology recognises that truths are grounded in human experience (Merleau-Ponty, 1962) and gathering everyday descriptions of experience can prove valuable for enhancing understandings of those phenomena (Cresswell, 2007; Crotty, 1998; Giorgi, 1985).

There are no 'hard and fast' rules for phenomenological research - rather the study is 'naturalistic' (Kane and O'Reilly-de Brun, 2001) but, as a reductionist research study, where the researcher takes a body of text as data and removes meanings as findings, phenomenology might have these general stages:

1. The researcher gathers detailed concrete descriptions of specific experience from others
2. The researcher adopts the attitude of the phenomenological reduction in order to intuit the intelligibility of what is given in the experience
3. The researcher seeks the most invariant meanings for a context (Todres in Holloway, 2005)

In other words, there is a stage of data gathering followed by a stage of analysis that reduces the data from a full set of data to useful data. The meanings that can be interpreted from the useful data are extracted or otherwise 'set aside'. Thus the meanings or essences of an individual's experiences can be clarified, if not judged or speculated upon.

The objective, or the focus, of phenomenological analysis is towards seemingly trivial details and aspects within experience that may be taken for granted in human life; the goal being to create meaning and achieve a sense of understanding (Dahlberg *et al*, 2008; Laverly, 2003). In

other words, the researcher reports on the meaning of phenomena through analysis of experiential data.

Phenomenology is a human science, rather than a natural science, since the subject matter of phenomenological research is always the structures of meaning of the lived human world. It is the study of lived or existential meanings; it attempts to describe and interpret these meanings to a certain degree of depth and richness. Phenomenology attempts to explicate meanings as we live them in our everyday existence (van Manen, 1997).

The main philosophical points of phenomenology are listed as:

- A belief in the importance and primacy of subjective consciousness
- An understanding of consciousness as active and meaning-bestowing
- A claim that there are certain essential structures to consciousness of which we gain direct knowledge by a certain kind of reflection (Cohen *et al*, 2007).

The results of the methodology have value for the researcher who wishes to explicate the meaning of phenomena through human experience. So phenomenology has become a popular methodology in education research and it aims to allow the observer to describe the meaning for a person of their lived experiences of a concept or a phenomenon (Cresswell, 2007). In principle, phenomenology focuses on people's perception of their experiences of the world, or the perception of the 'things in their appearing' (Langdrige, 2007).

The theoretical point of view that advocates the study of direct experience proved ideal for this study. Phenomenology is a good fit for analysing data gathered on the human experiences that lecturers have as they do their work, and the combination of data gathering and analysis associated with phenomenology constitutes much of my research plan. Also, it is a useful methodology for identifying lived experiences of the phenomena associated with curriculum design. This research has, as its main aim, the purpose of explicating meaning for lecturers of their experiences in the process of the phenomena that is curriculum design.

3.4.3 History and Critiques of Phenomenology

It is considered that there are two main approaches to phenomenology: descriptive and interpretive. Descriptive phenomenology was developed by Edmund Husserl and interpretive phenomenology by Martin Heidegger (Connelly, 2010). Husserl's descriptive phenomenology was and is also known as Husserlian phenomenology or transcendental phenomenology (Smith *et al*, 2009; Spinelli, 2005) and preceded Heidegger's interpretive phenomenology historically (Langdrige, 2007; Spinelli, 2005). Interpretive phenomenology is also known as Heideggerian phenomenology (Lavery, 2003), as hermeneutic phenomenology (Barnacle in Barnacle, 2001; Langdrige, 2007; Lavery, 2003; Smith *et al*, 2009) and as existential phenomenology (Langdrige, 2007; Spinelli, 2005).

Husserlian phenomenology and the hermeneutic phenomenology of Heidegger have some similarities. Both of these traditions emerged from German philosophy; their creators having worked with and influenced one another. Each of these phenomenologists sought to uncover the

life world or human experience as it is lived. Descriptive and hermeneutic phenomenology are both concerned with the life world or human experience as it is lived.

The way this exploration of lived experience proceeds is where Husserlian descriptivism and Heideggerian interpretivism diverge (Lavery, 2003; Rapport in Holloway, 2005). While Husserl focused on understanding beings or phenomena, Heidegger focused on Dasein - 'the situated meaning of a human in the world'. Husserl was interested in acts of attending, perceiving, recalling, and thinking about the world and human beings were involved as 'knowers'. Heidegger, in contrast, viewed humans as being thinking, feeling creatures and their thoughts and feelings were the elements of import (Lavery, 2003).

Some of the literature describes how phenomenology, including hermeneutic phenomenology, is questionable in its use for social science studies. For example, Lawler suggests that the theoretical insights of hermeneutic phenomenology may get lost to the formality of the methodology (Lawler, 1998).

The counter-argument to this criticism is that the use of phenomenology has become widely accepted in the nursing sector of social science (Todres and Wheeler, 2001). Hermeneutic phenomenology is an important methodology to social science – as long as rigour and proper scientific method are applied to research in its use (Todres and Wheeler, 2001).

Cohen *et al* (2007) describe the critical perspective of the interpretive methods in terms of a lack of trust of the data gathering: that it is possible that the participants of studies using the

interpretive approach, such as hermeneutic phenomenology, impart their feelings, not as they are, but as they want to present them to the researcher. This may be motivated either by a wish to help or to hinder the researcher. Also, these studies, less controlled than quantitative (and some other qualitative) studies are prone to data inaccuracy (Cohen *et al*, 2007).

One could counter these arguments by saying that it is less likely that the data gathered for this study would be tainted by falsehoods as they were peers and, having the same type of work experiences, one could easily identify inaccurately described experiences and lies told during data gathering. De Gagne and Walters (2010) recommend selecting a peer group as participants in a hermeneutic phenomenology study to counter the possibility of inaccurate data similar to the scenarios in the criticisms of Cohen *et al*.

Intentionality relates to the meaning that is so important to hermeneutic phenomenology. Spinelli discusses the philosophical idea that, while feeling and sensing are intentional, phenomena need not be (Spinelli, 2005). He clarifies the point that phenomenology's position on intentionality is that all mental acts are intentional: that is the strong link between phenomenology and intentionality (Spinelli, 2005). Spinelli goes on to describe criticisms of phenomenology's use in social science – specifically in psychology (Spinelli, 2005). These arguments are similar to those cited by Todres and Wheeler (2001) and mentioned above. In defense of phenomenology, Spinelli's reply to these criticisms is that some parts of the academic world of social science have applied a prejudicial view of phenomenology, not allowing it to prove itself as a worthy methodology for psychology, as an example, as it surely is (Spinelli, 2005).

The ultimate reply to these criticisms is that van Manen has shown that hermeneutic phenomenology can be used as a method of enquiry so that the researcher can orient himself or herself to human experience in education and, thus, add new knowledge to the field of education research (van Manen, 1997).

3.4.4 Rationale and Use of Hermeneutic Phenomenology in this Research

In the complex field of education, researchers continue to seek ways to improve their work in supporting students and academic professionals. Lecturers need information on which to base their decisions about their work for the improvement of teaching and learning. Phenomenological studies can make a valuable contribution to a more comprehensive database for educational reform (Bourke, 2007). It is a goal of this research to elucidate lecturers' meaning-making of phenomena that are lecturers' various experiences of curriculum development and/or design.

How the data are approached will dictate which of the phenomenological types ought to be used. Whichever phenomenological method is chosen, the phenomenological focus on experience is key for all phenomenological approaches (Langdrige, 2007).

The interpretivist perspective holds that meaning is unique and cannot be described. Interpretation is vital if we are to move beyond the data (Rapport in Holloway, 2005). From the interpretivist perspective, and as a strategy of inquiry or method with which to answer the research question of identifying lived experiences, the research method of hermeneutic phenomenology was chosen as being the method with which I could investigate phenomena

relating to lecturers' issues and experiences of curriculum design – allowing a focus, for example, on the concept of constructive alignment of learning outcomes, programme material and assessment within programme modules, examined from the perspective of the lecturers' experiences as curriculum designers.

With data collected from the lecturers themselves it was possible to examine the relationships between lecturers' experiences, and explore the implications of these in the context of changing curriculum design policy and strategy in computer science education. Therefore, as it is the 'facts' which are of interest for this study - and the lecturers' perceptions and understanding of these facts - it was felt that the hermeneutic phenomenological approach would be an approach that would allow the gathering of the lecturers' experiences and so help to answer the research question.

Human science is rationalistic in as much as it operates on the assumption that human life may be made intelligible and accessible to human reason in a broad or full-embodied sense. Human science also assumes that lived human experience is always more complex than the result of a singular description and that there is always an element of the ineffable to life (van Manen, 1997). This perspective of human science matches well the current research as it allows for insight into the complexity and/or broadness of lecturers' experience as they design curricula.

My research is perfectly situated in human science - in a qualitative, interpretivist approach as typified by hermeneutic (or interpretivist) phenomenology. As I examined hermeneutic phenomenological methodology it became clear that its features, as described above, serve this

research study very well as hermeneutic phenomenology allows for the presentation of experiences, distilled from data gathered for an interpretivist theoretical perspective and a constructionist epistemology.

As well as being applicable to the qualitative, interpretivist nature of this research, hermeneutic phenomenology lends itself very well to the research method of interviewing and transcript analysis (Cresswell, 2007; van Manen, 1997), so it is well-suited as the interpretive research methodologies that ought to be applied to this research study.

3.5 Data Collection Method

This section presents an overview of the method chosen to collect data for the study. As mentioned in the previous section, the qualitative methodology of hermeneutic phenomenology was chosen for this study. This methodology often employs an open and deep interview approach to data collection and analysis. This study, while using hermeneutic phenomenology as the research design methodology, used the open and deep interview approach to data collection and analysis.

3.5.1 Individual Interviews

A very common and useful research method in various qualitative research methodologies has been the open and deep interview, carried out in a dialogical manner (Akerlind, 2006; Booth, 1997). Data gathered for hermeneutic phenomenology is often from an individual interview that is open and deep (van Manen, 1997). ‘Open’ indicates that there is no definite structure to the

interview and 'deep' indicates that the interview will follow a certain line of questioning until it is exhausted, until the participant has nothing else to say and until the researcher and participant have reached some kind of common understanding about the topics of discussion (van Manen, 1997). In this study I considered the interview, as a research method described by Akerlind (2006), Booth (1997), Oppenheim (1992) and van Manen (1997), as most important and significant. Although many possible sources of information may reveal a person's experiences of a particular phenomenon, interviewing individuals is a useful method of discovery for phenomenology (Savin-Baden and Major, 2013). Creswell (2007, p.127) describes in-depth interviews as the primary means of collecting information for a phenomenological study, 'with as many as ten individuals' and that the important point is to describe the meaning of a phenomenon for a small number of individuals who have experienced it (Creswell, 2007). The sample size of participants for phenomenological study is small, generally: seven or so participants, with a view to allowing the researcher to become deeply involved in the data and, therefore, the phenomenon (Connelly, 2010). The analysis of, for example, interview transcripts, requires that the researcher identify intentionality/meaning for the participant by reading and rereading the transcripts, going into the finest detail written there and allowing for interpretation (van Manen, 1997).

3.5.2 Piloting the Interviews

For all interviews I was the sole interviewer. For each interview set (of which there were two) the interviews were piloted with lecturing staff not directly involved in my research, nor participating in the interviews proper, before any programme-specific lecturers were asked to participate. It is good practice to test research methods such as open and deep interviews

(Oppenheim, 1992). Piloting questions on a small sample of respondents drawn from the target population is useful for discovering whether or not the respondents interpret the questions as intended (Foddy, 1993). Piloting might also uncover aspects of questions that will cause difficulty for researchers or interviewers (Foddy, 1993). The purpose of these pilots was to check the clarity of the interview questions, to ensure validity and to identify any confusion in them. Any recommendations, by the pilot participants, for rewording, question order or similar were followed up.

3.5.3 Two Sets of Interviews

As mentioned briefly in subsection 3.5.2, there were two sets of interviews in this study. From the exercise of piloting the interview questions of Interview Set 1, I realised that the area under investigation – curriculum design by lecturers in Dublin Institute of Technology – was a broad area with many aspects of interest for this investigation. I also realised that one set of interviews may not afford me the opportunity to get to the essence of the lecturers' experiences as I planned to use semi-structured interviews. From my understanding of semi-structured interviews, I knew that it would be hard to thematise broad discussion on curriculum design without first finding general themes to focus upon. I decided to continue with the interviews, using hermeneutic phenomenology, with the thought that a set of interviews to begin the process of gathering experiential data, followed by a second and, perhaps, a third set of interviews would allow me to investigate the participants' experiences further, getting a deeper insight to their experiences, and a richer expression of those experiences. I organised the interview sessions for what was to become known as 'Interview Set 1'. There were many useful and informative data from the first round of interviews – those data and the process of analysis of the first set of interviews

informed the questions and the procedure for a second set of twelve interviews. Chapter Four describes the research approach for Interview Set 1, summarises the findings of the data obtained, where findings relate to the computer science lecturers' approaches to curriculum design and the issues implicit in this design that are important to them. Chapter Four also provides examples of how the findings of Interview Set 1 informed the research approach Interview Set 2.

The follow-up interview sessions became known as 'Interview Set 2' and were scheduled after the analysis of the data of the first twelve interviews and the design of interview questions for the second set of interviews.

The second set of interviews investigated further the many phenomena of computer science curriculum design. Chapter Five describes the research approach for Interview Set 2. Having analysed the data of Interview Set 2, I realised that I had got to the essence of the lecturers' experiences as I wanted to investigate them: I considered that there was little more to be gained for this research by continuing with a third set of exploratory interviews. I wrote up the key findings, and so, later in this thesis, Chapter Six describes the findings of the data from the second set of interviews, where findings relate to the computer science lecturers' experiences of curriculum design, and what curriculum design means to them, during that time of curriculum design policy change. Chapter Seven represents a discussion of those findings.

The process and the findings of my study were enhanced by using what Miles and Huberman (1994) call 'combination' qualitative research methods; refining the data from the interviewing

of lecturers with two separate interview sessions. This allowed me to draw conclusions about the issues around, and approaches to, curriculum design at an early stage. Thus it was possible to come to a clearer understanding of the issues and circumstances for the participant lecturers in Interview Set 1, and to find focus for inquiry in Interview Set 2 later in the study. In other words, this refinement by interviewing the participants twice proved useful to my research and is conducive to combination data sampling where there is more than one source of data (Miles and Huberman, 1994) – in this case, data from initial interviews of participants informing questions of later interviews with the same participants.

In this study, the interview approach provided me with the opportunity to ask follow-up questions of the lecturers in relation to their specific experiences. The rationale for using interviews was that the study needed in-depth information from the lecturers that was particular to their circumstances that only emerged from the extensive interview discussions.

For both sets of interviews, semi-structured interviews were used in which I prepared specific questions, but was also prepared to follow any unexpected lines of reasoning that the interviewee addressed, as some of these departures led to fruitful new reflections that he or she could not have anticipated. The aim of the interview was to have the participant reflect on his or her experiences and then relate those experiences to me in such a way that both participant and researcher came to a mutual understanding about the meanings of the experiences, or of the accounts of the experiences (Kvale and Brinkmann, 2009).

3.6 Research Participants

I set about analysing and documenting some aspects of curriculum design for several degree programmes that are described more fully later in this section, and wanted to involve some of the lecturers who design and deliver the modules of these programmes. After pilot trials of the interview questions for Interview Set 1 had been completed I requested participation from among academic peers. From the respondents, all from the School of Computing of Dublin Institute of Technology, I selected twelve computer science lecturers to participate in this research. This gave the study perspectives and data from different types of lecturer within the same faculty department.

These lecturers were chosen from the School of Computing as they were academics for the degree programmes chosen, they were experienced in teaching approaches, as well as being aware of most of the aspects of curriculum design.

I selected four who had graduated with PhD qualifications and eight Masters graduates. Several of the lecturers had taught for many years and several had become lecturers within two years previous and who had much less teaching experience – with some overlap among these categories. They ranged in age from late twenties to late fifties. As might be surmised, the younger participants had few years of lecturing experience, the oldest had most experience, but the three oldest had been systems engineers for at least half of their careers. There were eleven males and one female.

To ensure reliability in the findings, it was necessary to involve lecturers with differing experience on the degree programme, and to ensure there were a variety of profiles. The twelve lecturers have been teaching in a variety of learning environments including lectures, tutorials and laboratories. By including a number of computer science lecturers in the research, I could ensure that there was a balance of profiles to include those:

- with substantial computer science research commitments, in that they had research groups with postgraduate students
- with substantial administrative duties - as members of School/Department management
- with substantial teaching commitments, such as ‘assistant lecturers’ with 18 teaching hours per week
- who were involved in modularisation and semesterisation initiatives
- who were involved in other pedagogical developments, such as online learning

The participant lecturers chose their module design examples from one of a number of possible degree programmes that are offered by the School of Computing: three undergraduate programmes and two of the masters degrees from the postgraduate programmes.

Three of these programmes were four-year honours degrees in a computing discipline (Level 8), these were:

- BSc in Computing
- BSc in Computer Science
- BSc in Information Technology

Two were 1-year (full time) master's degrees in a computing discipline (Level 9), these were:

- MSc in Computing (Assistive Technology)
- MSc in Computing (Information and Knowledge Management)

The modules for the undergraduate course programmes are delivered through traditional methods, i.e. one, two or three hours in a lecture theatre or room, with some timetabled hours for practical modules given to 'labs', where each student would be given access to a networked personal computer with the software appropriate to the module on these.

The lecturers were involved in either teaching or designing features of the degree programmes known as either the Degree in Computer Science, the Honours Degree in Computer Science, the 'night time degree', the Honours Degree in Computer Science or one of the Masters (MSc) programmes – all of the School of Computing.

3.7 Ethical Considerations

Ethical considerations are very important to qualitative research studies where interviews are used due to the personal nature of the interview process (Kvale and Brinkmann, 2009). This importance is intertwined with a level of complexity also caused by that personal nature. Qualitative educational and social researchers face particularly complex ethical issues because their research involves of personal interaction with individuals and communities (Mertens, 2012), and ethical concerns should be involved in every aspect of research design (Maxwell, 2013).

Mertens' (2012) ethical principles for those involved in qualitative research include:

Benevolence: researchers should strive to maximise the good outcomes for science and humanity and minimise risk or harm to individuals in the research.

Respect: researchers should treat the people in their study with respect and courtesy.

Justice: researchers should ensure that the people who participate in the research are those who benefit from the research.

They should achieve this by use of procedures that are reasonable, nonexploitative, carefully considered and fairly administered (Mertens, 2012). During the design of my research experiment, including the gathering and analysis of data, I adhered to these principles, following the guidelines set out by my own institute, the Dublin Institute of Technology, at their website: <http://www.dit.ie/researchandenterprise/researchatdit/ethicsindit/content/guidelines/>, and in the context of the specific guidelines headed as 'Honesty, Openness and Fairness' (www.dit.ie, accessed February 2014).

Qualitative research, as with any research, is about gathering knowledge. The way in which we know is associated with both what we know and our relationships with our research participants (Guba and Lincoln, 2008). As previously stated, the participants of my study were all lecturers in the School of Computing's Department of Computer Science. These were colleagues and contemporaries of mine, as I am a computer science lecturer as well as researcher. In many countries, the supervisor of the researcher (or the research student) is the person who decides whether the planned research needs appropriate ethical guidelines (Silverman, 2010), and so it

was for me, as my supervisor suggested that I negotiate the ethical considerations of my research with my participants.

Researchers have an ethical responsibility to conduct rigorous research (Mertens, 2012). To be genuinely qualitative research, a study must take account of the theories and perspectives of those studied, rather than relying entirely on established theoretical views or the researcher's perspective: participants' theories need be taken seriously (Maxwell, 2013). The participants must be engaged in qualitative studies with informed consent (Christians, 2008; Silverman, 2010) - or voluntary informed consent (Mertens, 2012). That is to say, research participants have the right to be informed about the nature and consequences of experiments in which they are involved. Participants must agree voluntarily to participate. Their agreement must be based on full and open information (Christians, 2008). For my study I asked that academics of the School of Computing volunteer to take part. In the spirit of openness and transparency, I informed the participants of the nature of my research. After they had volunteered and I had informed them of the general nature of the study, only then did I seek their consent to continue with their involvement, which all twelve did.

Another important ethical aspect of qualitative research is that of privacy and confidentiality for the study participants (Christians, 2008; Mertens, 2012; Silverman, 2010). Christians (2008) code of ethics insists on safeguards to protect people's identities and those of the research locations. Confidentiality must be assured as the primary safeguard against unwanted exposure. All personal data ought to be secured or concealed and made public only behind the shield of anonymity (Christians, 2008). The confidentiality of information supplied by research subjects

and the anonymity of respondents must be respected (Silverman, 2010). Following these principles, and adhering to the guidelines set out by the Dublin Institute of Technology, and headed as 'Confidentiality' (www.dit.ie, accessed February 2014). All participants of my study were offered the opportunity to remain anonymous when the outcomes of the research are published.

Silverman (2010) describes the affordance of withdrawal of consent by the participant as an important aspect of the codes of ethics. My ethics statement included the caveat that each participant is free to withdraw consent and discontinue participation in the research at any time without prejudice.

As the primary focus of this study was lived experiences, and the meanings associated with them, which computer science lecturers have as a feature of their work, and though I, myself, have experienced all of the related phenomena, my conceptions of those phenomena were not a focus of this research study. The imposition of external, dominant theories can be a serious ethical problem as well as a scientific or practical one; it can marginalise or dismiss the understanding of participants in the research, and conceal or facilitate oppression or exploitation of the group studied (Maxwell, 2013). With this principle in mind, I did not impose my own theories as an external influence during the study.

Christians (2008) says that ensuring that data are accurate is a cardinal principle in social science codes. Fabrications, fraudulent materials, omissions and contrivances are both non-scientific and unethical. Data that are internally and externally valid are the coin of the realm, experimentally

and morally. In an instrumentalist, value-neutral social science, the definitions entailed by the procedures themselves establish the ends, by which they are evaluated as moral (Christians, 2008). During the study I attempted, as much as possible, to act as a 'neutral foil' for the ideas expressed by the participants. That is to say, reflexivity was used to consider the questions in all the interviews and in the interpretation of the data: I allowed my questioning to continue based on my empathetic knowledge of the experiences, and I interpreted the data with the same empathetic understanding, but I avoided any personal prompting or leading questions during the interviews. No prejudices were applied to the analyses.

Maxwell (2013) says that a primary ethical obligation for a researcher is to try at to understand how the participants will perceive your actions and respond to these. A first step in this is for the researcher to put themselves in the position of the participant, and for them to ask themselves how they would feel if someone was conducting research through them. However, the researcher should not assume that how they understand this situation is the same as that understood by the participants. The researcher will need to learn what the participants' perceptions and understanding are of them and their research in order to develop useful and ethically appropriate relationships with the participants (Maxwell, 2013). An ethics statement and a subsequent letter of consent were presented to all the participants in this research. (An ethics statement and letter of consent can be found in Appendix I.) The ethics statement briefly outlined the nature, scope and purpose of the project and also indicated that all data gathered will be treated confidentially and that lecturers are under no obligation to participate. The findings and conclusions, which were drawn from the analysis of all the research data, were presented to the relevant participants

for 'member checking' and the participants were given the opportunity to contend any of the findings or conclusions.

Throughout the research I remained aware of DIT's ethical guidelines, and followed the relevant principles therein, such as 'Best Practice' in Research, and, in particular, the ethical principles relating to plagiarism avoidance, documenting results and storing primary data and acknowledging the role of collaborators and other participants (www.dit.ie, accessed February 2014).

3.8 Summary

This chapter has situated this study in the context of constructionism due to its focus on individuals' experience and understanding. Therefore the methods associated with hermeneutic phenomenology, as a methodology, as the main strategy of enquiry were adopted to carry out the research and answer the research questions. The constructionist epistemology is clearly reflected in all parts of this design chapter and in the work that was done in relation to the methodology of the study.

The predominant research method employed in this study was the interview. From analysis of data of Interview Set 1, from the lecturers, it was possible to answer the following questions:

1. How do lecturers approach curriculum design?
2. What is the importance of the curriculum design task to lecturers?
3. How do lecturers understand the implications of curriculum design?

The findings of Interview Set 1 that related to the research questions above were instrumental in the development of the interview questions of Interview Set 2 and, as such, guided the focus of the approach to the gathering of the data of Interview Set 2 and the subsequent analysis of these data.

From analysis of data of Interview Set 2, from the lecturers, it was possible to answer the following questions that are related to the main research question:

1. How do lecturers experience curriculum design?
2. How do lecturers understand the implications of policy change for curriculum design?

Then, by comparing the resulting themes, looking for relationships, it was possible to answer the following third research question:

3. How can the meaning that lecturers make of their experiences of curriculum design be attributed to the effects of change in curriculum design policy?

The following two chapters contain the qualitative methodology approaches from this research study. In the chapter following those, the main findings are discussed and the research questions outlined above are answered. The next chapter describes the research method and data analysis for Interview Set 1. Taking the position of researcher using hermeneutic phenomenology, I set about data gathering and analysis of Interview Set 1 which belong to the first part of this study.

CHAPTER 4

RESEARCH METHOD AND DATA ANALYSIS FOR INTERVIEW SET 1

4.1 Introduction

The previous chapter described the methodology and methods used in this study to obtain the data needed to begin answering the research questions. Since this study has two sets of interviews, this chapter aims to describe the qualitative research approach of hermeneutic phenomenology for Interview Set 1. This chapter includes the method of research and analysis of data for the first set of interviews, presented and discussed in detail. They are discussed in relation to this study and relevant studies from the literature. The detail of the method of research and analysis of data for the second set of interviews will be presented and discussed in the following chapter.

This study examines the lifeworlds of computer science lecturers, in relation to their design of curricula/modules in a tertiary-level institute which has recently moved to semesterised/modularised and learning outcome-based curriculum design, with the perspective of the lecturers' lived experiences. Taking the position of researcher using hermeneutic phenomenology, I set about data gathering and analysis of Interview Set 1 which belong to the first part of this study. For this part of the study I required to come to a better understanding of the issues and considerations around module and curriculum design of computer science

programmes, as lecturers set about the task of developing a computer science programme, or reviewing/revising it.

Hermeneutic phenomenology proved to be an appropriate method to use for answering the research questions that sought to identify lecturers' circumstances in relation to issues and considerations of computer science curriculum design. Though it is difficult to apply critical success factors to a hermeneutic phenomenology study, as the nature of the method is to impose reduction to descriptive data, there was an expectation that a clearer view of pedagogy – including teaching, learning, learning outcomes and assessment – semesterisation, lecturer expectations of administration and peer cooperation, would emerge from the use of hermeneutic phenomenology as a means of 'focusing' the area of curriculum design in the first part of a two-part study.

Hermeneutic phenomenology allowed the descriptive data of Interview Set 1 to be thematised and named through its method of data analysis. That data analysis produced findings, which were themes useful to the formulation of interview questions for the second part of the study that continues the methodology of hermeneutic phenomenology. That data analysis also helped describe the research process for the second part of the study by giving me exercise in the process of hermeneutic phenomenology data analysis.

The results of this, the first part of the study, provided an insight on the issues and considerations around module and curriculum design of computer science programmes, as lecturers engaged in

the development, or the reviews of computer science programmes during a move from year-long, linear curriculum design to outcomes-based, modularised curriculum design.

4.2 Interview Set 1 and Hermeneutic Phenomenology Method

The major aim of the first interview set was to gather data for analysis, using hermeneutic phenomenology, allowing for the possibility of identifying some of the experiences that these lecturers had of curriculum design. The data gathered were broad experiential phenomena, with a great deal of data relating to the issues and circumstances relating to computer science lecturers' involvement in curriculum design. The ultimate goal of this study was to get to the essences of individual experience, which came later with the analysis of data from Interview Set 2. This data served to set a clearer context of the lecturers' circumstances during the transitional period and design of curricula therein. It gave a perspective, also, on the lecturers' situatedness in the process of curriculum design.

The data of Interview Set 1, and the subsequent analysis, are described here as the data gathered, the analysis process and the findings from Interview Set 1 proved to be valuable. Mainly and tautologically, the data from Interview Set 1 afforded me the opportunity to examine the way in which the lecturers approach curriculum design, teaching and assessment, and to examine the issues and concerns lecturers had in relation to teaching, assessment and curriculum design.

The questions related to the first set of interviews were not provided ahead of the interview sessions although, prior to the interview sessions – specifically, when the interview times and

locations were being arranged with each participant - the participants were told that they would be discussing questions relating to curriculum design and teaching. They were also told to allow for an hour of their schedule on the day to participate.

The interviews, which were audio-recorded, consisted of a sequence of six semi-structured questions, four of these having two parts. Of these, the first two being related to a specific programme module, two related to module design, three related to teaching the module, four related to assessment of the module, five related to learning outcomes and number six to constructive alignment. All were qualitative questions, which are provided in Appendix C. Generally the questions were open and conducive to discussion.

The interview did not have a time limit. In practice, all interviews lasted from close to one hour, to one hour twenty minutes, approximately.

During the interviews each question was read aloud to the lecturer and the lecturer was then given time to answer as specifically or generally as they wished.

A block of notepaper was available during the interviews, allowing the participant to write exploratory or explanatory notes as they negotiated the questions. As it happened, none of the participants used this, seeming to prefer to describe their answers verbally.

Just prior to the interview sessions the design of the first set of interview questions, and, subsequently, the data of the transcripts of the interviews were matched to the methodology of

hermeneutic phenomenology. At that point it was obvious to me that the data were better suited to examination of the qualitative variation in the way in which these lecturers approached curriculum design, teaching and assessment, rather than lifeworld reporting on very specific experiences of curriculum design related to the change in curriculum design policy. I had expected that I could take findings from this first set of interviews that would contextualise further research, and I expected that further research, including follow-up interviews, would yield more data. I continued with hermeneutic phenomenology, using its reductive principles during the analysis phase of the research procedure for the data gathered during Interview Set 1.

Overall the lecturers' interviews provided data to answer the following research questions:

1. How do lecturers approach curriculum design?
2. What is the importance of the curriculum design task to lecturers?
3. How do lecturers understand the implications of curriculum design?

4.3 Interview Analysis – the Hermeneutic Phenomenology Procedure

The first set of twelve interviews followed two pilot interviews. All of these interviews were then transcribed by a third party professionally. An example of the transcripts is included in Appendix D for the benefit of the reader. The transcriptions were verbatim from the audio recordings. The data of the twelve interviews known as Interview Set 1 were suited to the reductive analysis method of hermeneutic phenomenology. Further, the data comprised of descriptions by twelve computer science lecturers of the issues related to curriculum design, and conditions in which the lecturers found themselves as module and curriculum designers and teachers. In analysing the

data, qualitatively distinct themes emerged – some of which identified the lecturers’ perceptions, conceptions and approaches to curriculum design, teaching and assessment. Some other themes represented issues around curriculum design, teaching and assessment and constructive alignment. There follows the detail of this process.

4.3.1 Reading the Transcripts

The transcripts were produced from my interview recordings by a professional transcription service. With those twelve documents I was able to read through the discussions that I had had with the twelve participants as written texts. For this first interview set each transcript was considered as a whole. It was necessary to examine all aspects of each individual’s approach to curriculum design. For example, a lecturer may have discussed curriculum design in a certain way during the interview and then, later, discussed curriculum design in a different manner; this highlighted further variations in the ways that curriculum design was understood. I also felt it was important to examine the transcripts as a group and not as individual samples, using qualitative method’s aims of organising, accounting for and explaining the data (Cohen *et al*, 2007) to explore the range of issues and concerns that lecturers have, in relation to curriculum design.

Langdrige (2007) describes the approach of hermeneutic phenomenology as focusing on the understanding of the meaning of experiences by searching for themes, with interpretative engagement with the data. The themes are *structures of experience* (his emphasis) and the process that finds them may be to read and reread the text, asking:

1. What sententious phrase may capture the fundamental meaning of the text as a whole?

2. What statements or phrases seem essential to the phenomenon being described?
3. (In a detailed rereading) What does this sentence or sentence cluster reveal about the phenomenon being described? (Langdrige, 2007)

From the beginning of my reading of the transcripts I retained, in mind, a focus on understanding of the meaning of experiences of the participants by searching for themes, interpretatively engaging with the data.

4.3.2 Reflexivity and the Hermeneutic Circle

Reflexivity describes the process in which researchers are conscious of and reflective about the ways in which their questions, methods and subject position might impact on the data or the psychological knowledge produced in a study (Langdrige, 2007). The viewpoint of phenomenology is: a belief in the importance and primacy of subjective consciousness, an understanding of consciousness as active - as meaning-bestowing, essential structures to consciousness of which we gain direct knowledge by a kind of reflection (Cohen *et al*, 2007). Reflection – or reflexivity – in phenomenology is important to van Manen. For him, phenomenology is a project of reflection on the lived experience of human existence (van Manen, 2007), where the reflection can be seen as being part of an investigation of the nature of a phenomenon: not an explanation for it, but a description of it as it appears in consciousness, where ‘nature’ is ‘that which makes something what it is, and without which it could not be what it is’ (van Manen, 1997). He goes on to state that phenomenological reflection is not introspective but retrospective. Reflection on lived experience is always recollective; it is reflection on experience that is already passed or lived through (van Manen, 1997).

‘Phenomenological reflection’ (Standing, 2009; p.25) is part of thematic analysis of interview transcripts, helping in ‘identifying common themes using low inference descriptors’ (Standing, 2009; p.25). My reflections on the issues and phenomena that were among the data of Interview Set 1, which I read in the transcripts, were part of the interpretive analyses.

Another consideration for data analysis, where hermeneutic phenomenology is concerned, is the ‘hermeneutic circle’. The hermeneutic circle is ‘the circular form of interpretation shared between persons in their interactions. It is by definition a closed loop that needed loosening without losing its interactive possibilities and interpretive nature’ (Conroy, 2003; p. 39). The qualitative research interview seeks to describe and understand the meanings of central themes in light of the world of the subject (Oppenheim, 1992). The main task in interviewing is to understand the meaning of what the interviewees say. From a hermeneutical understanding, the interpretation of meaning is the central theme, with the specification of the kinds of meanings sought in a text. This is an emphasis on the interpreters for knowledge of text's subject matter. A hermeneutical approach involves an interpretative listening to the possible meanings involved in the interviewee's statements, with an attention to the possibilities of continual reinterpretations within the hermeneutic circle of the interview. Attention should be paid to their influence of the presuppositions of the subject answers as well as the presuppositions of the interviewers' questions (Kvale, 1996).

I used the principles of reflexivity and the hermeneutic circle in my analysis of the data of this first round of interviews; reflexivity to add clarity to the analysis (Standing, 2009), and the

hermeneutic circle to ‘close a loop of interpretation’ (Conroy, 2003) between myself, as analyst, and the data of the text through engagement with that data.

4.3.3 Beginning the Reductions

During data analysis I sought to identify qualitatively distinct groupings that described the lecturers’ perceptions and approaches. According to Savin Baden and Major (2013), the approach of hermeneutic phenomenology to data analysis involves analysis of a volume of text, such as an interview transcript, so that meaning can be interpreted about a phenomenon, in the context in which it occurs. Themes are related to the dialectical context (Savin Baden and Major, 2013). The process involves:

- Seeking the meaning of text for people in the situation
- Telling the participant’s story
- The researcher bracketing himself/herself out in analysis
- Seeking to interpret different layers of text
- Constructing knowledge by using context to understand and create (Savin Baden and Major, 2013)

In the earliest part of my analysis of the Interview Set 1 transcripts I read each transcript with a view to identifying statements that reflected some of the issues and considerations of curriculum design - seeking the meaning of text for the participant lecturers in their role as curriculum designers. I underlined or highlighted these tracts of text as they were encountered in the read-through. I expected that these highlighted text blocks would contribute to the telling of the participants’ stories. In the meantime, I endeavoured to be parsimonious in my selections in an

attempt to reduce the ‘clutter’ of opinion and conjecture that might eclipse the valuable experiential data sought in subsequent iterations of analysis – i.e. maintaining a constantly questioning attitude to exclude inappropriate data, such as misunderstandings (Conroy, 2003).

In this, the earliest stage of examining the transcripts of Interview Set 1, I considered it important that each transcript be considered as a whole – but it was also important to examine the transcripts as a group, rather than isolating each transcript as an individual example of data. What emerged from this early data reduction were twelve documents with important data underlined or highlighted for further analysis. In these documents, remaining text was deemed to be ‘general conversation’ about courses and teaching. That text was removed to leave text that represented the participants’ responses to the main aspect of each interview question, or their digressions that might contain expressions of experiences. I retained text of my interventional speaking to give context to the response data of the participants, yet bracketing myself out at this point of the analysis (Savin Baden and Major, 2013).

The product of this process of early reduction was a set of twelve documents of fewer pages than the original transcripts, with extensive experiential statements by respondents underlined (in .doc computer files) and highlighted in hard copy (printed paper) form. The hard copy versions also had hand-written comments in the margins of a phenomenological nature. The comments related to the experience being described by the participant. These highlighted documents were used as the basis of a concentrated, concerted hermeneutic phenomenological reduction of the data, as described in detail below.

4.3.4 Refining the Reductions

The conditions for analysing text as part of the hermeneutic phenomenological methodology is that the texts must be oriented, strong, rich and deep (van Manen, 1997). The analyst must establish an orientation, a reflexive stance on the content of the text. This will help identify meaning. The analyst must be able to identify strength in the text; a strength of context to allow strong orientation. A rich and thick description of the situation under analysis will ensure that there is enough lifeworld to tell the story. Depth is what gives the phenomena of the text their meaning, and will allow fuller understanding during and subsequent to analysis (van Manen, 1997). The continuation of the analysis of the data of Interview Set 1 needed to be rich and deep. In refining the reductions I sought to interpret different layers of text, as suggested by Savin Baden and Major (2013).

For refined reduction I read and reread the twelve highlighted documents and wrote more comments and notes in the margins. In the refinement/reduction of these documents, extracting the most experiential data, there emerged from the highlighted documents refined versions of the transcripts. These became what I called ‘focus’ documents: a long list of keywords and phrases that related to the specific experiences and feelings of each participant in relation to the issues and circumstances of their involvement in curriculum design. For each participant there emerged four versions of the focus documents. Examples of the focus documents that developed for Participant 11 can be found in Appendix E.

The twelve ‘Version 4 Focus Documents’ represented the core data that, I felt, required interpretation to be a product of a hermeneutic phenomenology study. I considered that that there

would be more value in interpreting this data for it to provide useful findings to inform the follow-up interviews (Interview Set 2). The interpretive analysis, then, reflected the application of the hermeneutic circle (Kvale, 1996) and reflexivity (Cohen *et al*, 2007). Employing the hermeneutic circle would give more valuable interpretations that would properly answer the research question of how lecturers approach the task of curriculum design, how they experience the importance of curriculum design and how they understand the implications of curriculum design.

4.3.5 Emergent Themes

The qualitative method of analysis of qualitative data meant that one can produce a list of themes (Cohen *et al*, 2007). Themes are extracted from the text of the transcript (Waring and Wainwright, 2008). A theme is a label attached to a section of text to index it as relating to an event or issue in the data which the researcher has identified as important to his or her interpretation.

It was possible for me to name immediately obvious themes after some initial exploration of the data in the focus documents. The themes can represent ‘clusters of meanings’ (Savin-Baden and Major, 2013) or they can represent experiential structures making up the experience (Langdrige, 2007; van Manen, 1997). They should be considered as useful in giving control and order to our writing, but are simply a means to get to the notion we are addressing (van Manen, 1997).

In order to report on the findings of the analysis of Interview Set 1, which examined the issues and considerations associated with computer science curriculum design, I expected to see

‘structures of experience’ (van Manen, 1997) such as ‘content’, ‘teaching’ and ‘assessment’ to emerge as themes from the hermeneutic phenomenology process – even from the point of beginning the reductions. During an initial analysis, I examined the focus documents that represented the refinement of the transcripts of the participants’ interviews, looking both for similarities and differences among them with a view to narrowing the search for the structures of experience. In this process there developed initial themes that described the participants’ perceptions and approaches to curriculum design, teaching and assessment. Some of the initial themes described issues around curriculum design, teaching, assessment and constructive alignment. I reread the text from all focus documents together, and themes identified were given names. Grouping the themes hierarchically created a document named the ‘initial report’.

I read the focus documents many times, each time with a particular aspect of the interview ideas in focus. Iteratively, the themes were defined for sections of text that index them as relating to events or issues in the data which were identified as important to the interpretations. An iteration of the earlier sorting task showed a refined hierarchy of themes. The document that emerged from this part of the analysis had a list of themes that represent issues for all participants in the transcripts and was called the ‘intermediate report’.

With these groupings of themes in mind I re-examined the focus documents to determine if the groupings were sufficiently descriptive and indicative of the data. If there were cases that I felt could not be described by a grouping, I re-examined the grouping and the focus documents and, in some cases, I altered the descriptions to ensure every aspect of the issue or concern under investigation was described. At this stage I reflected on quotation extracts from the original

transcripts to support the descriptions of the issues, which gave them substance. (In documentation, these quotations are found in focus documents, version 3 – labelled ‘Second Extraction Version 2. (See Appendix E.)) This iterative data analysis procedure is consistent with the approach of hermeneutic phenomenology as described by van Manen (1997).

For each interview question I iterated analytical processes that led to identification of a number of issues, which explained all the variations in the data. Once the issues were defined, I then analysed them to see how the structure of the individual themes related to each other logically. For example; was there a particular theme in the perceptions of constructive alignment outcome space that could be associated with a theme in the conceptions of teaching outcome space?

During data analysis I believed that a limited number of themes were possible for each interview question and that these themes would be discovered by immersion in the data. I examined the quotation extracts from the original transcripts of the participants’ interviews once again, looking both for similarities and differences among them. In this process I was able to identify themes that described the issues, and lecturers’ concepts of and approaches to the different aspects of curriculum design. This iteration of the refinement task created the ‘final report’ document. Collectively the themes that I found represented lecturers’ experiences identified in the textual data of Interview Set 1.

The outcome of the approach described here was a document that described a summary of the important issues that emerged from all twelve interview transcripts of the first interview set. This is what Cohen *et al* (2007) generalise as the qualitative data analysis ‘report’. This document

represented the findings of Interview Set 1 and those findings were used to inform the next stage of the research; designing the research questions and approach for the hermeneutic phenomenological round of interviews of Interview Set 2.

The results of the hermeneutic phenomenology process; the initial report, the intermediate report and the final report are to be found in Appendix F.

4.4 Summary of the use of Hermeneutic Phenomenology

It was possible to see many aspects to the events and conditions of module design, and it was hard to choose the best way of reducing them using qualitative method. One might consider that qualitative data analysis is methodical enough to be followed with a set of twelve transcripts, but there were so many descriptions of various modules visible, with their specific content type, many different methods of module design and many, many issues and circumstances associated with individual cases, so that I had to think of different approaches to all of the data. For example, I considered using the questions as a basis for beginning the thematic analysis, but it did not work as well as keeping the perspective of the individuals.

The transcripts were reduced thematically by identifying the themes in the transcripts, roughly associating them for each question, and naming the themes. For each theme the important issues were identified and noted, placing them in lists and, through iteration, refining this list to get to a report of the data. The report highlighted the issues that were important to most participants as lecturers, curriculum designers and teachers.

With these analytical principles in mind, I chose to analyse the data as hermeneutic phenomenology suggests, but I also felt that I ought to 'report' on the findings as I went through the analysis, for the sake of the process and analysis of Interview Set 2 that these findings were to be used to serve. I devised the following sequence as my hermeneutic phenomenology data analysis approach:

1. Write down all immediately obvious themes by naming themes after some initial exploration of the data.
2. Reread all the text and further thematise the text by grouping themes hierarchically to create an 'initial report'. (Themes of this iteration are specific terms, sentences or short paragraphs that show a feature, such as an event or an issue.)
3. Sorting themes to get all similar text in one place - grouping themes of the initial report hierarchically to create an 'intermediate report'. (This is an iteration of the previous sorting task to show a refined hierarchy of themes.)
4. Reading the segments and making the connections that are subsequently corroborated by reviewing all transcripts wholistically - refining the hierarchical themes through interpretation to create a 'final report'.

So the data analysis process was followed as per the methodology of hermeneutic phenomenology and what was produced at the end is a list of emergent themes that represent some of the perceptions and approaches to curriculum design, teaching and assessment of the twelve lecturers, and themes related to issues around curriculum design, teaching, assessment and constructive alignment as those twelve lecturers described them.

Figure 4.1 shows a depiction of hermeneutic phenomenology as it was used to analyse the data of the transcripts of Interview Set 1.

This method resulted in the findings that are summarised later in this chapter, and which appear in full in Appendix F. The findings from the first set of twelve interviews will then be related to the data collection and research methods of Interview Set 2.

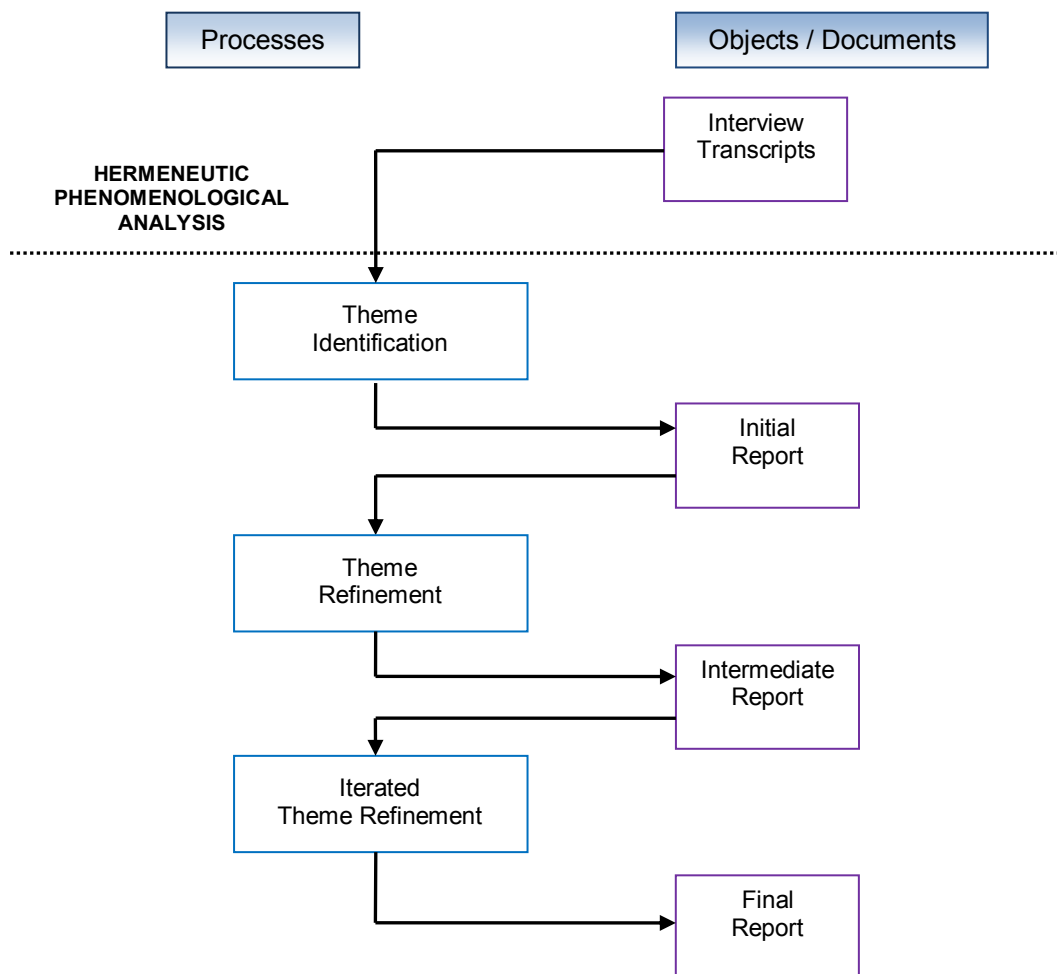


Figure 4.1 Hermeneutic Phenomenology as Used in the First Part of the Study

4.5 A Summary of the Findings of the Qualitative Data Analysis of Interview Set 1

The findings of the first set of interviews were represented by the themes that emerged from the hermeneutic phenomenology of the twelve transcripts of Interview Set 1 together. The findings were related to research in their own specific area and then described in terms of what they mean to the field of this research.

Themes showed that the participants were describing these issues and concerns as part of their jobs, rather than philosophically or in a purely academic sense. This is the context that emerged from the interviews. Some examples of these thematic findings are as follows.

Module design:

The issue that came to the fore in the category of programme design was the use of previous module design documents by lecturers to help with the design of new or revised module documents such as Knight's plan documents of achievement (Knight in Boud and Falchikov, 2007). The themes of this category were in the context of how a module is shaped, mainly. For example, the themes refer to the 'building blocks' – e.g. content and influential materials – as well as the temporality of programme design, as mentioned by Ramsden (1992).

Teaching and Learning:

The issue that came to the fore in the category of programme design was the use of discussion and interaction in class. Lecturers were not concerned about not using interaction, but how best to do it. This is hinted at in Biggs (2003b). Most of the themes in this category relate to delivery

of the module - there was little emergence of themes on learning. Learning is a personal and student-specific thing from the perspective of the lecturer and they tend not to venture judgement or valuation on learning in relation to teaching – but Biggs (2003b) recommends that the lecturer should make that judgement for curriculum design.

Assessment:

The issue that came to the fore in the category of assessment was the lecturers' concern about plagiarism. They saw it as anathema to learning and wondered how to remove it from their assessment environments. Plagiarism is an important consideration for curriculum development, especially with the proliferation of technologies that allow plagiarism by students (Tella and Adu, 2009). The themes of this category have much more to do with the methodical aspects of assessment – the workaday organisation of assessments as part of a module, rather like the utilitarian aspects outlined by Graham (2004). The collective perspective on assessment was on the idea of assessment as a task, rather than as a concept of learning.

Constructive Alignment:

The issue that came to the fore in the category of constructive alignment was aligning learning outcomes with assessment. Lecturers are more concerned about constructive alignment in terms of assessment than in terms of teaching but only by a small margin. This is one of the aspects of constructive alignment that should be considered among others, such as alignment between learning outcomes and teaching (Biggs, 2003b). The themes of this category were in the context of placement of constructive alignment, mainly. The lecturers saw constructive alignment as a

programme design issue specifically. The close relationship between constructive alignment and curriculum design is well attested by Biggs (2003b).

Other Issues for Lecturers:

The issues that came to the fore in the category of other, ‘peripheral’ issues were links to industry and student attrition rates. Also, emergent technologies as computer science is so sensitive to new technology, as a field of study. Palmer (2004) holds the inclusion of an industry perspective, and the technology perspective, on programme design as important – especially in the fields of Engineering and Technology.

4.6 Using the Interview Set 1 Study Findings to Inform the Interview Questions of Interview Set 2

Completion of analysis of Interview Set 1 resulted in a data analysis report containing a list of themes. These themes included features such as use of documentation and ‘inter-module links’, and issues such as prior knowledge/experience and time constraints. These were documented, and they summarised the first round of interviews concisely. When writing the second set of interview questions – to be used in the second round of interviews - the themes of the hermeneutic phenomenology of Interview Set 1 were read and reflected upon, with consideration for the research requirements of Interview Set 2. A list of questions were written that allowed ‘room’ to discuss any issue of the first round of interviews if it came up in the open-style questioning of the second round of interviews.

There were fifteen questions developed for data gathering of Interview Set 2. The findings prompted the procedure for data gathering of Interview Set 2, as mentioned before – but also the development of the questions of Interview Set 2. As examples of how the findings of Interview Set 1 informed Interview Set 2, the three below illustrate this point.

Example 1:

The programme design findings of Interview Set 1 related to planning and documentation of curriculum design. Question 2 of Interview Set 2 read;

“How did you go about designing this module?

(A description in terms of:

- i. How learning outcomes were written
- ii. How assessment was developed
- iii. How teaching and learning was included

and with consideration of:

- i. Who was involved
- ii. Documents that might have been used

and whether there was any evaluation/feedback by peers)”

Example 2:

The teaching and learning findings of Interview Set 1 related to students’ learning of the curriculum and judgement of student learning. Question 8 of Interview Set 2 read;

“How do you consider the student in your module design?”

Example 3:

The peripheral issues for lecturers findings of Interview Set 1 related to links to industry, high attrition rates and emergent technologies. Question 12 of Interview Set 2 read;

“Issues important to lecturers are:

- i. Student attrition rates
- ii. Plagiarism
- iii. Giving feedback
- iv. Marking schemes
- v. Using different assessment methods

How have you found that these relate to module design?”

The essence of all the data from Interview Set 1 permeated the interview sessions of Interview Set 2 – i.e. the reflected knowledge gained from working through the first stage of the research, with its own set of questions, the attempt at phenomenological analysis and the complete analysis carried out through hermeneutic phenomenology, set the tone for the second stage of the research – from developing the questions through the data gathering, to the point where the hermeneutic phenomenological analysis began.

4.7 Summary

This chapter has outlined the approach and data analysis of the first stage of my two-stage research study. It represented the data gathering of Interview Set 1 and the hermeneutic phenomenology procedure applied to the interview transcripts, including and analysis

procedures. It has summarised the findings to allow an exemplification of how the product of the first stage was employed efficaciously in the development of the second stage that is associated with hermeneutic phenomenology and the main findings of this research.

The first analysis – the first part of this research study - gave me a clear perspective on features and issues of lecturers' module curriculum design, teaching, assessment and constructive alignment that improved the quality of my Interview Set 2 questions. I used the Interview Set 2 questions in relation to the hermeneutic phenomenology study. The research method and data analysis pertaining to Interview set 2 and hermeneutic phenomenology are described in the next chapter.

The first part of this two-part study provided clarity about the issues and considerations around module and curriculum design of computer science programmes: issues and considerations for lecturers developing or reviewing computer science programmes. Hermeneutic phenomenology allowed the descriptive data of Interview Set 1 to be reduced and thematised through its method of data analysis. Hermeneutic phenomenology proved to be useful for answering the part of the research question that sought to identify issues and considerations of computer science curriculum design – issues about teaching, learning, learning outcomes and assessment, semesterisation, lecturer expectations of administration and peer cooperation, for example.

The findings of this part of the study provided themes that were used in the formulation of interview questions for the next part of the study. This second part of the study also used the

methodology of hermeneutic phenomenology and that research is described in the chapter following.

CHAPTER 5

RESEARCH METHOD AND DATA ANALYSIS FOR INTERVIEW SET 2

5.1 Introduction

The previous chapter described the qualitative research approach of thematic identification through hermeneutic phenomenology for Interview Set 1. The method of research and analysis of data for the first set of interviews were presented and discussed in detail. The findings of the analysis were summarised and how they informed the second set of interviews was exemplified.

The findings of the study of Interview Set 1 showed that the participants described issues and concerns in relation to their jobs as lecturers and curriculum designers, rather than philosophically or in a purely academic sense. This was to be expected from the nature of the questioning that was used for Interview Set 1. The findings were useful in informing the design of the data gathering procedure of the second part of the study, and included themes of programme and module, teaching and learning, assessment and constructive alignment, for example.

Since this study has two sets of interviews, this chapter aims to describe the qualitative research approach of hermeneutic phenomenology (van Manen, 1997) for Interview Set 2. This study is an examination of lecturers' experiences of curriculum design during a time of dramatic and abrupt changes in the academic calendar. This part of the study that uses hermeneutic

phenomenology was followed in order to gather data on the lecturers' lived experiences that are mentioned in the main research question: describing lecturers' experiences of designing curricula in the context of a move to a semesterised/modularised calendar and a learning outcome-based approach to curriculum design.

The research procedure included semi-structured interviews of the twelve participants of Interview Set 1, and whose questions and process were reflective of the findings of the analysis of the interview transcripts of Interview Set 1. The results of this second part of the study was the provision of described lived experiences of computer science lecturers engaged in the development or the review of computer science programmes. Since the interview questions were appropriately focused by the results of the first part of the study, the data gathered was enriched and the findings of the second part of the study were of better quality than might have been expected from a one-part hermeneutic phenomenological study.

In this chapter the method of research, gathering and analysis of data for the second set of interviews are presented and discussed in detail, and in relation to this study and relevant studies from the literature. The findings of the first part of the study gave information that was relevant to the investigative process of the second part of the study. Most particularly, they informed the way to think about investigating the lived experiences of computer science lecturers. The information to which they gave rise provided a background on which to base the deeper phenomenological investigation. The findings of a hermeneutic phenomenological investigation would give insight to the curriculum design experience – a major aim of this study. Following

the hermeneutic phenomenological methodology resulted in the findings that appear in the chapter which follows.

According to van Manen (2007) the approach of hermeneutic phenomenology involves engaging a volume of text so that significant statements can be identified, then important aspects of the description can be identified through hermeneutic interpretation (the themes). More themes, or refined interpretations of established themes, can be identified through further dialogue with the text (learning through dialogue). This can give a second level of themes which can be modelled, and further interpretation of this can reveal truth about phenomena in the text.

The complete analysis process of engaging, interpreting, learning and constructing involves:

- Hearing a story
- Identifying key statements
- Hermeneutically interpreting the statements
- Identifying first-order themes
- Learning more about phenomena of the text through dialogue (Dialogue amounts to further interpretation of the themes and original text.)
- Identifying second-order themes
- Modelling identified phenomena
- Constructing truth about phenomena of the text (van Manen, 1997)

The listing above and the details of Figure 5.1 are interpretations of van Manen's (1997) work on hermeneutic phenomenology. Figure 5.1 is a flowchart-style diagram that depicts a generic view of hermeneutic phenomenology as a methodology.

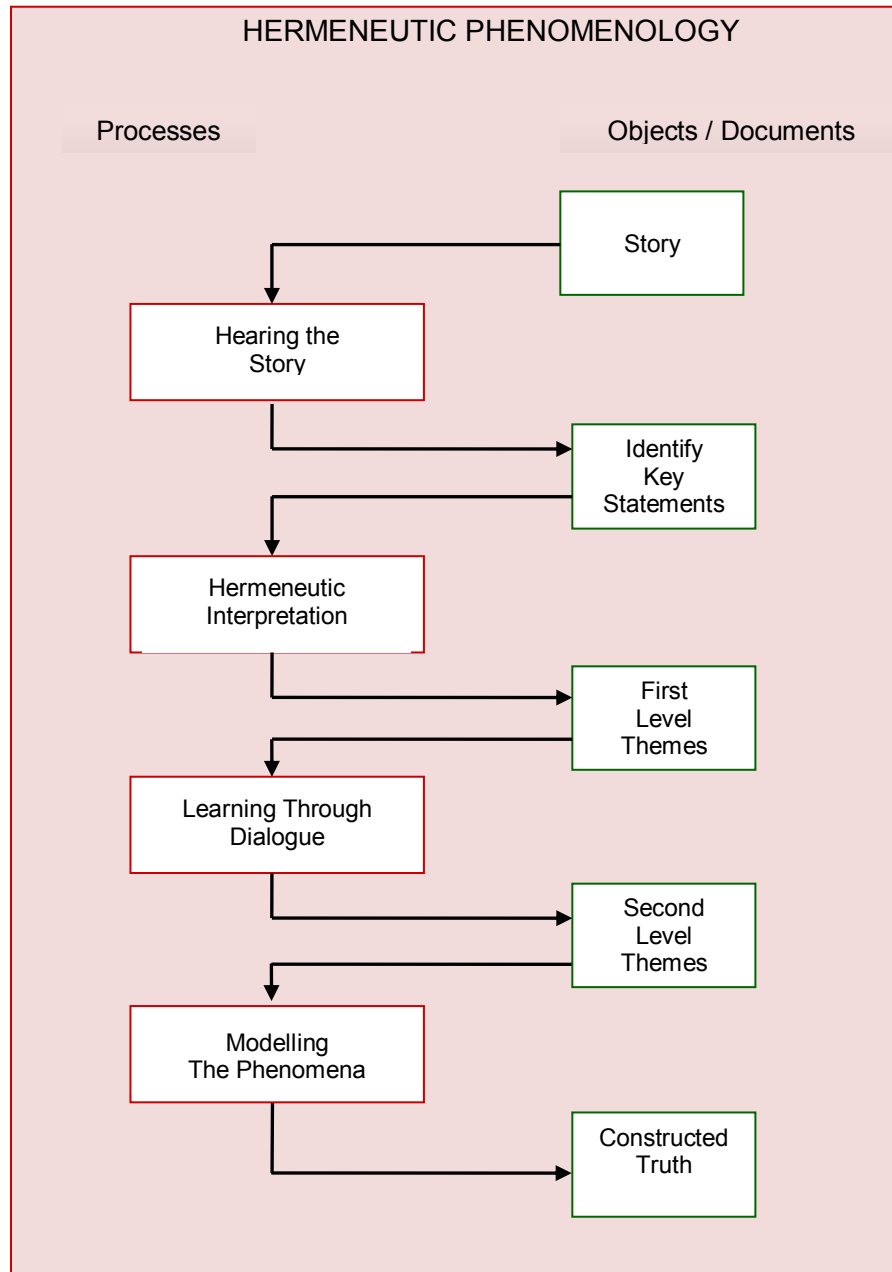


Figure 5.1 Hermeneutic Phenomenology Methodology

The use of the hermeneutic phenomenology methodology resulted in the findings that are described in the following chapter.

5.2 Interview Set 2 and the Hermeneutic Phenomenology Method

The second set of interviews involved the same twelve lecturers of the first interview set. Though a list of fifteen broad, discursive questions were used, there was allowance for, and expectation of, diversion of questioning to generate follow up discussions. There was the expectation that the researcher might need to either bring the focus of the interviews back to experiences, or to probe a line of inquiry to get richer data that would enhance the results through analysis later. As it occurred, these expectations were well-founded and I did have to revert or probe during the interviews. Of the questions prepared, all were qualitative questions and are listed in Appendix G.

The major aim of the second interview set was to gather data for analysis, using hermeneutic phenomenology, to allow identification of the experiences that these lecturers had of module and curriculum design, contextualised by their roles as teachers, assessors and by the curriculum design approaches.

Overall the lecturers' interviews provided data to answer the following research questions:

1. How do lecturers experience curriculum design?
2. How do lecturers understand the implications of policy change for curriculum design?

3. How can the meaning that lecturers make of their experiences of curriculum design be attributed to the effects of change in curriculum design policy?

These interviews were semi-structured, open and deep, for which there was prepared a set of questions which included, for example:

1. What does curriculum design mean to you?
2. What was it like to design this module?
3. What was difficult about the module design?

The specific questions related to the second set of interviews were not provided ahead of the interview sessions although, prior to the interview sessions but in an email, a copy of which is in Appendix B, the participants were told that this was to be a follow-up interview and that the investigation this time, would focus on their experiences of curriculum design. They were told to, again, allow for an hour of their schedule on the day to participate.

The interviews, which were audio-recorded, were guided by a sequence of fifteen semi-structured questions. Of these, the first was related to a choice of a lecturer's designed module, the second related to the design process, the third asked why they used a method, the fourth to the design experience directly, the fifth to difficulties encountered, the sixth and ninth to design process, the seventh to what was learned, the eighth to how the student features in module design, the tenth to change in process, the eleventh and thirteenth to feeling happy and proud with the design, the twelfth related to findings from the first set of interviews directly and the fourteenth asked if they felt changed personally by the experience. The final question invited

them to add anything to the discussion that they wished to. Generally the questions were open and conducive to discussion.

Each question was read aloud to the lecturer and the lecturer was then given time to answer as specifically or generally as they wished. Before the questions began the participants were advised to listen to the questions and answer fluently with 'the first thing that came into their head'. In other words, the participants were asked to state their first ideas on what they thought the question involved and then asked to describe, qualitatively, their answer to each question. After this, the participating lecturer was encouraged to 'think aloud' (Chi, 1997) as they discussed the question.

A block of notepaper was available during the interviews, allowing the participant to or me to write exploratory or explanatory notes as they negotiated the questions. As it happened, none of the participants used this, seeming to prefer to describe their answers verbally.

As interviewer, I took written notes on verbal and facial expressions of the participant. These notes informed a deeper questioning, following a train of thought or an issue related to their experiences, or to divert participant who strayed off the point back to the main question. The notes were also useful as an aide memoire when analysing the interview session transcripts.

5.3 Interview Analysis – Hermeneutic Phenomenology

Silverman (2010) suggests that it is better to validate one's qualitative research – including analysis – by giving some proof through describing one's procedures, so, beginning with a description of the process of transcribing the twelve recorded interviews, this section continues with an account of how those transcripts were analysed using hermeneutic phenomenology as a method.

The main set of twelve interviews followed three pilot interviews. All of these interviews were then transcribed verbatim from the audio recordings and in analysing the data, qualitatively distinct themes emerged that described the lecturers' feelings, perceptions, conceptions and approaches. This process of analysis, using hermeneutic phenomenology, is referred to here as 'reduction' by me, because of its relation to the eidetic reduction of Smith *et al*, (2009). The principle of that type of analysis is to generate a description of the natural emergence of themes, similar to the 'naturalistic' method described by Kane and O'Reilly-de Brun (2001). These themes are juxtaposed or compared to the interview questions that were used to see if and how the questions relate to themes as focal points of the study. These themes are better termed 'lived experiences' – as described by van Manen (1997), for the purpose of a phenomenological study.

I believed possible to identify lived experiences for each research question and that these lived experiences could be discovered by immersion in the data. A core principle of research using phenomenology is the assumption that lived experiences describing the variation in the ways of experiencing something are related to each other (van Manen, 1997).

5.3.1 Writing the Transcripts

The transcription of these files (they were twelve .mp3 and twelve .wav backup recording files) began the day after the last interview. I, as researcher, transcribed the interviews by listening to the recordings on headphones and typing what I heard verbatim.

The overview of the transcript schedule is included here as this turned out to be an important part of the phenomenological analysis: I began learning about the lecturers' experiences by listening to them and writing them down – ahead of the full hermeneutic phenomenological analysis. In the first set of interviews, as described in the previous chapter, I collected the twelve transcripts completed professionally and began analysis on those documents. I found, with those first set of interviews, that I had to 'get to know them' as I analysed them and so it was not a simple case of extracting data from them as I read them. By writing them from the recordings, I was much more 'in tune' with the participants' experiences when the analyses were performed later in the year. I suspected that a clearer view of the phenomena, a 'readiness-to-hand' of the important points of the transcripts, would result if I 'suffered' the job of transcribing these later interviews myself. As Langdrige (2007) has suggested, transcription brings the researcher 'closer to the data'. An example of the transcripts is included in Appendix H for the benefit of the reader.

Transcript analysis is the attempt to identify the valuable data (Cresswell, 2007) and this was the next undertaking.

5.3.2 Reflexivity and the Hermeneutic Circle

The reflexivity definition of the previous chapter introduces the principle of reflexivity that I used as part of the data analysis of the transcripts of Interview Set 2 of this, the second part of the study.

In terms of reflexivity as part of the hermeneutic phenomenological analysis, I felt that my own understanding of the phenomena associated with teaching, assessment and curriculum design, being a lecturer in the field of computer science myself, as the participants, would be an asset to the investigation. I allowed my own reflections on the issues and phenomena under investigation to guide the questioning during interview and the subsequent interpretive analyses. As is suggested by van Manen's hermeneutic phenomenology (van Manen, 1997), there was no 'bracketing out' of prior knowledge of the circumstances.

As for the data analysis of Interview Set 1, and as introduced as an idea in Chapter 4, I applied the principle of the hermeneutic circle to the investigation of Interview Set 2. van Manen's hermeneutic approach of phenomenology includes, in its philosophy, that language reveals *being* within some historical and cultural contexts, understood by participant and researcher and through language, such as the language of the interview, moving in the hermeneutic circle between part and whole, with no beginning or end (Langdrige, 2007). This circle is the process of understanding a text by reference to the individual parts along with the researcher's understanding of each individual part, by reference to the whole document. The value of this process is that it reduces the possibility of missing important findings. Thus the lived experiences

of lecturers would be completely interpreted, and better described, by use of the hermeneutic circle.

As for the first round of interviews, I used the principles of reflexivity and the hermeneutic circle in my analysis of the data. These were valuable techniques in this study to explicate findings from the data of the second round of interviews.

5.3.3 Beginning the Reductions

During the first iteration of analysis I looked for both similarities and differences among transcripts, selecting significant statements and comparing these statements in order to find cases of variation or agreement and thus grouping them accordingly. Categories of description might be seen as being constituted by considering variation, discernment and simultaneity and this is what I endeavoured to do at all times.

At this stage I had become familiar with the transcripts – a valuable outcome of transcription and familiarity with the conversation (Kvale, 1996). Getting a sense of the data could be described as moving into the content of the transcripts with a sense of self-trust in one's analytical process (Storey in Lyons and Coyle, 2007).

Phenomenology provides lived experiences that are qualitative, experiential, relational and content-oriented (Marton, 1988). However, throughout the initial stage of examining the transcripts, I endeavoured to keep a high degree of openness to any possible meanings. For the interview set, each transcript was considered as a whole. It was necessary to examine all aspects

of each individual's experiences. For example, a lecturer may have discussed module design in a certain way during the interview and then, later, discussed module design in a different manner; this highlighted further variations in the ways that module design was understood.

Following this, each text was broken down into more manageable units of meaning. This was achieved by removing paragraphs of text that were explanatory of the module chosen for discussion or any other tracts of text that I deemed 'general conversation'. What remained were paragraphs that described the participants' responses to the key points of each interview question and/or their digressions that had value as data. Also remaining were my own intentional ingressions where, during the interview, I followed a point made by the participant that could yield more or better data. These flexibilities were intentional and reflect the 'open' design of the interviews described by Cohen *et al* (2007).

The product of this process of early reduction was a set of twelve documents of fewer pages than the original transcripts, with extensive experiential statements by respondents underlined (in .doc computer files) and highlighted in hard copy (printed paper) form. The hard copy versions also had hand-written comments in the margins of a phenomenological nature. They related to the experience being described by the participant. An example of these margin notes is: 'Thought about better content during teaching/delivery' which related to the participant's feeling of frustration that the content could have been better defined in the module descriptor document, had he or she had the time to revise the overall module design before the administrative deadline for submitting module descriptors. Margin note-writing of this type is recommended by Smith

and Eatough for interpretive phenomenological analysis (Smith and Eatough in Lyons and Coyle, 2007).

It was important to examine the transcripts as a group and not as individual samples. Research using phenomenology aims to explore the range of meanings (the pool of meaning) within a group and the lived experiences which constitute the lived experiences that represent the range of ways of experiencing a phenomenon (van Manen, 1997). As Akerlind (2005, p331) states:

The aim is not to capture any particular individual's understanding, but to capture the range of understandings within a particular group. The interpretation is, thus, based on the interviews (more precisely, the interview transcripts) as a holistic group, not as a series of individual interviews. This means that the interpretation or categorisation of an individual interview cannot be fully understood without a sense of the group of interviews as a whole.

The full transcripts were reduced this way one after the other, from the first to the last, to produce the twelve 'highlighted' documents. The choice of reducing the twelve transcripts together, from one level to the next, rather than complete analysis, participant by participant, was the right one to make as the experiences of all twelve participants coalesced in my mind as I went through each level of reduction. I could relate some experiences by one participant to another – or others. This is what Flick (2009; p 392) calls 'generalisation', where the quality of the analysis is in the 'transferability of findings from one context to another' (Flick, 2009; p. 392), which was the case here. This method of 'relating' proved useful in presenting the themes

as described in the next chapter; Findings - Hermeneutic Phenomenological Analysis of Interview Set 2.

5.3.4 Refining the Reductions

Next the twelve highlighted documents were read and reread, and more comments hand written in the margins. In the refinement/reduction of these documents, they became what I called ‘quotes’ documents: a long list of quotes that related to the specific experiences, feelings or personal changes of each participant. The twelve ‘quotes’ documents were each of five to eight pages in length. This was the core data and, had this been a descriptive phenomenology study, I would have grouped these quotes according to their essences to finish the study. However, I found that there is much more value in using this data for hermeneutic phenomenology as the interpretation required for the interpretive style of phenomenology would provide useful data to the academic world that concerns itself with curriculum design and lecturers as curriculum designers. The analysis, at this point, could be seen in light of the hermeneutic circle (Kvale, 1996) and reflexivity (Cohen *et al*, 2007). This effort of analysis employing the hermeneutic circle would give stronger – or more valuable – interpretations that would properly answer the research question of how lecturers experienced the task of curriculum design.

5.3.5 Emergent Themes

The ‘quotes’ documents had statements made by the participants that could be readily related to the phenomena of module design by the participants – how they experienced module design, the issues and the circumstances surrounding that job of producing a module descriptor. I wrote more comments in the margins of these documents and saw that the statements could be related

to general themes prompted by the interview questions. van Manen (1997) refers to themes as ‘structures of experience’, and those structures began to become apparent in the analysis notes and documents at this stage of the investigation.

The next phase of the analysis was to interpret the ‘phenomena statements’ to ‘round them out’ as hermeneutic phenomenology analyses. I read the statements and paraphrased them in their essence as a third party giving testament to the data. In most cases the ‘hermeneutic testament’ was written down in ‘hermeneutic analysis’ documents – one for each participant in turn. In these documents the briefly described interpretations led to the participant statement placed underneath, indented and italicised to identify it to the reader.

I saw that some statements made by participants and their interpretations ‘clustered’ in relation to different aspects of the phenomena discussed by the participants and me during the interviews. For example, I brought up the idea of learning outcomes in the interviews and most participants went on to describe their experience of learning outcomes as a module design device and these were clearly visible in the reduced analysis documents.

As I reread all twelve of the ‘hermeneutic analysis documents’ I could see that it was possible to apply theme headings to statements for participants. The statement sequences required rearrangement to get them into a readable order. There emerged twelve main themes across all participant documents:

1. Lecturers’ Sense of Their Roles
2. Experiences of Module Design Difficulties

3. Experiencing Difficulty in Adapting to Semesterisation
4. Lecturers' Anxiety about Student Attrition
5. Lecturers' Reaction to Time Pressures or Constraints on Module Design
6. Lecturers' Feelings about Efficacy in their Module Design
7. Lecturers' Feelings of Mistrust in Institute Management/Administration
8. Important Aspects of Curriculum Design
9. What the Curriculum Design Approach Transition Means to Lecturers
10. Conceptualising the New, Learning Outcomes-Based Approach
11. Conceptualising Curriculum Design Policy and Strategy
12. How Lecturers Relate to Academic Quality

For the final analysis of the data, and to interpret and express the findings, I gathered each theme into its own document by cutting and pasting individual hermeneutic interpretations from each participant's hermeneutic analysis document and placing them in a 'theme' document with participant's statements in sequence. I did this because I noticed that, among the clustered themes, there was commonality for certain themes among some participants and differences for other themes among some participants. This proved valuable to me as it further thematised my interpretations, it improved my focus on the experiential descriptions, and so made it easier to write up my findings. Thus there emerged subthemes among two of the twelve themes from the previous stage of analysis: 'Lecturers' Sense of Their Roles' had three identifiable subheadings:

1. A Sense of Responsibility
2. A Sense of Professionalism
3. Experiences of Module Design Difficulties

‘Experiencing Difficulty in Adapting to Semesterisation’ had two subheadings:

1. The First Move to Outcomes-Based Design: a Haphazard Approach
2. Lecturers Feel Compelled to Strategise Curriculum Design

As van Manen (1997) suggests, the richness and depth of the texts, through reading, rereading and reduction, along with my orientation toward the singular phenomena of the texts: the lived experiences, led me to describe the experiences with these themes (headings) and subthemes (subheadings). As will be seen in the next chapter, reading each theme and its subthemes tells the story of the lecturers’ experiences in relation to each theme. These are the lifeworld descriptions for the participants, and they are identified by number (Participant 1 to Participant 12) to allow the reader to understand who describes their experiences of each of the phenomena, and to empathise with them.

5.3.6 Comparing the Themes to the Interview Questions

In the next chapter, the identified themes represent the findings. For me this is a natural progression of hermeneutic phenomenology and in keeping with van Manen’s ‘selective or highlighting approach’ and his ‘detailed or line-by-line approach’ (van Manen, 1997). These, added to the wholistic or sententious approach used to get an overall view of lecturers’ experience, made up all three approaches of hermeneutic phenomenology, described by van Manen (1997) for isolating thematic statements.

Since the interviews were open and deep, the questions of Interview Set 2 and the emergent themes were not directly comparable, like for like. There were fifteen questions that were designed and used in the participant interviews to prompt discussion, but six identifiable themes

to write down when analysis of the transcripts was completed and the hermeneutic analysis documents were produced.

5.3.7 Summary of the use of Hermeneutic Phenomenology

The effort of transcribing the interview recordings were effective, as I learned about each interview and each participant as I interpreted and described the data of the interviews. I began to get a feel for the participants' experiences of computer science curriculum design in the earliest part of the study. I thought that the further reductions towards the 'hermeneutic analysis documents' would be easier and quicker because of my involvement with the transcripts, but this was not the case. The work of reducing the data and getting 'to the things themselves' required patience, concentration and skill that developed through the work of analysis of Interview Set 1 to the writing of the findings of the second part of the study.

I did not predict the form the findings would take – I only wrote down the subheadings for Chapter Six after the development of the hermeneutic analysis documents. I knew that themes ought to emerge, but I had no idea, when beginning the analysis of the transcript documents, what names they would have, that there would be so many, or that they would constitute documents of their own.

The analysis did draw out a number of truths about the experience of curriculum design. One might consider these organic truths – i.e. they emerged naturally from the interview discussions - and the valuable elements of the research. The data analysis process was followed as per the method of hermeneutic phenomenology, and the descriptions in the documents produced from

the analysis are descriptions of the phenomena of curriculum design experiences of twelve computer science lecturers.

The findings of the hermeneutic phenomenological analysis can be read in Chapter Six. The subheadings in Chapter Six are an arrangement of the phenomenological findings to make the findings readable: they have been thematically organised for that reason.

In Chapter Four, Figure 4.1 shows a depiction of hermeneutic phenomenology as it was used to gather and analyse the data of the transcripts of Interview Set 1. Below, Figure 5.2 shows a depiction of hermeneutic phenomenology as it was used to gather and analyse the data of the transcripts of Interview Set 2. Comparing the diagram to the generic hermeneutic phenomenology diagram of Figure 5.1, it can be noted that there were variations from the general view. For example, phenomenologically, this part of the study began with the design of the interview questions as they had their genesis in the findings of the first set of interviews. Also, the study required that the hermeneutic interpretation task be iterated to number, 'n' to get to the best version of themes. The themes needed to be grouped, which appears in Figure 5.2 as an extra process. This was done to allow the themes that represented phenomena of all the interview transcripts to be readable as a presentation of findings (as they appear in Chapter Six).

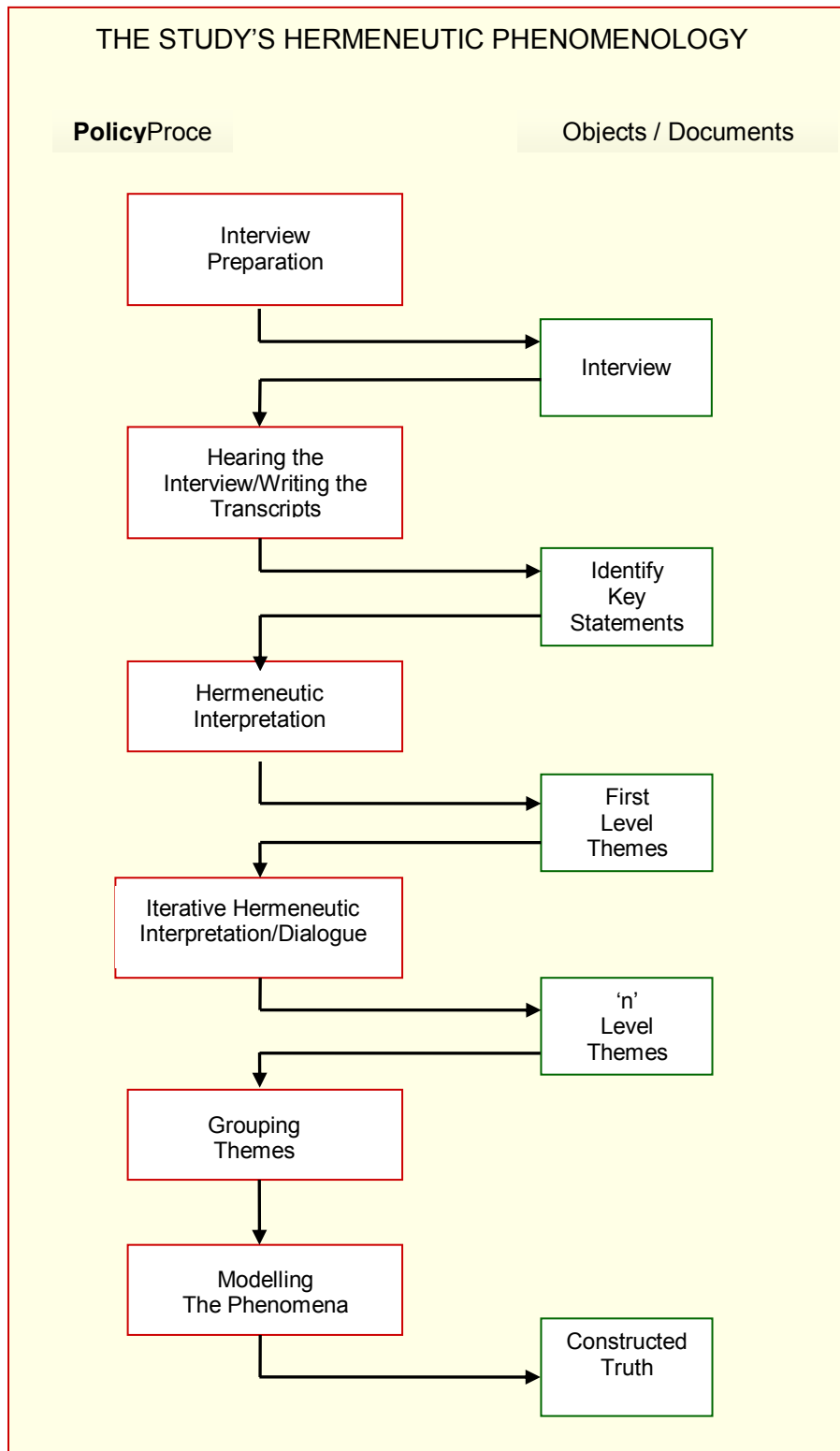


Figure 5.2 Hermeneutic Phenomenology as Used in the Second Part of the Study

5.4 Summary

The analysis of the data of Interview Set 2 sought to get to the essence of what it is to be a computer science lecturer as a module/curriculum designer in a time of transition of curriculum design policy. Its aim was to be able to describe the personal experiences that are important to the task of curriculum design, or curriculum development, to show what it is that challenges the curriculum designer, and to see if those challenges are addressed in the literature and guidelines pertinent to this curriculum design task.

This part of the study gave a new perspective on the computer science lecturers' lifeworld as curriculum designers in contexts such as personal experience, prescriptive design policy and constructive alignment, for example. Hermeneutic phenomenological analysis allowed the descriptive data of Interview Set 2 to be reduced and thematised through its method of data analysis. Using hermeneutic phenomenology as a methodology proved to be useful for answering the part of the research question that asks:

1. How do lecturers experience curriculum design?
2. How do lecturers understand the implications of policy change for curriculum design?

Then, by comparing the resulting themes, looking for relationships, it was possible to answer the following part of the research question:

1. How can the meaning that lecturers make of their experiences of curriculum design be attributed to the effects of change in curriculum design policy?

For example, lecturers experience curriculum design in terms of their conceptualisation of the experience, and the module descriptor is their framework for that concept. Lecturers also

conceptualise their role as curriculum designers in terms of the task. Policy change affects their role as curriculum designers by changing their practice as curriculum designers. Most, but not all of their experiences are directly attributable to change in curriculum design policy. These examples are expanded upon and described in Chapter Six, the Findings Chapter.

The following chapter is Chapter Six, and contains the findings from the hermeneutic phenomenological data analysis of the second part of the research study. In the chapter following that; Chapter Seven, the findings are discussed and the research questions outlined above are answered.

CHAPTER 6

FINDINGS – HERMENEUTIC PHENOMENOLOGICAL ANALYSIS

6.1 Introduction

The previous chapter described the qualitative research approach of hermeneutic phenomenology as applied to Interview Set 2. The method of research and analysis of data for the second set of interviews were presented and discussed in detail. The approach included writing of transcripts for the twelve interviews that took place, analysing the data through reflexivity and phenomenological reduction, writing the emergent themes and comparing the themes to the interview questions. The analysis also included the hermeneutic circle – a type of analysis that moves to understand data through a wholistic view of the data with personal reflection (Langdrige, 2007). The process of that hermeneutic phenomenology allowed documents to be written that describe phenomena related to curriculum design.

The aim of the hermeneutic phenomenological analysis described in Chapter Five was to allow the exegeses of the participants' experiences of curriculum design as described phenomena. These descriptions were to be the basis for answering the research question of identifying how the essence of lecturers' experiences of curriculum design can be compared to the effects of change in curriculum design policy.

This chapter contains the findings of the hermeneutic phenomenological analysis of the twelve transcripts of Interview Set 2 – which are some of the participants’ experiences of curriculum design as described phenomena. The findings of the interviews are made up of what van Manen (1997) describes as hermeneutic phenomenological themes. Themes that reveal something about the phenomena of experiences being described (van Manen, 1997). In this case the phenomena are related to lecturers’ experiences of curriculum and module design. The themes represented by subheadings are set out by grouping thematic phenomena for readability: when related to the research question of this research, the themes of my findings were best placed in groups to allow for better reader comprehension. Each of these twelve groups have been placed in this chapter with representative subheadings that describe, for example, lecturers’ sense of their roles, experiencing difficulty in adapting to semesterisation, lecturers’ anxiety about student attrition and lecturers’ reaction to time Pressures or constraints on module design.

While analysing the data, and viewing the participants’ experiences wholistically, the findings suggest that they spoke about their experiences in the context of pedagogy – pedagogy as a process related to instructionalist or constructivist models (Sambrook *et al*, 2001). This pedagogy was the environment in which the lecturers’ experiences were set. At a personal level of the participants’ discussion, it was clear that the lecturers were reflective in their approach to curriculum design, as reflection on the subject and circumstances of their work is part of the job of lecturing. As D’Andrea and Gosling suggest; in education, lecturers are reflective practitioners (D’Andrea and Gosling, 2001). So the participant’s (the computer science lecturers’) described reflections are the data that were analysed to generate these findings.

There follows, in this chapter, my interpretations, and quotations from transcripts, that represent the themes of hermeneutic phenomenological analysis, using hermeneutic phenomenology as a methodology, as proposed by van Manen (1997). The examples of transcript excerpts – the participant lecturer quotations – qualify the interpretations to make up the hermeneutic themes.

6.2 The Hermeneutic Phenomenological Themes

6.2.1 Lecturers' Sense of Their Roles

In the reduction of the data, there emerged a clear essence of the personalisation of the lecturers' experiences as curriculum designers. Much of the participant lecturers' lifeworld was based on a sense of identity as teachers and the role that applied to that identity. They understand their role as curriculum designers. Lecturers are strongly affected by the autonomy in curriculum design that they have, and have a strong sense of responsibility and professionalism. These motivate their involvement in curriculum design. They see themselves as curriculum designers, but, to them, their primary role is as teachers – as typified by Participant 1 on their place in a module design experience: “...that was, I suppose, the role I had, was as the teacher.”

6.2.1.1 A Sense of Responsibility

There is a strong sense of responsibility among the lecturers in their role as curriculum designers. They acknowledge the autonomy of their curriculum design, and take responsibility for the task.

Participant 3 and Participant 10 find that there is quite complete autonomy given to lecturers in designing modules. Participant 3 finds that this makes module design easier:

Participant 3: *“...when you're designing a module, in the DIT anyway, you have a lot of autonomy around the module... there is a lot of trust placed in the lecturer, that they know what they're doing, and they know what they are talking about... It makes the modules easier to write, because there isn't a lot of peer review.”*

Participant 10: *“... There was a lot left to individual lecturers.”*

Participant 4 links curriculum design autonomy with the responsibility of doing the task:

Participant 7: *“...you have to have it done by the end of the week... (and) that's probably up to me to just do it.”*

Participant 7 also acknowledges the autonomy, and links that autonomous design to a personal responsibility to provide effective learning outcomes for students, through proper curriculum design:

Participant 7: *“I have a lot of say over what happens in terms the syllabus or module content, whereas, in terms of the learning outcomes, I know I have a responsibility to ensure that the students hit all of those learning outcomes - provided I'm teaching (on) a module (where) the learning outcomes are design correctly.”*

The sense of responsibility makes some participants want change in module and curriculum design for the greater good of curriculum design, as Participant 3 says:

Participant 3: *“I definitely think there's a few things we could improve on.”*

In the past, Participant 7 has also seen their curriculum design responsibility in terms of students' success, historically. They have measured student success against the feeling of responsibility:

Participant 7: *"...the more (module design) I do, the better... As a lecturer, student success was, very much, linked with my self-esteem, when I started lecturing. So I thought, if the students did well, I was doing well. If students did badly, I was doing badly... if they were doing poorly, I felt that was my fault..."*

Participant 7's feeling of responsibility is mirrored by Participant 6's feeling of responsibility to the student. Participant 6 gives careful consideration to the student throughout curriculum design. They feel that the design should benefit the student when they are engaged on the programme, and so the concept of 'student' is central to their curriculum design:

Participant 6: *"The design should be of benefit to the students. So, when you're doing that design, you need to be aware of where everything fits within the programme... if it's not about (the students) then what's it about?"*

"...I think that's our final responsibility - to them (the students)."

6.2.1.2 A Sense of Professionalism

There is a strong sense of professionalism among the lecturers in their role as curriculum designers. They acknowledge that their curriculum design may extend their duties as lecturers. The feeling of professionalism is summarised by Participant 4: *"...you, kind of, do the best job that you can do..."*

As an example of that designed-in extension of duty, Participant 3 has provided a complex design to facilitate what they see as a better and more challenging (for the students) module. They feel that working harder on a design and the delivery of the module is for the good of student learning:

Participant 3: *“I’m actually changing a lot of the (module structure) to facilitate a lot of the competitions that are available for the students to enter... There’s a lot of work for me, but if I think it’s the right thing for the course, then I’m going to make the investment in the course.”*

Participant 7 describes a clear sense of duty to the students; to provide them with well-designed programmes and well taught modules:

Participant 7: *“We’re here, as an Institute of Technology, to support our students that are paying our salaries... I feel I have a duty to them, to give – (and) to create a good quality product.”*

Speaking for many lecturers of the School of Computing, Participant 11 says they can see that there is a professionalism among School of Computing lecturers that often takes them ‘beyond the call of duty’ if the extra effort will help in teaching and the welfare of the student body. Those efforts include features of modules that lecturers ‘design in’, but those efforts sometimes cause stress or anxiety among the lecturers who make them:

Participant 11: *“There’s a professional willingness (in the people here)... to do things. If it affects their teaching and their performance in front of a class, most good lecturers will say, ‘OK, I’ll put up with that’... And that’s and that’s part of our problems, to be quite*

honest! (Laughs) That we are willing to do that... (There is stress and anxiety amongst the lecturing staff) because most staff would be keen to do that... You still have to get that feedback to the student. You still have to be looking out for students who need extra help, and you can't turn round and say, 'Well, sorry, I can't do that anymore.'"

6.2.1.3 Experiences of Module Design Difficulties

The hermeneutic phenomenological analysis made it possible for me to identify the difficulties experienced by the participants in their role as curriculum designers. The difficulties experienced by the participant lecturers are varied. They see difficulties as problems to be overcome, as they contextualise them as 'challenges'. Lecturers might experience difficulty in relation to written expression of their module designs. An example of this is Participant 2's description of this experience:

Participant 2: "The more general things like the aims and the module description... could be difficult just because it's... not particularly clear who this is for... and sometimes it can be difficult to express what you know... But the aims and the description... particularly the aim, could be difficult to express."

Participant 4 and Participant 11 describe difficulty in representing the breadth of content, and designing for a particular audience in terms of their level of technical understanding, or of structuring the module to create a sequence of topics that follow, one after the other:

Participant 4: "(The difficulties were) just the breadth of it is one... (It was) difficult, because you want to put everything in.... (The other) was the level to pitch it at. (So) one

was just, practically, what are we going to squeeze in here? And two, which was more interesting, but was the, the level that I'm going to teach this at."

Participant 11: *"(It was difficult) just bringing all the, all the parts of it together, into a coherent module, and a step-by-step module. Topic B follows Topic A and so on... So, from a student's point of view it wasn't jumping all over the place. It was actually a progression. From a teaching point of view, as well, it's easier to do when topics are all related to one another."*

Participant 9 sees a content-centred challenge – and blames the dearth of technical textbooks that would assist in defining the module content for computer science topics:

Participant 9: *"(There are) very few (satisfactory) textbooks... so that was one of the challenges – to try to... present all this material with some sort of coherence, (or) in a coherent way."*

Participant 5 describes what they find difficult about module design is constructive alignment specifically. Interestingly, they do not use the term, 'constructive alignment' in their description. It should be noted that this feeling came through for other lecturers describing horizontal and vertical alignments, as well as constructive alignment:

Participant 5: *"(What I found difficult was) the way you have to match learning outcomes to the module content and, kind of, assessment and all that."*

Participant 6 feels that module design difficulty might be overcome if the lecturer understands the subject of the module they are designing, and have some enthusiasm for the subject:

Participant 6: *“...if it's an area that you understand quite well, that you're enthused about yourself, I don't think it's particularly difficult.”*

6.2.3 Experiencing Difficulty in Adapting to Semesterisation

Lecturers find it difficult to adapt to semesterisation. Semesterisation and its modularisation of programmes forces the participants to modify their teaching, assessment and learning outcomes of year-long programmes to fit semesters, or to adopt a new approach to curriculum design for semesterisation specifically. Lecturers feel that their module designs are compromised, they adopt a loose, flexible design approach and they find it difficult to align (constructively, horizontally, vertically).

The experiences of participants in relation to the curriculum design strategy of semesterisation, using modularisation to manage module design, are different. However, there are generalised experiences: reduction of time for content delivery, less student assimilation of knowledge by students, fragmentation of learning opportunities, replacement of progressive continuous assessment with ‘instant’ assessment (my term).

The most obvious experience of the effect of moving from a year-long programme to a semesterised programme in the first year is the realisation of time limitations. This is exemplified

by Participant 4's description: *"Two or three week in, we said, 'Well, hang on a minute here, what... I don't think I'm going to get through all this stuff.'"*

Participant 5 describes the difficulty of managing to fit a module into a single semester:

Participant 5: *"(It was awkward to) narrow down the topic into a manageable area for thirteen weeks."*

Participant 4 describes deciding that the learning outcomes were fixed, so the content needed to be reduced – scaled back:

Participant 4: *"...the learning outcomes - there's not that many, and we... stuck with the learning outcomes. It was more the module content that we scaled back. So the learning outcomes are fairly broad... (and) two or three weeks in, we said, 'No, hang on, we need to scale this back, because it's not going to be feasible to do this in the time that we've got.'"*

Participant 4's concern is that, by rushing through all of their 'year-long' content, they will confuse the students:

Participant 4: *"...if I do get through all this stuff, the students aren't going to have a notion of what we are talking about."*

Another concern that Participant 4 has, in relation to modularisation, is that it is causing fragmentation of learning experiences for students. In other words, the compartmentalisation of learning modules may separate students from continuity of learning via study of other subjects in

other modules. They see a piecemeal solution, but students taking an individual module are at a learning disadvantage:

Participant 4: *“Across these different modules... there are some problems with the students who are doing a single module... They don't get that (learning in one module), and... I suppose, they have to get that (learning) somewhere else... You can, kind of, do that (by) making them read bits and pieces, and, obviously, you talk about some of these things in (this module), but they wouldn't get the same depth that, obviously, the students who have done a full module, on this stuff, would get.”*

Participant 7 tries to avoid the fragmentation problem by talking about issues related to fragmentation with other module designers, in their capacity as Programme Chair. They suggest to the other module designers that they all use similar teaching strategies and material, so that students taking single modules do not lose out – a kind of self-containment of the modules:

Participant 4: *“So, for me, because I'm the Course Chair of this Master's as well, I discuss, with the other lecturers, what examples we'll be using, what types of analogies we talk about, what language we use in our assessments. And even though they are not directly linked, the words are the same, or sometimes we use the same case study. So a student who is doing two modules (gets) the benefit of it, but if the student isn't doing (both or all), they don't lose out on (a learning opportunity).”*

In general, the participant lecturers find many problems with semesterisation and modularisation. For example, Participant 1 finds semesterisation to be inflexible, unforgiving and time-restrictive. A particular difficulty is that one cannot factor into the design a lecturer's absence

through sickness, or some students having trouble ‘keeping up’ with module content during the thirteen-week delivery time could not be easily helped:

Participant 1: *“...modularisation is a very inflexible setup, really... it’s very unforgiving... If you... miss a week through illness... you’re in trouble... there’s no comeback whereas, when you had the full year... you could get them back on track fairly quickly. (Also, if a student is struggling, and)... you have only identified (the problem) in Week 8... you don’t have a lot of time left to sort them, or (for them to) sort themselves out.”*

Participant 12 describes their concern about the reduction or removal of progressive continuous assessment due to semesterisation and modularisation and the time constraint that they impose:

Participant 12: *“...practical development, for the students, of the assignments get sidelined, because they only have so much time to do an assignment.”*

For Participant 7, modularisation causes difficulty in designing continuous, horizontal or vertical alignment into a programme. They mention their endeavour to ensure constructive alignment, and wish for horizontal and vertical alignment, despite the problem:

Participant 7: *“I think modularisation is a very big challenge in terms of alignment. But, in terms of internally, constructively, I try to ensure (the learning outcomes, teaching and learning and assessment) all match each other. But I want it to have some kind of connection to other modules we are doing as well.”*

One of the main problems that the lecturers find with semesterisation is assimilation by the students of the teaching in modules. They see the lack of time for the student to assimilate as a limitation of semesterisation. Year-long modules, with a more relaxed pace, provides more time for assimilation. Participant 4 and Participant 10 make direct comparisons between year-long and semesterised programmes. Participant 11 states that a semester is too short and that they would prefer more time per subject. They all hint at or suggest that there is a disproportionate relationship between the time allocation of one semester per module and the practicality of learning for a student:

Participant 4: *“...let the stuff just float around in their heads a bit, I think that’s the one, the big limitation that we’ve got with these thirteen-week modules: the students don’t have the time... to reflect on the stuff. Assimilation... They don’t have the same amount of time as, possibly, when we had these year-long modules, where the pace was probably a little bit more relaxed.”*

Participant 10: *“(In) a year-long module, there’s plenty of time (for students) to assimilate... to think about things, and to come back on (anything). Over a twelve-week period we weren’t quite sure, but we were suspicious that twelve weeks wouldn’t be enough time to assimilate. I think it’s been proved - borne out, over the intervening years. Assimilation is a problem for students (on semesterised courses).”*

Participant 11: *“...thirteen weeks is very short. You just simply get used to what you think you can actually fit into the module content... I went through all the thirteen weeks and looked at what I had in the content, and matched the weeks by what was in the content...”*

(If a student is weak) I just find the thirteen weeks (causes difficulties for them)... These students don't quite get it, and it's very hard for them to recover. They miss two or three weeks – that's a quarter of the course. That's 25% of the course! Wow! That's quite substantial."

"If I had my choice, thirteen weeks; it's just not long enough."

Participant 10 also feels that semesterisation causes a lot of difficulty for the students because there is less time than year-long, traditional degree programmes for the lecturer to adequately assess the students – or for the student to learn the subject properly. They also mention how difficult semesterisation is for lecturers in terms of their workload – that it is 'killing' them:

Participant 10: *"...you can't force assimilation. Human beings have a certain ability to take on board concepts – within a certain period of time. We're asking them to do however number of modules we give in a semester, (assessing) them across the board. It's becoming very difficult for the students."*

"I think the twelve-week period is killing us... and...It's just not long enough to really do any meaningful assimilation of knowledge, and, then, to assess that...(is difficult)."

Participant 10 reports that there was consultation among management on semesterisation, with some consultation with academics, but they feel that the consultation process was too short, and that there was a lack of expertise in the design and administration of modularisation/semesterisation as an institutional strategy. They see the outcomes of the modularisation process, but do not feel able to suggest whether the outcomes are successful, in terms of academic quality:

Participant 10: *“Well there was plenty of consultation. It was the length of time of the consultation, and then the lack of genuine expertise in the modularisation approach... (The modularisation process produced) a document that was, certainly, modularised, (and) a programme that was, certainly, modularised, but whether it was quality (with) a quality document, it's very hard to say at this stage.”*

6.2.3.1 The First Move to Outcomes-Based Design: a Haphazard Approach

In the first year of semesterisation, Participants 2, 4 and 10 applied a haphazard approach of taking their year-long module and split it for two semesters into two modules. They all feel that the thirteen-week semester is short and limited what they could put in the module. They find that the delivery was compromised for their modules. Participant 2 describes semester 1 as being worse than two, because of disproportionate content. Participant 4 and Participant 10 describe a reduction in content delivery. Participant 4 reports a change in assessment practice. Participant 10 feels that the students needed more teaching than the semester provided:

Participant 2: *“I feel that the modularisation means that the (first half of the split) module is slightly worse in delivery because there's more content... Whereas before, you might have had a full year, and you could have spent more than half of the time... now you have to get that done in one semester.”*

Participant 4: *“(There was a split) - practice in one module, and then the in-depth theory afterwards... And part of the split was the fact that we have thirteen-week modules... Modularisation, semesterisation, had a big impact on that: what can you squash in to thirteen weeks... what topics would we actually cover, had a big impact on that... And*

that limits how much material that you can cover, it limits what you can do in terms of designing assessments and things like that... It was short... but... you will always be limited by some amount of time... There's always going to be 'a problem', a question about how much time you have, and trying to fit in the topic into the time."

Participant 10: *"...there wasn't time to consider the consequences of that split, but, when you began teaching it, you'd say (that) these students need something more out of this stand-alone module than what they were getting... there's lots of other stuff that you could do if you had a whole year to deliver a module... but (with a fourteen-week module) you have to leave out stuff."*

Seeing the need for a learning-outcomes based descriptor to coincide with a programme review, Participant 10 uses the opportunity to redesign the programme and include learning outcomes in the descriptor. Again, in haphazard fashion, this first version does 'simply' split the year-long module, however:

"There was essential reading, the descriptor was very basic in those days. So, just to move it into the new approach to developing modules, and (the degree) programmes in general, quite a lot of work had to be done to, to split it up and to focus on... appropriate learning outcomes."

Participant 10 is not certain of the meaning of a learning outcome and this contributes to his or her ambivalence towards that feature of module design:

Participant 10: *"...I'm still unsure what the true meaning of a learning outcome is."*

6.2.3.2 Lecturers Feel Compelled to Strategise Curriculum Design

The lecturers feel that, slightly above and beyond the concept of ‘approach’, they need to have strategies for completing the task of curriculum design. Most prevalent, as a strategy, is to try and ‘build in’ flexibility to their curricula: flexibility to allow them to deliver the modules in different ways, flexibility in being able to change content and/or assessment during the module life cycle.

Curriculum flexibility is important to the lecturers. For example, Participants 4, 7, 8 and 9 describe the need for flexibility or extensibility in their strategies for teaching and/or assessment. They are fearful that a teaching or an assessment strategy, defined in the module descriptor, might be inappropriate to the situation but prescriptive. Their solution to this potential problem is to describe the curriculum with language that allows them, or other lecturers, to interpret and deliver the module in their own way. They find that describing the curriculum in the module descriptor in generic terms is advantageous for teaching:

Participant 4: “...there's a certain amount of making the module document, the module design as broad as possible, so that someone can do whatever they want, based on the scenario that they find themselves in, in terms of teaching the module... In modules that I have designed, there's not detailed design of assessments or anything in there.”

“The up-side to (writing a generic module descriptor) is that it does give a certain amount of freedom, then, to say, ‘OK, it's a vague notion in here, I'm going to decide, (during teaching), what I'm going to do with that...”

“(An assessment might seem) a great idea, then you go and try to do it, and then you say, ‘Well, actually, that was terrible,’ and then it’s written in a document - that this is what you are going to do... There is kind of a fear, in the back of my mind, saying, ‘Well, let’s be careful,’ (so) that I don’t put anything in here that’s going to get me into trouble!”

Participant 7: *“...it’s constantly having to become slightly more generic. And... create ambiguity, fruitful ambiguity in the wording, to allow different lecturers to teach it in a slightly different way... but I don’t see that as a problem... We have to allow for that, because I’m not always going to be teaching this module.”*

Participant 8: *“Modular assessment (as an example); if I didn’t specify it exactly, all right, it fixes me to the type of way I can assess the students.”*

“... if I write (something) into a module descriptor, which is now a requirement, that flexibility, that I once would have (had), is taken away. And, of course, I can no longer write it in (to) give them assignments during the year. That flexibility is gone, and this, I find, is a problem.”

“...it’s limiting me... Unless it’s already written in there I can’t do that. However, I cannot predict what my class is going to be like, the following year.”

“The problem is, if you have weak students, you are not going to get them there. It’s just going to be extremely difficult, and that’s why you need the flexibility, to be able to stop the syllabus at a certain point.”

Participant 9: *“(In the module descriptor) I leave the assessments so broad that I can do any assessment type I like... The more flexible the assessment scheme, the better it is, I think.”*

When redesigning modules using the learning outcomes-based approach, Participant 10 sees the specific and/or detailed listing of learning outcomes, while providing transparency, to be problematic. For Participant 10, the learning outcomes need to be designed efficiently and generically: ‘vague’ and ‘nebulous’. The succinct description of learning outcomes provides flexibility in teaching strategy, and a realistic possibility that the outcomes will be achievable – by the student, from the lecturer:

Well, if you have thirty learning outcomes, you’ve got twelve weeks to achieve them: that’s going to prove very hard, if anything happens during that semester. You know, if students don’t get on board, or there’s a - you go sick a week, you’re coming back, (and) trying to achieve those learning outcomes. I think those that took the lenient approach and said, ‘Look, I’ll bundle a few learning outcomes together. I’ll make it kind of a vague, nebulous thing, this type of a learning outcome... then you, you’ve a certain flexibility... during the semester, to deliver that in a different way. So the experience, I think, has shown that, least said, in terms of the module descriptor, the more realistically you are going to be able to achieve it.”

6.2.4 Lecturers’ Anxiety about Student Attrition

In analysing the data, the essence of being a curriculum designer, *in situ* of the curriculum being designed, highlighted the emotional aspects to the lecturers’ lifeworlds: their reaction to

difficulty and their anxiousness about the changes taking place around them. Lecturers are anxious about student attrition, and they speculate that it is caused by the new design approaches. Overall, they feel that pedagogy was compromised by the new approaches.

In relation to curriculum design, Participant 1 supposes that the academic ability of the student is an issue for attrition. For them, the concern is whether your design of a module matches the ability of the student body:

Participant 1: *“I’d be thinking, this is the topic and this is what we want to achieve, and this is what we’ll be doing it... Then you might look at... can you really expect this level of student to achieve that? I suppose (this) would impact on the student attrition rates.”*

In more detail, Participant 1 suggests that the ability of the student is reflected in the effect of the designed learning outcomes. They describe how lecturers worry about whether the learning outcomes will match the capability of the student of the module – a mismatch causing attrition. Participant 1 concludes that there are other possible causes of attrition outside of curriculum design: i.e. that the student may fail during the teaching and learning processes:

Participant 1: *“...the principal concern is that this is a (module), this is relevant, this achieves these outcomes. (Saying) ‘This is what you need to know if you’re going to say that you know something about this subject.’ They’re the main concerns. And then, after that... you’ve gone to all this trouble, thinking, ‘Alright, I’ve pitched this at exactly the right level,’ you’ve got the experience (but) are you worried that students will come in and fail left, right and centre? Or does that happen after the event? And I think it happens after the event.”*

Participant 6 describes attrition as being an issue of the delivery of a module (i.e. during teaching and learning processes), rather than something to be considered for curriculum design – as are the issues of retention and student attendance:

Participant 6: *“...when it comes to delivery, that's when you're looking at issues like attrition and retention and dropout and attendance, and that kind of stuff. Unless you're designing specific modules for that, I don't think (curriculum design) is particular (for) consideration.”*

6.2.5 Lecturers' Reaction to Time Pressures or Constraints on Module Design

Part of hermeneutic phenomenological analysis is to use reflexivity to identify lived experiences. Reflecting on the data of the transcripts and my own understanding of curriculum design, I could empathise with and, therefore, identify the experience of increased workload due to the changes in curriculum design policy.

Lecturers are stressed by the extra workload caused by the new approaches related to semesterisation. They try to keep up with their duties for the sake of the students. Workload pressures, generally, have been causing stress among academic staff. Module and curriculum design is work-intensive and stressful, as cited by six of the twelve participants of this study. The module design effort is a task among many other tasks and duties that makes the lecturers' work very busy. Describing module design, Participant 2 describes time pressure, and a concern that they might not do a perfect job on the design:

Participant 2: *“Unfortunately, I am doing it under time (pressure), so I mightn’t get it done perfectly well...”*

Participant 1 describes the time constraint in relation to concurrent programme design and a management policy of rationalisation:

Participant 1: *“... people are under such time constraints here, and there’s so many curriculum developments going on... There is also other agendas, in terms of rationalisation and stuff like that...”*

“...it had to happen quickly.”

Participant 2 describes the time constraint in relation to a programme design deadline, and a feeling of frustration at not having time to design a module as well as one might like:

Participant 2: *“...at the time of writing, you’re under pressure – well, I was! You’d be under pressure to get it done, to get it done quickly and just get in this format.”*

“It’s typically a pressurised process. There’s a deadline... (Leaders of the Review)... just want them in!”

“(It is)... somewhat frustrating... some of it comes from the pressure and the time constraints. It is always frustrating when you’ve been asked to a job, and you feel that you are not able to do it correctly, if you like, or to the level you like.”

Participant 4 and Participant 10 describe the time constraint in relation to term-time teaching and as part of a programme review. Participant 4 uses the words ‘time pressure’ and one can infer that they felt pressured:

Participant 4: *“So there was, ‘This needs to be done by the end of the week’... there was quite a lot of time pressure on getting the module specifications together... It was done in the middle of term, so all the teaching and everything was going on while this was happening in the background. And, again, it was done while we were doing the programme design. So I was writing the programme documents for the bigger programme at the same time as I was writing the module spec. for this.”*

Participant 10: *“...it was quite a short period, given that we were also teaching at the time. So not a good time to be doing a Programme Review... Getting on with our teaching at the same time, don't forget.”*

Participant 11 describes module design as happening contemporary to examination, and feels that they would have felt less pressure during teaching time. The placement of module design concurrent with examination time causes a stressful situation for Participant 11, and they feel that they were in a rush to complete the module design:

Participant 11: *“(The shortness to the deadline and the fact that) the (other duties were) on at the same time (caused stress)... (I would have liked) more time to be thinking about (module design)... We always seem to be in a rush when we are doing these things.”*

Participant 9 feels time pressure associated with module design, but accepts the task as ‘part of the job’ and feels no stress or frustration. They describe feeling the need to do module design in the quickest way possible. One could infer that lecturers perform module design to a lesser level

of quality because of taking the quickest way, but Participant 9 suggests that this does not happen for them:

Participant 9: *“...you’re under time pressure, and you just say, ‘Right!’ and take out a pen, and away you go... there would be time constraints that would prevent you from taking a more leisurely, more relaxed approach.”*

“When you're engaged, full-time, in delivering courses... you have to find additional time to... design modules, but when you're trying to squeeze it in... in extra-time... then you do it in the quickest way possible.”

“(There was pressure to deliver the document, but) it wasn't frustrating, it was just something that you accept as part of the job.”

“I didn't feel (the rapid turnaround) compromised the design of the module to any degree.”

Participant 2 and Participant 4 describe a consciousness about doing the design in a rush, and a desire not to compromise the module by rushing through the task:

Participant 2: *“...you don't want to do a rush job on something that might constrain you from doing your job correctly later on.”*

Participant 4: *“...we probably do these in a rush. I know, certainly, I thought about, sometimes, teaching things, you’re saying, ‘Well, it would have been great had I done a test run on this!’”*

Participants 6, 7 and 12 do not feel an urgency or stress during the module design task. They accept the task as part of term-time work. Participant 12 sees the experience of teaching concurrently to curriculum design to be an advantage to the perspective of module design:

Participant 6: *“There was a deadline. But, you know, it's two pages of text. The actual authoring of it doesn't take that long. It's the design and, I suppose, the design is an on-going process, in your head, that, once you're clear on what you actually want to put into it, writing out the two pages to describe that doesn't, necessarily, take a lot of time.”*

“(Working to a schedule was) not a particular problem. Like, once you have a deadline, and you work towards it... whatever you produce at that deadline is what goes into the final programme document. If you had more time, you might do it differently. If you had less time, you might do it differently, and, if you did it at another time you might do it differently.”

Participant 7: *“(There was a time constraint) because it had to be done for a validation, over - in a short period of time.”*

“I was happy to do it... (For me) it's not a big pressure.”

Participant 12: *“I have never considered (term-time module development as a problem). It's just something I did. I had to do it... I think it would be harder if you weren't teaching. (Teaching is an advantage to the design,) definitely.”*

Participant 10 sees the transformation of the programme from year-long to semesterised as involving a redesign of the programme to make it ‘fit for purpose’ as learning outcomes-based

programme. The transformation involved 'a lot of work' for the lecturers involved in the transformation, partly due to the inclusion of learning outcomes in the new documentation. Where there were content and assessment methods in the 'old' programme design documentation, there was no reference to learning outcomes.

Participant 10: *"...the course, itself, changed - and I'm talking about the actual programme itself - as that changed over the years there was a need to revisit this particular module to make it fit for purpose for the learning outcomes - because learning outcomes weren't there, at the outset (i.e. in the year-long module design documentation)... The descriptor was very basic in those days, so, just to move it into the new approach to developing modules, and programmes in general, quite a lot of work had to be done to split it up and to focus on... appropriate learning outcomes..."*

6.2.6 Lecturers' Feelings about Efficacy in their Module Design

A phenomenon of curriculum design by the people who deliver that curriculum is the understanding of the efficacy of their designs; a phenomenon drawn out by wholistic reflexive analysis of the data in the transcripts. Lecturers' feel that the efficacy of a module's design is only known when it is proven by teaching. They also feel that institute management does not take this point into consideration.

Lecturers might find difficulty in choosing and reducing the number of learning outcomes that they would prefer for the module. For example, when Participant 12 finds that they need to opt for the essential learning outcomes they find that hard to judge, and that only teaching the module proves the module design and the judgement:

Participant 12: *“(It was difficult,) trying to reconcile all of the learning outcomes that you would love to have... because you only have so much time in the week.... To try and distill down (to) the core, essential things we need to do. That was the hard part. And it was a judgment call in the end... Until such times as you actually teach the module, you don't know whether the judgment call is right.”*

When Participant 4 is writing learning outcomes, they describe them non-specifically, in terms of teaching strategy; describing them in generic terms, to allow them flexibility in the other parts of the module descriptor. This makes it possible to change specified content or assessment techniques without compromising the integrity of the design or the taught module itself:

Participant 4: *“...in the learning outcomes, on purpose, we wouldn't have mentioned any specific techniques or anything like that... to give ourselves that freedom to... change it around... , these things last about five years, and new stuff crops up all the time.”*

Participant 5 writes the module descriptor in generic terms. They describe it non-specifically, in terms of teaching strategy, in a way similar to that of Participant 4, to allow them flexibility in teaching strategy during the semester as they are unsure if the design is correct until they actually teach it:

Participant 5: *“I would try and keep some of the (module descriptor) a bit more generic... because, if you put it too specific, then it may turn out, in practice, (the teaching of it) doesn't work, for one reason or another... I would try and keep some parts of the module a bit more of generic, just to allow for flexibility... I don't want to find myself in a situation, when I write a module descriptor, I have to use for the next four years, and it's*

far too specific in the wrong things. So, in a way, it's more to cover myself, when I'm teaching a module. So, if I need to modify it a little bit, I have that scope there... I find it hard to be very specific, until you actually teach it."

6.2.7 Lecturers' Feelings of Mistrust in Institute Management/Administration

The lecturers have become mistrustful of institute management/administration. They feel that management has decreed semesterisation, yet they feel that they have been forced to deliver on a management promise.

In a management role, as a programme review coordinator, Participant 6 sees the perspective of programme and module design in a different way to when they have the role of single module designer. In this case, they see the importance of horizontal and vertical alignment, when acting as a review manager. Although they favour involvement of lecturers in module and curriculum design, they see localised responsibility for curriculum design effects a localised view of curriculum design:

Participant 6: "...whoever is co-ordinator from a higher level, to ensure that the horizontal alignment is there, and you don't necessarily consider it so much as your own concern. I think, definitely, I would have been more concerned about the horizontal and vertical alignment in programmes that I was taking the broader view of, rather than this particular one, where I was aware of the corner of the course where it would have fit in... I think it's good that people get an opportunity to participate in all those discussions, but inevitably, people are going to have more of an interest and more of a knowledge in their own particular area."

Participant 4 compares module design, and the module descriptor-writing process, to what the module actually is, concluding, from their experience, that module design is part of an administrative process, and its documentation is for administration rather than pedagogy:

Participant 4: "...certainly, when I have done it, module design tends to happen as part of a bigger administrative process... that needs to be done. So, writing the course document, you need to fill that up with modules. You need a module on this, this and this, by the end of the week... These documents are more administrative thing than, actually, what a module is really going to be."

Participant 10 describes their experience of Management policy behind the transition, and how lecturers are concerned about pedagogical effects by the transition and the attendant, government-led policies. They feel that the policy and strategy is not, necessarily, in the best interests of education:

Participant 10: "There was a lot of change, and people were wary of the huge amount of change that was being asked of the academic staff, without giving sufficient time, or debate about the academic issues. The academic staff were really concerned about this - the academic issues. This was change; it didn't appear to be for any particular reason... I certainly couldn't see... I could see the motivation was from a Government level; that we were going to fit into a particular model, but that's not necessarily, from an academic point of view, the best way to go."

Participant 10 feels that lecturers are suspicious of Management's motivation in imposing the change from year-long programmes to modularised and semesterised programmes. They feel that the change came from a Management agenda, that it was mandatory, but the promise of maintaining pedagogic quality was questionable: those who make the promise are not in the position of ensuring the promise is kept:

Participant 10: *"...there would be certain levels of suspicion (by lecturers) of (Management) trying to slip things under the radar. Change, and trying to make out (that it would be successful)... There was, certainly, a Management agenda. That this was going to go through, which is fair enough, but the sweetener was that this would not affect quality. But these people were saying that, and then didn't, really, have to deliver on that, because they weren't standing up in front of the student."*

Participant 10 writes the documentation in a way that tries to maximise potential in teaching strategy, without being affected by institutional policy that places more work and responsibility of the lecturers. Thus their module design focuses on teaching through describing module content:

Participant 10: *"I certainly took the opportunity to make this document more fit for purpose, from a teaching point of view, and tried to ignore all the other nonsense that was going on about rationalisation in modules and stuff, because that's Management trying to squeeze more out of us... I focused more on the content of my modules."*

In the context of institutional policy, during the transition of curriculum design, Participant 1 says that curriculum designers must offer compromise to other parties, such as academic

management, in how and when they complete the task of curriculum design, as well as in relation to the resources that the new curriculum design calls for:

Participant 1: *“People fight hard for their perspective and position, so you have to (negotiate)... The people who want (the change)... it's often (about) delivering compromise amongst these people as well. But that's probably the nature of the beast anyway.”*

Participant 8 sees the documentation of learning outcomes-based curriculum design as part of policy making by institutional management in favour of specific considerations, such as economic pressure from government offices:

Participant 8: *“(Management) don't care about anything else (other than student numbers and other economic factors, for example).”*

6.2.8 Important Aspects of Curriculum Design

Hermeneutic phenomenological analysis proved useful in drawing out what the participants deemed as important to them, in relation to their experiences. The aspects of curriculum or module design important to the lecturers are key features of their curriculum design experience. During the analysis I discovered the aspects of curriculum design that are important to the lecturers. It was possible to deduce important aspects by identifying with which of these aspects the participants chose to consider first, during module design. There are also generalisations made by the participants on important aspects of curriculum design.

The importance of content makes it a starting point for Participant 2. They see content in terms of exam questions, and because they feel comfortable in dealing with module content:

Participant 2: *“Typically, I start with the content. Probably because that's the most concrete thing I can imagine.”*

“(For assessment)... the factors I would look at there would be (that) we would try and see if there is a logical clustering or chunking of the content, (so) I'm going to have a question on these components of the content... It's the content that... would be the thing I would be most comfortable with, because it's the most concrete thing, when I'm planning and designing, that I can think of.”

For Participant 2, Participant 9 and Participant 10 the content is the important aspect of module design because it is a focus for teaching. Participant 9 finds content is also important because students' understanding of it is a basis of progressive learning:

Participant 2: *“It's the content that's important, because... I need to (teach) the content that is covered by all the topics (of the module).”*

Participant 9: *“I felt that it was a very important step, since it was clear that I was going to teach the module. Therefore that made me very interested in this - in developing the model content.”*

“...my focus was on content... (because), when they would understand the historical development, and would see the logic behind it, things would fall into place for them...And then I could, with that foundation... describe the more complex, current methods.”

Participant 10: *“(Content was seen as more important) because that’s what... you had to cover. This is the content you had to cover.”*

Participants 7 and 8 are aware of a link between content and learning outcomes, (and assessment, for Participant 7) but learning outcomes are more important because they contribute most to module design:

Participant 7: *“For me, the syllabus, the module content, doesn't do much for me at all... so the syllabus is, kind of, a secondary issue (to learning outcomes)... As long as you're hitting the learning outcomes, that's the important bit.”*

“(When designing assessment) I definitely think the learning outcomes are THE, thing to work on.”

“I feel like everything flows through the learning outcomes. So I feel... as long as I know what those words mean, everything else I can achieve.”

Participant 8: *“...I’m more worried, then, about what words I use in... learning outcomes, so it can link in with the module content...”*

Participant 6 finds the learning outcomes to be the most important aspect of module design, as does Participant 12. Similarly for Participant 4, but with transcendence toward module aims:

Participant 4: *“...it's somewhere between the aims and the learning outcomes are actually the most important.”*

Participant 6: “...*learning outcomes are the crucial thing, really, aren't they?*”

Participant 12: “*(Learning outcomes are a very important part of the module design) because, if I know where I am going, I'll make the proper design decisions to actually get there.*”

The importance of learning outcomes makes it a starting point for Participant 7. In terms of module design, the learning outcomes, for them, are the best place to start. Learning outcomes guide the rest of the module design process:

Participant 7: “...*best practice tells me that the appropriate way is; aims and learning outcomes. And so that's how I've designed modules: from learning outcomes, down.*”

“I definitely see the learning outcomes as being... the place to start, and if I get that right, then the module descriptor writes itself, I think.”

Participant 5 reflects on the difficulty of writing learning outcomes. The difficulty is caused by their perception of learning outcomes as being so important to curriculum design:

Participant 5: “*I, personally, find learning outcomes is probably the hardest thing to describe in the syllabus... you really have to go into detail and break them down in bits and pieces and phrase them properly... The module description, module aim is a little bit clearer to me how to write... I would feel more comfortable doing the module aim and content than the learning outcome.*”

For Participant 5 and Participant 6 the module descriptor is important to module design, and all curriculum aspects within it; aims, learning outcomes, content, assessment methods.

Participant 5: *“They (have) different aspects... the module aim... learning outcomes... contents... and assessment, as well... So all of them would be important, you can't really leave out... something... They are all part of writing a module.”*

Participant 6: *“You know, if you are saying an aim is to teach something – well, of course it is! Why else would you have (a module)? So I think the description is important.”*

Participant 6 feels the design to be a written account of what they feel the module ought to be. The aims and objectives emerge easily from that writing. In terms of quality, aims and learning outcomes are the most important aspects to module design and the module descriptor. Content is of secondary importance to the design and simply indicative of the more important learning outcomes:

Participant 6: *“I started with writing down a narrative description on what I expected that module to be. It... became (the module descriptor) ...writing out a few paragraphs on what I felt the module was going to be about, it was easy to... other things, like the aims and objectives, fell out of that... Then the aims, I suppose, become clear from that, and then the learning outcomes. I think it's important to define learning outcomes anyway, and I would generally, for each, individual class that I give, define the learning outcomes. So, once you have a certain structure... you can identify that; ‘Alright, well, by the end of it, they should be able to do it each of these things.’”*

“...content, I always think is, kind of, secondary... If you can define the learning

outcomes well, the content should, really, just be interpreted as indicative content, anyhow...”

“I often don't even see the point of including the content, because the content is going to change over time, as new laws... and guidelines and standards are set...”

6.2.9 What the Curriculum Design Approach Transition Means to Lecturers

Working through the language of the interview transcripts with a reductionist method, moving in the hermeneutic circle between part and whole, it was possible to get to the essence of what the transition from the old curriculum design approach to the new one means to the participants.

Moving from the year-long, linear programme design approach to the learning outcomes-based, modular approach has affected all the lecturers greatly. Generally they see an increase in effort and a requirement for finer detail in their curriculum design reporting. They have all internalised the demands of the transition, and, for each, the change means something slightly different.

At the time of the first version of the redesigned module, moving to a learning outcomes-based semesterised programme, Participant 10 finds the learning outcomes are prescriptive statements that had to be included in the module descriptor, but are nebulous and unimportant. At that time they see module content as a more important feature of module design than learning outcomes:

Participant 10: *“... learning outcomes were taken (as an alternative to stated content), or some nebulous thing that we had to state (in the module descriptor).”*

“(Content was seen as more important) because that's what... you had to cover. This is the content you had to cover.”

“The learning outcomes were not the focus... at the time. There was no credence given to learning outcomes, we were just told we had to have them in it.”

Having seen problems in the first redesign of the module, Participant 10 has taken an opportunity to design the module to fit learning outcomes-based semesterised programme better in a subsequent programme review:

Participant 10: “...when the module, or the programme, was being re-evaluated again, more recently, it was an opportunity to take a more considered approach to developing this particular module.”

Having inherited the module during the time when subjects were taught in year-long programmes, Participant 10 finds that there is a lot of work to be done to change the content-based module design descriptor to a module that fits into a semester. They see this change as making the module design ‘fit for purpose’. Because the description of the ‘old’ module lacks detail and describes no learning outcomes, Participant 10 finds that it causes a lot of effort:

Participant 10: “It was a module I picked up many years ago from another lecturer. So there was certain ground work (to be done), but then, as the (programme), itself, changed... over the years, then there was a need to revisit this particular module to make it fit for purpose for the learning outcomes - because learning outcomes weren't there, at the outset, when I took this (module), and that was it.”

6.2.10 Conceptualising the New, Learning Outcomes-Based Approach

The essence of the new, outcomes-based curriculum design approach is best represented by the participants' concept of the new approach. When the participants first became involved in the new, learning outcomes-based approaches to curriculum design, they contextualised learning outcomes in relation to content. For example, Participant 2 sees learning outcomes as an abstraction from the general process of teaching, driven by content and represented by skills and knowledge:

Participant 2: *“For me, the learning outcomes are nearly an abstraction: ...the learning outcomes and the general process... Obviously, I qualify this by saying it's an iterative approach, but... while it is an iterative approach, it's certainly, primarily driven from what content needs to be here... if somebody knows this content, what then? Can I describe their, the skills they have developed, or the knowledge they've developed? ...when I'm designing, (that is) how I would come up with the learning outcomes.”*

For Participant 2, the learning outcomes are a representation to the student of the knowledge that they need to, and will, acquire during study, represented in non-technical terms. For them, the described learning outcomes are also an explanation of the module content:

Participant 2: *“I would hope that... (for) the student (reading) the module, the learning outcomes would have less technical terms, and (so)... be better able to understand what they will know at the end of the module by reading the less technical descriptions (as a summary of the learning outcomes... I might think of (a learning outcome) as a sign to a student of what (they are) going to need to know, or what (they are) going to know at the end, because it's kind of, a more transparent explanation of the content.”*

When Participant 4 is writing learning outcomes, they describe them non-specifically, in terms of teaching strategy; describing them in generic terms, to allow them flexibility in the other parts of the module descriptor. This makes it possible to change specified content or assessment techniques without compromising the integrity of the design or the taught module itself:

Participant 4: *“...in the learning outcomes, on purpose, we wouldn't have mentioned any specific techniques or anything like that... to give ourselves that freedom to... change it around... , these things last about five years, and new stuff crops up all the time.”*

Participant 12 finds referring to ACM (Association for Computing Machinery) guidelines to be the most useful for designing learning outcomes. To them, the ACM guidelines suggest the most meaningful learning outcomes for computer science degree programmes. They prefer to take cues from this international standard to qualify their learning outcome specification. Where they cannot make an ACM guide comparison they choose to specify their learning outcomes themselves:

Participant 12: *“(I referred to the ACM guide), I looked at the learning outcomes of those, and they sort of agreed with my own attitude to the type of learning outcomes that I wanted to have for my module. I just picked and mixed from those, along with my own learning outcomes. And if they articulated one of my learning outcomes in a better way, I used their learning outcome. And sometimes, some of the stuff wasn't there, I used my own learning outcomes. That's what I actually did.”*

6.2.11 Conceptualising Curriculum Design Policy and Strategy

Phenomenology allowed me to form an understanding of the lecturer participants' concept of curriculum design policy and strategy. Participant 1 describes the 'other parties' as people outside the institute itself, but with a vested interest in curriculum, and makes the point that there may be conflict among perspectives on curriculum design: governmental, industrial and educational. For the curriculum designer, catering for the different perspectives caused complexity as the educational perspective might be at odds with economic or legal mandates, for example:

Participant 1: *"...that they were coming from different perspectives - for example, there might be a conflict between a government perspective, versus an industrial perspective, versus an educational perspective... it was complex in terms of how you were trying to get your message across and why it needed to be done in a particular way, and giving our experiences of dealing with these actual curricula versus someone who might be interested in getting involved in this. Or having a requirement to meet a particular legislative or economic mandate in relation to this."*

Participant 1 goes on to say that, in discussions on policy and curriculum design, the process was egalitarian due to the combination of perspectives, and that observing the cases for policy was interesting, during the curriculum design process:

Participant 1: *"It was egalitarian in that, and as I say, there were different perspectives... it was just interesting that people were willing to fight so hard for their perspective."*

Participant 1 feels that the changing circumstances of lecturers; deterioration in working conditions and not having a chance of tenure, for example, makes lecturers defensive of their positions, and that is reflected in how they deal with curriculum design: that they will design a module that will help establish their position in the faculty, and that they are willing to ‘fight for’ their design. Since the design of curricula directly affects lecturers who deliver the curricula, the module design task becomes important for the lecturer to consider carefully – i.e. when institutional policy affects working conditions, the lecturer looks at the effect of curriculum design. Pedagogy is a casualty of the new regime:

Participant 1: *“Because of the nature of the broader picture, where (lecturers’) employment has been threatened and their (conditions changed)... particularly with the policies of the government in terms of rubbishing public servants and things like that, that people have become much more defensive, and a natural consequence of defensiveness is that you’re going to fight harder on your own patch... Curriculum design... is going to be based on other factors (such as threats to jobs), other than pedagogical factors, from now on.”*

In terms of institutional policy, Participants 2, 3 and 8 see the new approach to curriculum design to be a ‘box-ticking exercise’. Participant 2 describes writing the module descriptor as a task to be ‘ticked off’ and is concerned that the product of the exercise, the module descriptor, has no value:

Participant 2: *“And you have to spend time, write something that, you hope, just ticks a box... and you may feel (that you wasted your time)... and that's always frustrating, because you're just saying, ‘Well, I’ve (done this, but)... this isn’t useful.’”*

Participant 2 also sees the task of writing the module descriptor for module design as extra work for a lecturer, but as just a ‘rubber stamping exercise’, to some extent, in order to legitimise the module designers role as a lecturer:

Participant 2: *“...so getting an extra task on top of it, which you can perceive as just getting a rubber stamp, in some ways, to continue doing what you're doing.”*

For Participant 3, the documentation of curriculum design is a report for external examiners and the programme validation panel to allow panel members to tick off required features of the programme. As such, the module descriptor is ‘a box ticking exercise’:

Participant 3: *“(The module descriptor) is meant to be indication of what the module is about, so that the external examiners and the people on the review panel for the course, will pass the module, and will pass the document.”*

Participant 8 sees the documentation of learning outcomes-based curriculum design to be a ‘box ticking exercise’ that comes through policy making by institutional management that ignores academic quality in favour of other considerations, such as economic pressure from government offices:

Participant 8: *“...the people at the top won't (care at all) about QC (Quality Control) work... It looks good in boxes, tick it... we've covered everything, and leave it.”*

Participant 2 feels that the Validation Board’s opinion of the teaching practices will be influenced by how lecturers present their module designs:

Participant 2: *“I presume the Validation Board are going to be pressurised, as well, to get through the document quite quickly, so you want to make everything look... uniform and structured, so that (Validation Board members) are saying, ‘OK, well, they seem organised, at least, in how they create their documents. I presume they’re organised in how they teach.’”*

Participant 1 describes how, while working on a programme design task, members of the programme design group made the point of policy that dictates that the programme had to be designed with wording that matched a legal mandate:

Participant 1: *“...people were saying, ‘Well, actually, according to this legislation, or according to this policy, we need this, and the fact is we’ll get funding if it has this word in it, and we won’t get funding if it has that word in it...’.”*

6.2.12 How Lecturers Relate to Academic Quality

Applying the principle of the hermeneutic circle; reading all of the transcripts with a view to finding phenomena that applied broadly to the experience of curriculum design, I began to find the essence of lecturers’ experiences in relation to academic quality.

Some of the lecturer participants report curriculum design experiences that are associated with quality assurance. Participant 7 is concerned about having a module design that complies with the requirements of the Bologna Agreement and the directives of the National Qualifications Authority of Ireland, and so is reassured by their own validation experience that their designs

exceed the expectations of the National Qualifications Authority of Ireland, in terms of curriculum design quality:

Participant 7: *“It's my experience, in terms of the validations I have seen, we're definitely ahead (of other Departments and) our course documents are very high quality, in terms of that. And they adhere to the principles and processes from Bologna, and what are being recommended by the NQAI.”*

For Participant 7, collaborative design of curricula, among lecturers, makes for a better module descriptor, and a better quality module:

Participant 7: *“...designing modules, the more people that are involved in it, the better... the more voices that are involved in the creation of things, the more perspectives you'll have...”*

“...it, possibly, took longer overall, but I think the quality, then, of the module is much better, as a consequence of that.”

Participant 3 attributes the ‘immersion experience’ of module design, and the reflective approach to design, while writing the module descriptor, to the quality of the module:

Participant 3: *“(Being) immersed in it, (and) close to that experience... I find writing module descriptors is a beneficial process to the quality of the module, because of that reflective thing... when you're writing the course descriptor.”*

Participant 7 feels that that there is not enough integration in module design in the School of Computing - that lecturers design their modules in isolation. They feel that, in other instances where there is better integration of modules, there is higher quality of module design.

Participant 7: *“The modules are designed in isolation... There is no great relationship between my modules and somebody else's that I'm teaching... (In instances where I have seen integration of modules) there would be higher quality.”*

Participant 11 also feels that aligned modules make for a better experience for the students – that alignment makes it possible for students to appreciate the relationships between modules:

Participant 11: *“For the student as well, to actually relate to two modules, (it would be) a better experience for students.”*

“I just feel, in the Programme Year (of a course), they all should have a coherent sequence and be related to one another. And that makes it easier for students - to see the relationship... but, very often, here, there just isn't...”

Participant 10 wants to ensure that the quality of their module is not compromised by semesterisation, and suggests that this is also the case for other lecturers. They accede to the idea of semesterisation/modularisation, and feel that they have to come to terms with it:

Participant 10: *“...people were keen to make sure that semesterisation, modularisation didn't affect the academic quality... because that was (very important to them), they didn't want to compromise on quality.”*

“Modularisation was coming in, so it was a case of making the best of what we had.”

6.3 Depicting an Overview of Themes and Their Relationships

Figure 6.1 is a diagrammatic form of the hermeneutic phenomenological themes and their interrelationships in summary. The features of this diagram are mapped onto an abstraction in Chapter Seven, in subheading 7.14 and entitled ‘Thematic Interpretation Synopsis’.

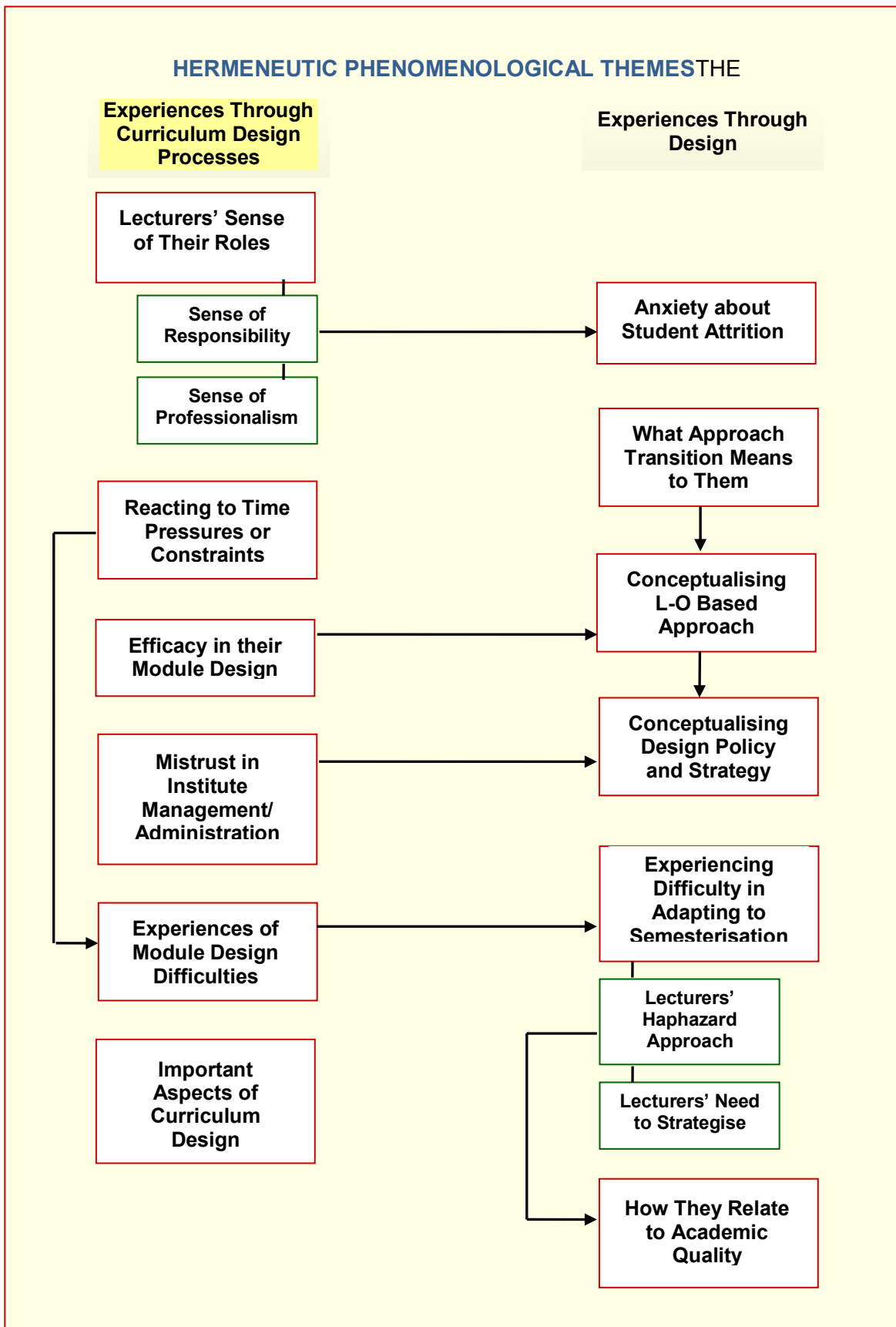


Figure 6.1 Hermeneutic Phenomenological Themes and Their Relationships

CHAPTER 7

DISCUSSION OF COLLECTED DATA OF THE SECOND ANALYSIS

7.1 Introduction

The previous chapter presented the findings of hermeneutic phenomenological analysis of the twelve transcripts of Interview Set 2. The analysis of the interview transcripts elicited some rich descriptions of what it is like to design curricula in a time of design change. The findings represent the themes associated with computer science lecturers' experiences as curriculum designers during a time of curriculum design policy transition. The themes, taken together, represent the lifeworlds of computer science lecturers as they engage with the task of curriculum design. The lifeworlds capture the essence of the curriculum design experience for these lecturers, and reflect the lecturers' experiences of curriculum design during that time of transition. The themes provide a unique insight into the context of the lecturers' world of work at that time, and how they reacted to the situation in which they found themselves, as a reflection of the reality of how it is to be a curriculum designer during the transition. The findings cast light on this important aspect of academic life.

This research aimed to discover what it is like to be a DIT School of Computing lecturer designing curricula on behalf of the school by investigating the issues, concerns and experiences of those lecturers in relation to their design of curricula/modules, against the background of degree programme design during a time of change. Also, this research aimed to establish whether

there is parity between issues described in the literature in relation to curriculum design and the actuality of issues experienced by computer science lecturers.

The objective of the study was to achieve an overall description of the experiences of a sample group of DIT School of Computing lecturers from their descriptions of the task of module and curriculum design through their own mental reflections on the task and the attendant experiences – to describe the meaning that lecturers make of those experiences. It is through examining the findings of my analysis and comparing them with those of other research concerning the subject of curriculum design that some interesting similarities and differences can be found, suggesting the wider implications this research may have. To enhance the view of the findings, more definition is required. From the description of the findings, meaning has to be made explicit, along with report on whether and how they reciprocate the discoveries made in earlier research, and represented in the literature review of this dissertation. This chapter relates the findings and information gathered in this research study to illustrate in detail the experiences and issues of lecturers' involvement in curriculum design, in the School of Computing at Dublin Institute of Technology, in a discursive structure.

The content of the subsections of this chapter are matched to the subheadings of the thematic findings of the findings in Chapter Six which are based on a hermeneutic phenomenological analysis. They represent discussion and correlation of the findings in turn to describe what the findings show, what they mean, what they illustrate or what they suggest. The discussion of this chapter elucidates how curriculum design is considered by computer science lecturers of DIT.

As individuals, the participants' overall experience of module design was different. This is because module design meant different things to each of them, and people express their experiences individually (van Manen, 1997). The context of the curriculum design task was related to procedure that had autonomy and individual responsibility. This individual responsibility and 'a fair amount of autonomy' (Moses, 1995; p. 14) works best for academics. This is not to say that each participant had very specific, different experiences; there was commonality across the recorded expressions of the twelve participants, as often happens with individuals with a group interest (Langdrige, 2007). This shows that lecturers have individual experiences and perspectives of curriculum design, but they do contextualise those experiences in a common way.

The common themes are the guide to the discussion in this chapter. The subheadings, 7.2 through to 7.13 constitute the discussion of the essence of what it is like to be a computer science lecturer during a time of transition in curriculum design policy.

7.2 The Role of the Lecturer

The participants describe most of what they do in terms of their role of teacher. It is a natural stance to take for a lecturer in describing their work. Ramsden (1992) relates the teaching role to facilitation of learning for the student. Lecturers allow students to develop their understanding of a topic (Ramsden, 1992) in a constructive way. The teaching can be related to curriculum design (Rust, 2002) and this would account for the teaching/design context of the findings. In the context of the curriculum, and higher education, it is important to understand the role of the

teacher (Donnelly, 2004). As Trowler (1997) says, the lecturer is quite central to curriculum design, and so, in relation to this design and to academic policy that surrounds it, one ought to consider the lecturer particularly. The role of the teacher is reflected in Baird's (1999) phenomenological study, and in Willis' (1999). Baird's teachers feel the effect of having their role as agents of change curtailed (Baird, 1999), and the experience of limitation against policy change of the participants of this study is similar.

7.2.1 A Sense of Responsibility

In the findings a sense of responsibility is reflected in the nature of the task of curriculum design. The participants are aware of the effect their curriculum design efforts have on quality of the programme modules, and they are aware of the autonomy they have as curriculum designers. For example, Participants 3, 4 and 10 describe being left to get on with the task of designing their modules. There is no indication that this is a problem – in fact Participant 3 sees this as an advantage. Autonomy in curriculum design can foster a commitment to curriculum innovation in lecturers who design their own modules (Higham, 2003). For some of the participants of this study that autonomy did foster a commitment to curriculum quality and/or innovation.

The participants care a great deal about their involvement in the module design process and about producing a valuable, quality document. The lecturers' caring about 'getting it right' in terms of curriculum design is less about being seen to be able to do a good job on the design than about preparing a module that the students will find useful and fulfilling. Fitzmaurice (2010) has described this attitude of caring and responsibility of lecturers' in curriculum delivery. In some of the participant lecturers' interviews the caring responsibility towards students, in curriculum

delivery, is clear. This is reflected in their sense of responsibility toward their module designs. Dewey states that teachers have a duty of responsibility to their students and, as educators, teachers are providing knowledge and forming attitudes that become part of the fabric of society (Dewey in Flinders and Thornton, 2013). This can be compared to the lecturers' realisation that they are preparing computer science students to be the programmers and systems analysts of the computing industry, post-graduation, as described by Zandler *et al* (2012). This is part of their motivation for teaching as well as they can, and for designing curricula as well as they can.

In their phenomenological study, Saevi and Eilifsen (2008) focus on teachers as facilitators, examining teachers' experience in that context. In this study the participants were aware of their role as educational facilitators, and their experiences reflected their sense of responsibility in this regard. For example, the participant lecturers of this study realise that their module designs have a direct effect on what students learn, and they are concerned about that fact. The curriculum preparations which preoccupy the lecturers equate to the 'conditions' for optimising student learning described by Gagne *et al* (2005), which is the main principle of the rationale for curriculum design. Lecturers are often prepared to go beyond their duties in curriculum design if they feel that it will help students, as described by Participant 11. Even if the effort makes the lecturer overworked, those lecturers will accommodate the student.

7.2.2 A Sense of Professionalism

In the findings a sense of professionalism is reflected in the fact that lecturers are aware of the importance of their design and place value on their module design, design document (module

descriptor) and the things in it – such as aims, learning outcomes and content. Their sense of professionalism means that they take pride in their work:

Participant 4: “...*you, kind of, do the best job that you can do...*”

Trowler (2008) has investigated culture in education and describes academics motivated to develop curricula to a high standard. Implicit in this is the principle of lecturers taking pride in their work. Lecturers’ sense of professionalism means they are inclined to improve all aspects of a programme, mainly for the benefit of students – as is the motivation in relation to their sense of responsibility.

van Manen has described ‘reflection on action’ where a teacher can think about what he or she has done: ‘Thus pedagogical reflection on action serves to make subsequent action more mindful and tactful’ (van Manen, 1991; p. 117). In other words, a teacher can change their ideas on academic work (especially curriculum design) based on their self-reflection – the sort of self-reflection related to a sense of professionalism. The study shows that this does occur – sometimes.

Where Willis (1999) describes the broadening of his perspective, as a result of his phenomenological study, the participants of this study found that their roles, as educational professionals, was focussed for them, and they, too found that they had to assess their approach to their work. This reflexivity of the lecturers’ professionalism is quite similar to the reflexivity in teaching practice described by Bleakley (1999) in his Heideggerian phenomenological study, though this study applied the phenomenological method in deeper and more focused purposes.

Lecturers' senses of responsibility and professionalism ought not to be underestimated by institute management when considering curriculum design and innovation. The need for lecturers to do their best for students ought to serve as a basis for negotiation between management and academics in curriculum design initiatives.

7.2.3 Experiences of Module Design Difficulties

In curriculum design there are many potential problems; Gagne *et al* (2005) give the example of problems with designing problem-solving exercises as part of assessment. At a philosophical level, van Manen (1991) suggests that teachers who experience difficulty in their work often conceptualise a 'difficulty' as a 'challenge' and approach the concept in a positive way. Several of the participants describe their curriculum design difficulties in terms of challenges, and that challenges were to be overcome.

Examples of difficulties experienced by participants include the difficulty of deciding on what to include in their designs, or knowing when their designs are fit for purpose. Several participants talk of difficulty in specifying aims, descriptions and structure. Participant 11 is one of them:

Participant 11: *"(It was difficult) just bringing all the, all the parts of it together, into a coherent module, and a step-by-step module.*

Also, the specification of constructive alignment in a module is sometimes difficult, as is deciding on a teaching strategy. The difficulties that participants experience in module design are not excessive. The larger group of difficulties are related to choosing what to include in the module descriptor. These are simple and understandable difficulties, rather than debilitating ones.

The difficulties experienced by the participant lecturers could be discussed and cooperated upon in an organised forum, or an online forum. This would be useful prior to a programme proposal or programme review.

7.3 Experiencing Difficulty in Adapting to Semesterisation

It was apparent from the earlier investigation, using Interview Set 1, that semesterisation, sometimes confused by the participants (or assimilated with) modularisation, was an important issue of the research question. The experiences of participants in relation to modularisation – semesterisation properly – on module design, described in interview Set 2, are different hermeneutically, but remain negative. The terms cited in discussion that were repeated by several participants were ‘inflexible’ and ‘unforgiving’. For example:

Participant 1: “...*modularisation is a very inflexible setup, really... it's very unforgiving...*”

Other terms used by the participants in relation to semesterised modules are ‘short’ (in time) and ‘constraining’. Six of the respondents stated specifically that the lack of teaching time of a semester meant that there was limited time for students to assimilate knowledge. The problems of student assimilation, due to time constraint, have been identified by Gagne *et al* (2005) and by Harvey and Knight (1995). Cornford (1997) suggests that the reason students do not retain skills ‘securely learned’ (p.243) is due to the concentrated nature of the design modules on modularised programmes, and the *little time* (my emphasis) that a module affords the student for

assimilation. He also reports inadequate prerequisite knowledge of students, on preceding modules, due to modularisation (Cornford, 1997).

The advantages of modularisation for students include study flexibility (Billing, 1996; Cornford, 1997; Hennessy *et al*, 2010; Lindsay *et al*, 2002), student choice (Billing, 1996; Cornford, 1997; Lindsay *et al*, 2002; Morris, 2000) and improved economy and efficiency (Billing, 1996; Cornford, 1997; Lindsay *et al*, 2002; Morris, 2000).

The most reported disadvantages of modularisation is fragmentation of programmes (Billing, 1996; Lindsay *et al*, 2002; Morris, 2000). This is described as fragmentation of units of knowledge by Cornford (1997). There is a solution to the fragmentation problem suggested by Cornford (1997), which is to ‘design out’ (my term) fragmentation in the curriculum design stage. The increase in workload for students, due to modularisation can be designed out in the curriculum design stage (Lindsay *et al*, 2002). The symptoms of this type of fragmentation are described by five of the twelve participants, in relation to their modules.

The findings show that the participant lecturers find semesterisation to be problematic as a curriculum design idea. This means that the participants dislike semesterisation as a design idea and find it to have negative consequences beyond curriculum design – i.e during teaching and assessment. The participants do not value the semesterisation design module pedagogically, but a few participants concede that they can understand the model from an administrative perspective.

The participants describe an increase in workload, due to modularisation and semesterisation. This increase in workload for lecturers, as an effect of modularisation and/or semesterisation, is reported by Trowler (1997). Semesterisation, rather than modularisation, is the cause for increased workload, according to Morris (2000). This may account for the experiences of DIT lecturers who participated in this study, as each of them designed and delivered modularised programme modules in a semesterised structure. Where the increase in workload is problematic for lecturers, as suggested earlier in this chapter, an accommodation for increased workload might be for institute management to employ administrative staff among groups of academics locally, to help them in spreading their workload until the semesterised programmes become established.

7.3.1 The First Move to Outcomes-Based Design: a Haphazard Approach

The haphazard approach first adopted by some lecturers is a reflection on the rapidity of the introduction of the new policy, coupled with those lecturers' lack of preparation. The lack of preparation could be attributed to incomplete, or inaccurate, prior knowledge of the requirements of the move to an outcomes-based curriculum design policy. Perhaps the lecturers were ill-informed of the requirements of them in readiness for outcomes-based curriculum design. O'Connor (2006) describes a case where modularisation for semesterisation can be imposed rapidly on a programme, with little forward planning and inadequate prior knowledge of the importance of programme learning outcomes. Semesterisation and its modularisation of programmes force curriculum designers to modify their teaching, assessment and learning outcomes (O'Connor *et al*, 2011). They do not say explicitly, in their paper, how problematic

semesterisation is, but the context of their writing construes management of fragility in module design and attendant problems.

7.3.2 Lecturers Feel Compelled to Strategise Curriculum Design

Lecturers have many curriculum design strategies, but the ones spoken about most in the interviews, and represented in the findings, relate to managing their prescriptive curriculum designs, and managing to work around the format of the new, modularised programmes. For example, lecturers strategise to try and ‘build in’ flexibility to their curricula. They seek this flexibility as it allows them to deliver the modules in different ways during the semester. It also affords them flexibility in changing content and/or assessment during the module life cycle. A lecturer might be advised to design flexibility into their module for the sake of ‘teachability’ (my term), as can be inferred from reading Orkwis and McLane (1998).

Where the curriculum design change has imposed heavier workload on lecturers, they are likely to adopt a coping strategy (Trowler, 1997), as is the case for some of the participants. The lecturer may adopt a personal policy of reinterpreting the change policy to allow for their coping strategy (Trowler, 1997) – hence the participants’ ‘designed in’ flexibility. Lecturers have found that their role has changed, due to curriculum policy that effects curriculum change, and that has placed more pressure upon them as teachers (Billing, 1996). The findings suggest that the participant lecturers have, in small amounts, adopted coping strategies and reinterpretation strategies by providing generic module descriptors for their module designs. Where these strategies are non-intrusive, i.e. they do not affect students negatively, the lecturers can be left to continue with their work. Should the programme chair or institute management feel that there are

negative effects of lecturer strategising, they need to communicate with the lecturing staff on the matter immediately.

Ironside's (2004) Heideggerian hermeneutic study has much in common with this study. Her study aims to clarify participant teachers' views of their own teaching and content-design strategies and approaches (Ironside, 2004). This study takes that idea further, with a very deep examination of lecturers' strategies and approaches – but with a broader examination, also, to include the context of curriculum design policy change.

7.4 Lecturers' Anxiety about Student Attrition

Attrition is an important aspect of curriculum design policy for the participants. Attrition can be attributed to student aptitude, as suggested by Participant 1, or it can be associated with content delivery, as suggested by Participant 6. For Hubball *et al* (2013) attrition can be reduced by enrolling 'high quality students' (p. 45) and so the inference is that attrition is attributable to student aptitude. Besterfield-Sacre *et al* (1997) have identified aspects of both the student and the design of the curriculum that account for attrition in an engineering degree programme. In their study the attitudes of the students with which they begin the programme, and the development of their attitude during the programme, will determine the likelihood of their completing the programme. In this case the students' 'attitude' is a description of their preconceptions about the engineering programme: what they expect of their study on the programme (Besterfield-Sacre *et al*, 1997). Also, the data on the study of attitudes influenced subsequent curriculum design of the engineering programme in an attempt to reduce student attrition in the first year of a degree

programme (Besterfield-Sacre *et al*, 1997). There are many factors attributable to student attrition, and the participants' experience show that they are aware of that. With their obvious concern for students' welfare, lecturers ought to seek out and engage in attrition-reducing initiatives by institute management.

7.5 Lecturers' Reaction to Time Pressures or Constraints on Module Design

In the findings the effect of time constraint on lecturers in producing module and curriculum designs is clearly apparent. Six of the participants describe feeling pressurised and/or constrained by the process and experience of module design. For example:

Participant 1: “... *people are under such time constraints here, and there's so many curriculum developments going on... it had to happen quickly.*”

However, three participants describe the timeframe and even the pressure as a positive experience. It gives them some structure or helps them 'get on with it'. There are two participants who reported stress or frustration and two others who hint at that kind of negative experience. Three describe experiencing no real pressure but felt that a different outcome would result from more allocated time. Court (2006) describes lecturer unhappiness associated with stress and a reduction in quality of life due to workload and changes in work practices. Lecturers experiencing stress or fear were those with least curriculum design experience and so found the task challenging. Forsyth *et al* (1999) acknowledge the idea of lecturers panicking in the face of a new programme or module.

Court (2006) has looked at the expansion of education in the UK, between the years 1960 and 2000, in terms of academic staff-student ratios, academic staff weekly hours worked, academic staff use of time. Workload for lecturers in these studies had intensified over the years due to higher student numbers and changes in lecturers' work remit. For example, administration for lecturers had increased from 11% of their work time in 1962 to 33% in 1994. Workload pressures, generally, has been causing stress among academic staff (Court in McNay, 2006).

Stress for that academic can be a direct result of policy change in higher education (Trowler, 1997). Hennessy *et al* (2010) describe how academics adapted to the change of curriculum design policy, whereas MacLaren (2012) reports stress among academic staff due to change in policy in higher education institutes, where lecturers were directly affected.

The findings show that time constraint for module design can be a useful, constructive feature of curriculum design, but it can cause some anxiety among those who feel victim to it, so proves the point by Court (2006) that module design deadlines of the new curriculum design policy cause stress for the designer. Module design deadlines are a measure for production of the module descriptor documents and are seen as such. Disliked or not, module designers will adhere to the deadlines set. The process of curriculum design – especially during a time of transition to a new method of curriculum design – will benefit from a carefully worked out schedule for programme document production. This will allow for a clearer perspective on the process of change. Since lecturers adhere to module descriptor production deadlines, they will be amenable to the formality and the practicality of a schedule of this type.

7.6 Lecturers' Feelings about Efficacy in their Module Design

In the findings, the participants' perspectives on their designs – the value of the design – are borne out of an awareness of what is required of module design, and that awareness comes from experience as academics. As Hattie suggests, experienced teachers make better teachers, or that their insight, through experience, gives them power as instructors and arbiters of teaching material (Hattie, 2003).

Some participants feel that their module designs, no matter how meticulously described, iterated or elaborated before the teaching of them in term-time, are immeasurable in efficacy until they have been at least tried part-way through a semester. For these lecturers their designs are proven by teaching. Teaching highlights the successes and failures of the design by comparing design concepts to content and student assessment. This idea is comparable to 'behavioural objectives' described by Allan (1996; p. 96), whereby the teacher observes behavioural changes in the student and compares these to an instructional plan. The problem with using a behavioural perspective on the efficacy of a curriculum is that it narrows the scope of learning outcomes that might be included in curriculum design (Allan, 1996). To take a behavioural view of one's curriculum design means that one risks ignoring the true learning aspects of the curriculum design. As an example of a behavioural perspective causing a problem, lecturers ought to avoid the 'trap' of considering that increased assessment marks suggests an improvement in student learning.

7.7 Lecturers' Feelings of Mistrust in Institute Management/Administration

For lecturers, the concept of administration and management, in relation to curriculum design, is one that describes a group of people, or groups of people, who pass on institutional policy based on national or international education policy. For them, institutional administration and management control curriculum design policy, and the transition of curriculum design policy come from administration and management. Brehony and Deem (2005) describe how institutional management have been evolving a 'New Managerialism' (their term) (p. 403) in UK universities. This management seeks to reform curricula and apply 'a tightly integrated regime of managerial discipline and control over employee performance' (Brehony and Deem, 2005; p. 404). A similar type of management seems to be being applied in Irish institutes as well as UK institutes, as MacLaren's (2012) account of new institutional policy and practice suggests. The change to curriculum design policy causes new management regimes and academic staff, due to being curriculum designers, are affected (Brehony and Deem, 2005; MacLaren, 2012).

The changes to curriculum design, and effective institutional management of them, have provided programmes of a higher quality with more study flexibility and, thus, that are more attractive to students (Hubball *et al*, 2013). There is an economic reason for curriculum change – there can be rationalisation and other cost savings by restructuring programmes (Billing, 1996; Hennessy *et al*, 2010; Hubball *et al*, 2013; Lindsay *et al*, 2002; MacLaren, 2012) and strongly hinted at by Brehony and Deem (2005). However, Morris (2000) reports how semesterisation increases costs to an institute, without delivering on modularisations benefits. The economic factor is mentioned by several of the participant lecturers. For example, Participant 1 mentions

institutional rationalisation as a reason for being defensive in how you defend your module, and how you design it.

The findings describe a feeling of suspicion among some lecturers toward management and its reasons for curriculum design policy change. This is because lecturers were not fully apprised of the reasons for policy change, nor involved in the design of the policy change. At a management level, the involvement of lecturers of some institutes, for contribution to curriculum design policy has, thus far, been utilitarian rather than intellectual (Anderson *et al* (2002). There needs to be more fluid communication among institute management and academic staff about fundamental change of practice at the institute. Institute management ought to invite involvement of academics in discussions of policy change that will affect them, and academics should accept the invitation, and make their best efforts for contribution to such initiatives.

Volkman and Anderson's (1998) study suggested that the findings of their examination of teacher's professional identity, using phenomenology as a methodology, will inform educational administration. Similarly, the findings of this study has much to offer educational administration, as it highlights the relationship that exists between curriculum designer and institutional management.

7.8 Important Aspects of Curriculum Design

An aspect of curriculum design which is important to the participant lecturers is the concept of learning outcomes. Participants 5, 6, 7, 8 and 12 are clear on their feeling of the importance of

learning outcomes to curriculum design. Learning outcomes are strongly related to educational objectives, and educational objectives – learning objectives most specifically - have been highly important to traditional curriculum design long before learning outcomes became a basis for curriculum design (Allan, 1996).

Learning outcomes are an expression of what curriculum designers intend students to learn (Allan, 1996), and this is an important expression for the participant lecturers of this study, who may see learning outcomes as an extension of learning objectives. Emphasising the importance of understanding learning outcomes by lecturers, Hedges *et al* (2012) suggest that academics should strive to improve their knowledge of factors that contribute to student module choices and formulate strategies to enhance learning outcomes of students. It may be inferred that this is why the participant lecturers hold learning outcomes in such high regard.

In the findings another important aspect of curriculum design is content. Perhaps due to the use of traditional, linear programme design, Participants 2, 9 and 10 refer to the importance of content and its relation to teaching. The findings do not suggest a preference by Participants 2, 9 and 10 for declarative knowledge, as is associated with ‘old-fashioned’ lecturing styles’ focus on content, but is suggestive of what Long and Crookes (1992) describe as ‘process’ curriculum design. A ‘process syllabus’ is content-driven, but negotiable between lecturer and student – i.e. not dictatorial, as with prescriptive content-based curricula for declarative knowledge. This was progressive curriculum design in 1992 (Long and Crookes, 1992). Lecturers who focus on content for curriculum design need to be informed of, and guided in the benefits of outcomes-based curriculum design. This could be instigated with a context-specific training programme.

For Participants 5 and 6, the module descriptor document is important as a record of the module and/or curriculum design, and this consideration of keeping account of curriculum design declarations is reflected by Beard (1976) who suggests that records of curriculum design are an obvious aid to curriculum review.

Ostergaard *et al* (2008) describe how phenomenological methodology is useful to education as a investigative method of learning. My study shows that lecturers experience the importance of learning first hand, and they nominate the principle of learning as a very important aspect of education.

In terms of the use of phenomenology to examine student experiences, Ashworth examines the life-world of students (Ashworth, 1999), Silen suggests that it is essential for the tutor to experience learning processes as a learner and as a tutor (Silen, 2006; p.383), and Greasley and Ashworth use phenomenology to examine students' approaches to learning (Greasley and Ashworth, 2007). Metcalfe and Game (2006) use phenomenology to focus on student engagement. Although there is little focus on student engagement in this study, the context of pedagogy is relational to all these studies and my study. They all contribute to pedagogy through phenomenology.

Atkins' (1988) examination of how hermeneutics can elucidate the meanings inherent in curriculum and explicate contexts of curricula has much to offer the field of curriculum design. This study has touched on that idea, but gone further than Atkins by exemplifying those contexts

in real world situations described by the twelve participants of my study. Galvin and Todres' (2007) phenomenological study suggests that some educational contexts would benefit from a paradigm shift from prescriptive curricula to an interpretive, broad view representation of curricula. Where they have focused on a very specific aspect of pedagogy, my study also suggests a paradigm shift – to abandon content-driven curriculum design, and to embrace outcomes-based curriculum design to match recent developments related to curricula of tertiary education. In that aspect, there is a common philosophy across the work of Galvin and Todres (2007) and mine.

7.9 What the Curriculum Design Approach Transition Means to Lecturers

The transition from year-long, linear programme design approach to the learning outcomes-based, modular approach involves an increase in workload for the lecturers. They have found that they must change their perspective on curriculum design, and on modular design at a local level, and reconsider what these designs mean. This type of change is often associated with negative response from academics, such as resistance to, or blocking change due to vested interests, wishing to retain existing satisfactions and/or concern for their position in the faculty (D'Andrea and Gosling, 2005). There is an expectation that academics will at least be concerned about how change will affect them, personally (D'Andrea and Gosling, 2005), such as the curriculum design policy change, and so the academic culture and the institutional context need to be examined (D'Andrea and Gosling, 2005).

This is not to say that all lecturers *will* be obstructive in the face of curriculum design change. In a study of curriculum design policy change similar to the one experienced at DIT, Hennessy *et al* (2010) report that academics accepted the changes as an opportunity for their programmes to reach a wider group of students than was previously possible. Despite the increased workload, the academics accepted the change for the perceived benefits to students (Hennessy *et al*, 2010). However, for Trowler (1997), this general acceptance of policy change and its effects is due to passivity in lecturers, and a situation of change that is outside their control.

In relation to lecturers as curriculum designers during a time of curriculum design policy change, Higham (2003) has found that a move towards a prescriptive curriculum design model, while denying the dynamism of lecturers' professional experience and expertise, risks lack of commitment, from the lecturers, to curriculum innovation. This reaction features among the discussions in the interviews of the participants of this study. There needs to be a 'facing up' to these effects of policy change for all concerned. Lecturers can expect to see an increase in workload, mainly during the time of transition from a linearly-designed curriculum to an outcomes-based curriculum with semesterisation. Management must appreciate that academics are impacted by such change and offer appropriate accommodation during the transition. An example of compromise might be for institute management to employ administrative staff among groups of academics locally, to help them in spreading their workload until the new academic calendar becomes established.

Dornan *et al* (2005) use interpretive phenomenology to explore how clinicians perceive their roles, and how closely those perceptions link to the curriculum. They conclude that practical

teaching needs to include real world practical learning experiences for medical students (Dorman *et al*, 2005). The background to my study is different, being related to computer science, but there are similarities in the way that it examines scientific pedagogy, and the importance of approach in real world experience of curriculum.

7.10 Conceptualising the New, Learning Outcomes-Based Approach

The participant lecturers have contextualised learning outcomes in relation to content. This is similar to the broader perspective suggested by Cheung and Wong (2002) – that lecturers may describe learning outcomes in their designs that are based on their ‘curriculum orientations’; their understanding of the curriculum. This would suggest that the learning outcomes which appear in a module descriptor are biased to the choice of the designer, though this is not to say that the choice is inappropriate or ineffective.

Lecturers’ conceptions of learning outcomes are important to the learning outcomes-based approach. In the case of computer science curriculum design, the students’ progression across the subjects of a degree is crucial for effective teaching and learning, and so, to ensure such progression, computer science educators need to be able to classify the complexity of learning outcomes and assessments for each subject (Gluga *et al*, 2013), and describe them in their curriculum design. Among the participants some see learning outcomes as very important to the module design approach. For example:

Participant 2: *“I might think of (the learning outcomes) as a sign to a student of... what you're going to need to know... because it's kind of a more transparent explanation of the*

content... (and) from my experience, anyway, it forces me to write (the module descriptor) more transparently and in plain English.”

Others seem to prefer a content-based approach. Those less disposed to learning outcomes as a focus for a design approach measure learning outcomes against content specifically. Several find learning outcomes complex or difficult to generate, but important. Others find learning outcomes difficult and less important than content. Nearly all participants see learning outcomes as prescriptive and accept learning outcomes as a focal point of module design, whether positive or negative about them, but this is due to the incoming curriculum design policy. For all participants the learning outcomes focus is either an attempt at describing student achievement, as implied by those negative about them, or an actual description of student achievement, for those positive about them.

Hall (2002) has described learning outcomes as important to the curriculum and situates them with programme objectives. They have been ascribed to students in the context of informing students about programmes (Hussey and Smith, 2002; Race and Brown, 2001; Rust, 2002). It might be expected most of the participants find learning outcomes to be a focal point of module design – they do – but one might also expect most of the participants to be positive about learning outcomes as that focal point. That so many participants are negative about the learning outcomes-based approach to curriculum design is an interesting finding, and shows that the real purpose of the learning outcomes-based approach is not understood by all module designers. Where there is negative attitude about the learning outcomes-based approach, the situation could be changed by informing the lecturer *corpus* of the principles of this approach, and clarifying the

benefits of, and why this approach is required for modern curricula. This could be instigated with a context-specific training programme.

7.11 Conceptualising Curriculum Design Policy and Strategy

The findings for curriculum design policy and strategy relate broadly to academic administration, similarly referred to by Brehony and Deem (2005), and modularisation/semesterisation as an academic policy, similarly described by Billing (1996), Cornford (1997), Hennessy *et al* (2010) and Morris (2000). For lecturers, curriculum design policy and strategy has a powerful influence on their module design experiences.

Lecturers' conception of institutional policy that affects curriculum design is that those policies are directives that ought to be obeyed. They may be obeyed willingly or unwillingly – for example, Participant 1 finds that agreement on this type of policy is based on compromise, Participant 3 finds this type of policy to be necessary administration, but, along with Participants 2 and 8, suggests that conformity to this policy is 'box-ticking'. This is similar to the workaday nature of curriculum design process, described in terms of process and filling a need (Gagne *et al* 2005), and on the basis of resources (Forsyth *et al*, 1999).

Dahlgren's (2000) phenomenological study suggests that learning experiences are in the context of educational disciplines, rather than in reflection of written descriptions in curriculum design documents. This study bears that out, insofar as the lecturers' experiences reflect their concern for context, rather than the documentation of content, which they see as a 'box-ticking exercise'.

Irish lecturers may be defensive of themselves in recent times, against institutional policy, due to the demands from them for reform of curricula, being micro-managed and becoming stressed, yet being vilified in the press during 2011 (MacLaren, 2012). The negative attitude of some lecturers toward institutional policy is attributable to the culture of suspicion of academics towards institutional management, as described by D'Andrea and Gosling (2005). Trowler (1997) describes policy imposition on lecturers that make them negatively disposed to new policy. The findings suggest that the participants feel that they have had this curriculum design policy change placed upon them, and their general reaction is passive – much like the situation and reaction described by Trowler (1997). There needs to be improved communication and negotiation between institute management and academic staff – with compromise on both sides. This could be instigated by having large-group meetings between management and academics prior to any fundamental change of practice at an institute.

7.12 How Lecturers Relate to Academic Quality

The findings show that all of the participant lecturers are concerned about the quality of their modules and, by inference, the quality of their module design. As participants in programme design and review, DIT lecturers are involved in academic quality assurance (Duff *et al*, 2000; Lawless *et al*, 2007). The participant lecturers concern for quality of design reflected those parts of a module for which quality is important, such as learning materials (Sambrook *et al*, 2001), teaching (Barrie *et al*, 2005), learning outcomes (Hussey and Smith, 2002), assessment (Houston and Foote, 2001; Rust *et al*, 2005) and graduate attributes (Bath *et al*, 2004). To improve the

quality of computer science programmes, Sampaio and Sampaio (2012) suggest finding out about lecturers' perceptions, and consulting students, asking them for suggestions for modules and programmes.

For Ladwig (2009), quality considerations for curriculum designers could be a focus on pedagogical experiences for students. In other words, using teaching practice as a basis, and developing a quality teaching model, one could move forward through curriculum design and expect improvement in many aspects of third level education. The teaching quality model takes a multi-dimensional view of curriculum, curriculum design – and has the concept of student at its centre (Ladwig, 2009). In the findings the concept of student is evident, but it is, by no means, central. This is the mistake of the participant lecturers. The student ought to be central to the consideration of curriculum design quality.

For participant 7, collaborative work with peers, on curriculum design, enhances the quality of the programme:

Participant 7: “...*designing modules, the more people that are involved in it, the better... I think the quality, then, of the module is much better, as a consequence of that.*”

Much can be learned about curriculum design through discussion and collaboration in a ‘community of enquiry’ made up of academics that are willing to share and gather knowledge with/from fellow academics (Tilleman and Orland-Barak, 2006). Lecturers ought to gather and discuss their experiences of curriculum design quality and how they may propose to improve it

in their own situations. This can be done as a ‘synergetic exercise’ (my term) in this type of discussion.

Forsyth *et al* (1999) suggest that the module designer may choose to evaluate their module/programme, but should design a plan for gathering information on how to evaluate, and later modify, their programme. In evaluating a programme a lecturer may need to consider the situatedness of his or her module; in a school or department, and the student taking the module. In other words, quality in curriculum design requires planning. This was borne out by this finding that participants describe quality of curriculum design in terms of its importance, and planning for quality in curriculum design is understood by most of the participant lecturers.

Hubball *et al* (2013) describe curriculum quality in terms of efficiency and effectiveness that are attained by curriculum design and peer review of that design (Hubball *et al*, 2013). When moving to a modularised system, it is the responsibility of the institute to ensure that standards on programmes are maintained or, if possible, enhanced (Simonite, 2000). This can be attended to by measurement of performance of students during and after the move to modularisation (Simonite, 2000) and, in fact, this has occurred at DIT through the Retention Officer. (This point is summarised in Chapter One.)

Participant 7 describes the quality of their modules in terms of its adherence to the quality requirements of the Bologna Agreement. For computer science degree programme design, the Bologna Agreement is a consideration for quality aspects (Zendler, 2012) as it has, among its documentation, recommendations for curriculum design quality. The issue of quality of

curriculum design is very important to curriculum designers. The participants feel that their contribution to curriculum design quality is made through the care that they take in producing their module descriptors. There are quality assurance checks in programme design and review, but quality might be enhanced by the provision of ‘quality rubrics’ (my term) to lecturers involved in curriculum design.

7.13 Thematic Interpretation Synopsis

In Chapter Six, Figure 6.1 is a diagrammatic representation of the findings of that chapter. To return to that diagram reflectively, having discussed all of the themes of the findings in this chapter, I will relate the main themes of the diagram in summary.

Lecturers live in their roles as teacher, educational facilitator and curriculum designer. Their position at the institute gives them an identity which contextualises many of their experiences as lecturers – their curriculum design experience as much as any.

Their sense of responsibility can be related to their anxiety about student attrition – they feel that the change in curriculum design policy has some negative effects on how curriculum design is carried out, and perhaps these effects reflect the inability of some students to progress out of their academic year.

The lecturers’ sense of professionalism reflects a preparedness, among some of them, to take on extra work – increasing their workload during and after the transition from year-long to

semesterised courses, and this causes some stress among those who experienced this. The aspect of stress is also relatable, at least in part, to their reaction to time pressures and constraints on module design.

Some lecturers experience module design difficulties, which are often dealt with as challenges to be overcome. These general difficulties can be related to some lecturers experiencing difficulty in adapting to semesterisation of course modules – often because they are not prepared for the radical nature of the change. The transition from year-long programmes to a modular and semesterised calendar was sudden for them, and their responses to the rapidity of change causes problems. This may be due, in part, to their lack of preparedness, their underestimating of the situation as it unfolded. Equally, there is some experience of a lack of information from management and administration. This, too, may have contributed to the difficulty the lecturers experience in the transition.

In some examples of the lecturers' reaction to the change in curriculum design policy, their earliest examples of new design is an unstructured, haphazard approach to the new, semesterised and modularised courses. As with the lecturers' difficulties – or because of them – the lecturers have demonstrated little preparation for the change, or understanding of the rationale: there has not been a concerted, self-managed change in lecturers' approaches to curriculum design in order to adapt to the changes.

In the early stages of the move to semesterised courses, lecturers feel compelled to strategise their curriculum design. They seek to generalise the descriptions of their module designs – and to

micromanage their delivery of courses, in an effort to gain flexibility in their account of their courses, as well as the delivery of content and assessment. This strategising is also an effort to reduce the effects of fragmentation of courses, as they see it arising.

Lecturers are concerned about the efficacy of their curriculum designs – they want them to be effective. This desire to do well as curriculum designers is relatable to their desire to be effective teachers and to their concept of curriculum design approaches.

The lecturers' feelings of mistrust in institute management and administration can be related to their concepts of curriculum design policy and strategy: they see the policy as having been decreed, where they have no input, nor accommodation for objection. So, for example, learning outcomes, though prescribed by the institute, are not accepted, necessarily, as the basis of curriculum design among the participant lecturers.

What the curriculum design approach transition means to the lecturers is that, in some cases, the institute's prescribed approach to curriculum and module design differs greatly from how modules are actually designed. Also, due to the lack of management of the transition, where some lecturers have awareness of best practice in curriculum design, there is no consistency of application of such techniques. These themes can be related to the phenomena of the lecturers' concepts of the new, learning outcomes-based approach, which is that they are based on policy and institutional strategy.

Having a curriculum that is fit for purpose – one that serves the students well - is one of the important aspects of curriculum design for the lecturers. They have an awareness of what they hold as important for curriculum design, and those aspects are individual to each of them.

The lecturers relate to academic quality as a byproduct of good, proper curriculum design and teaching, but, due to the haphazard approach that lecturers take to curriculum design, quality assurance for programmes is ‘hit and miss’.

7.14 Summary

This chapter has presented a discussion of the findings of the study. The order of the presentation discussion followed the order of the presentation of the findings in the previous chapter.

There was discussion of the themes that emerged from the hermeneutic analysis of all twelve transcripts together, highlighting the comparisons between individuals’ relatively similar experiences while performing module design and their experiences of issues around module design during a time of change to curriculum design policy. This discussion of the findings has been a reflection on the information that represents hermeneutic interpretation of the experiences of the twelve participants of the study as individuals. The themes that have come from the analysis have been reflected upon in light of the relevant literature; reflecting on research in their own specific area, by relating them to similar aspects in the literature.

The implications for the findings have been made explicit; describing the findings in terms of what they mean to the field of research. The purpose of making those relationships was to elucidate how curriculum design is considered by computer science lecturers of DIT.

The reader can infer the parity between issues described in the literature, in relation to curriculum design, and issues experienced by computer science lecturers.

The next chapter, Chapter Eight, describes the conclusions and implications for this study.

CHAPTER 8

CONCLUSIONS AND IMPLICATIONS

8.1 Introduction

This research set out to examine lecturers' experiences of curriculum design during a time of dramatic and abrupt changes in the academic calendar, structure of programmes, pedagogical approaches and curriculum design processes. The research was placed in the context of Dublin Institute of Technology's computer science degree programmes, to find lecturers' experiences of designing curricula in the context of a move to a semesterised/modularised calendar and a learning outcome-based approach to curriculum design.

As part of this research study of curriculum design experiences, lecturers' involvement in curriculum design was investigated by conducting a set of interviews that were named 'Interview Set 1', and analysing the transcript data of those interviews using hermeneutic phenomenological methodology. This allowed me to acquire a broad understanding of the task of module and curriculum design. This broad view, and the findings that emerged, informed the interview questions of a second round of interviews conducted later; 'Interview Set 2'. Continuing with the hermeneutic phenomenological methodology, and analysing data from the latter interviews, experiences of the participating lecturers, as they undertook module design and curriculum development, were discovered. Grouping the experiences of individual participants into useful themes represented a second set of findings.

As a two-part study, the first part gathered data on how lecturers design a module, make decisions on what to include in the module descriptor and what the important issues are in relation to module and/or curriculum design.

The second part gathered data on how lecturers relate to the task of curriculum design, how they are affected by curriculum design, what lecturers feel are the important aspects of the design, how they relate to their roles, how they are affected by curriculum design approaches – including the new approach of modularisation, and how they are affected by curriculum design policy and strategy.

The research set out to establish whether there were common experiences among lecturers in this area of their work, whether there were important identifiable issues and conditions that affected the lecturers and what the implications might be for what was discovered.

To establish these points the data were analysed, the phenomena identified, then interpreted, thematised and further interpreted, taking a hermeneutic stance to clarify and enrich the phenomenological data so that the implications and new knowledge could be set out in a way that informed and allowed for debate, thereby adding to the sum of knowledge in the field of curriculum design. The main findings and implications from this study are summarised below, followed by final, concluding remarks.

8.2 Summary of Findings

Some lecturers are prepared to go beyond their duties in curriculum design if they feel that it will help students, and this is reflected in their descriptions of their attitude toward teaching and assessment. These lecturers are prepared to design their curricula to incorporate flexibility in their duty to students if they deem it necessary.

Lecturers care about their curriculum design and module designs; how they appear in the programme document and how other people perceive their efforts in curriculum design. They feel that their actions in relation to curriculum design will have an effect on the students of the degree programmes.

There are difficulties associated with curriculum design, but no unpredictable difficulties. Most difficulties are about matching teaching, choosing assessment, workaday things associated with module design. The lecturers, invariably, set about overcoming any difficulties that they encounter in curriculum design. Lecturers learn from their experience of module design and appreciate it as a favourable aspect to doing the job. They learn from difficulties and challenges in curriculum design, too.

Moving from year-long, linear programme design approach to the learning outcomes-based, modular approach meant an increase in workload for the lecturers. Many of them describe their experience in relation to the transition in terms of extra work, and in relation to a change in their perspective on curriculum and modular design.

Most participants see the learning outcomes-based approach to curriculum design as prescriptive, but accept learning outcomes as a focal point of module design. For some participants learning outcomes are an attempt at describing student achievement. For others learning outcomes are an actual description of student achievement.

Lecturers are worried by student attrition, and see it as related to curriculum design policy. Attrition can be attributed to student aptitude, or associated with content delivery.

The participant lecturers are divided in attitude toward their experiences of the time pressures applied to module design. I.e. there are some who feel pressurised, even stressed, and those who see no real problem, where they see deadlines more as a work-structuring element of their duties as lecturers.

The efficacy of a module design will not be known until it has been tried, at least part-way through a semester. For some of the participants module design is proven by teaching; highlighting the successes and failures of the design in terms of content and assessment marks. This suggests a content-centred view of curriculum design by these participants, which may be inherited from curriculum design practice prior to the move to outcomes-based curriculum design.

Lecturers prefer to interpret the meaning of the module descriptor, as a document, in very generic terms. They want to define the curriculum in broad terms. They seek flexibility in design so that they can apply flexibility in teaching.

For lecturers, administration and management describes a group of people, or groups of people, who provide institutional policy based on national or international education policy. Institutional administration and management control curriculum design policy, and they preside over the transition of curriculum design policy.

For most of the lecturers, institutional policy that affects curriculum design constitutes directives that ought to be obeyed - willingly or unwillingly. Lecturers feel subject to policies that are owned by management, and they feel obliged to conform to policy directives.

Most participant lecturers are negatively disposed to semesterisation. The participants' experiences of semesterisation vary from restrictive to hateful. The main experience is that the twelve-to-fifteen week schedule of a semester has the effect of limiting students' assimilation of knowledge, limiting/restricting variation in assessment methods and several other undesirable effects on student groups. From a design perspective, lecturers find that they are forced to arrange teaching and assessment in a restrictive pattern that matches the restrictive learning schedule and so, to an individual, they do not like it

Some lecturers see learning outcomes as very important to the module design, others see learning outcomes as less important than content. Several participants find learning outcomes complex or difficult to generate, but important. Learning outcomes are not universally accepted as the basis of curriculum design among these participants, though institute management may assume that it is, following their policy change.

Lecturers base their curriculum design approaches on their experience and prior knowledge. The more confident lecturers are about their subject, the more confident they are about module design for that subject. There is also a correlation between confidence in a subject and the term of lecturing experience accrued.

Few of the participating lecturers place the student at the centre of their module design. In fact, students are hardly mentioned in relation to module design, but they are associated with teaching as a task, teaching strategy and/or teaching design. In this situation one can see that the student is implicated in the module design of these participants - but indirectly. These findings imply that most of the participants' curriculum design is not student centred, even though their concepts of teaching and assessment are student-centred.

Computer science lecturers see their module designs as defined by technology. Computer science education is framed by technology, and computer science modules are an instantiation of a technological degree.

Module design by lecturers is a purely personal experience, and yet there are, sometimes, common threads among lecturers' experience of curriculum design. There are situations of curriculum development in which lecturers find themselves, and to which they react in a personal way.

Lecturers sometimes refer to peers to guide them in the design. The discussions with peers when setting about the design of a module – i.e. the informal meetings – are intended as a pooling of intellectual resources and/or collective professional experience to improve the quality of module design or make the task quicker and easier. The participants enjoy the social and intellectual exchanges and interaction during these informal, collaborative curriculum design efforts.

Lecturers are asked to design a degree programme module that must meet quality assurance criteria. The context of curriculum design quality is that of DIT policy. Lecturers are aware of the need for planning for quality. Lecturers' own sense of professionalism motivates them to produce quality module descriptors and quality programme documents.

8.3 Implications and Recommendations

The design of a programme in DIT begins with a programme proposal which is authored by College and School management, along with academic staff members through discussion and documentation. After approval at College and Institute level of the programme proposal documented curriculum design of lecturers, often as module descriptors, is used as part of the programme document. A new programme must be validated, and the validation is carried out by a Validation Panel of external and internal peers which is required to make an impartial judgement on the standard, content and conduct of the proposed programme. Most of a degree programme's design comes from lecturers who participate in the draft document. For example, computer science lecturers will be asked to submit one or more module descriptors for consideration for the draft document. Those lecturers will also be involved in the review of the

programme, specifically in the review of the design of modules, when the programme is reviewed every five years from launch. There are guidelines for programme design and review, both from DIT's Teaching, Learning and Technology Centre and the Quality Assurance Committee, which lay out, in broad terms, what needs to be considered for curriculum design. The principles of quality in curriculum design continues through the teaching experience of the computer science lecturers, as they employ teaching and assessment strategies through each academic year of the programme.

8.3.1 Implications for the Curriculum Design Research Community

There are implications for the curriculum design community from this research study. The first is the important link that this research study established between a lecturer's situatedness in curriculum design and the issues that affect his or her experiences of curriculum design. This link, often referred to in previous research but never clearly described, has been documented here to provoke thought on the issues and concerns of lecturers as curriculum designers. This may encourage researchers in similar education-design environments to investigate the link between lecturers' experience of curriculum design and academic/administrative policy, faculty resources or the international academic perspective in those environments, for example. This research has proven the importance of this link, and shed light on this poorly understood area of academic life.

Another implication for the research community is to add to the argument of having fluid communication between institute management and academic staff: structured consultation between management and lecturers and researchers. Also, academics having organised

involvement in policy formulation for tertiary programmes that are, for example, moving to a semesterised academic calendar – especially ones as technologically specific as those of computer science.

Although it can be argued that academics are already involved in curriculum design, the involvement, thus far, has been utilitarian more than intellectual. The implication here is different to the involvement of academics in curriculum design currently. Academics have an important voice in the field of curriculum design research – their potential contributions will be significant. Lecturers' experiences, in an intellectual context, will be a valuable asset to curriculum design research.

8.3.2 Implications for Curriculum Design

The themes presented here which describe the experience phenomena of lecturers as module designers highlight the expanding awareness of the significance of the experiential nature of curriculum design. Through this expanding awareness there is an expanding level of understanding of the specific concepts involved in the situations, how they are related to each other and how they are related to the whole situation. For example, the implications that the findings from this research have for constructive alignment, within the design of the curriculum, are another important aspect of this research. Also, with horizontal and vertical alignment, in terms of modules across each academic year, and modules over sequential years of a degree programme, the learning activities and the assessment could be aligned with the learning outcomes of the module individually, or aspects of module design could be aligned to other modules. This study shows that lecturers understand and desire the use of alignments of these

sorts in curriculum design. Though the Quality Assurance Committee offer documented guidelines on curriculum design, including constructive alignment, the associated training sessions from the Learning, Teaching and Technology Centre are underutilised. These training sessions need to be promoted and their scheduling negotiated with those that might need them.

Programme reviews for degree programmes occur every five years. Some lecturers feel that it is possible for problematic design features to be 'locked in' to the design during the life cycle. It would be useful to modify that situation so that module designers could take the opportunity to review their designs 'mid-term' more readily and easily. The findings of this study show that lecturers often wish to modify their module designs, on foot of teaching experience of same, but feel that that they ought to wait to make design changes in the programme review. The terms under which modifications may be made to programme designs, between programme reviews, need to be clarified and communicated to academic staff.

This study suggests that the student may not need to be considered in isolation for module design. This may be different at the curriculum design level, but lecturers' experiences are that there is little point in trying to 'design in' a generic student for a module design – but it is almost imperative to do so at the level of teaching design or assessment design. The implication here is not that the student must not be considered for module design, but that the 'student design context' must be clarified for curriculum design, and situated in the principle of student-centred curriculum design. As it is, the concept of 'student', in relation to curriculum design, is often considered on its own terms by lecturers. Why this is so must be discussed and, if necessary, amended.

8.3.3 Implications for Lecturers

The findings from this research have important implications for lecturers. If lecturers are aware of the most important issues and experiences of module design, and the relationship between their experiences and those of other lecturers in a similar situation, they can become empowered in their module and curriculum design. More specifically, if lecturers are aware of their collective experiences and how they find module design with others, design resources, learning outcomes, module alignment and the teaching-design relationship, as a group, for example, they will be more likely to identify the strengths, weaknesses, opportunities and threats of module and curriculum design. They will be able to see how the issues raised in the descriptions of their experiences of curriculum design relate to curriculum design policy, and to the process of programme design in which they are involved. As it is, the process of programme design is separate and different to many of the findings of this study.

With a clearer view of the module design situation, in view of these findings, a lecturer could put forward new proposals to academic management for better and/or stronger support in their task of module design. Lecturers are already involved in curriculum design in a utilitarian way, but this study shows that they have much more that they could contribute, and one can infer from the findings that they are willing to contribute more to curriculum design in an intellectual way.

8.3.4 Implications for Students

The implications that the findings from this research have for students are various, but the most obvious implication is that they should make themselves more aware of the module descriptor

and the process by which it was produced. With that, the student will be better informed about what the module entails, what its intended learning outcomes are, for example, and should be more able to conceptualise the expectations of him or her to successfully complete the module.

Awareness of the lecturers' experiences and the issues of module design should also encourage more empathy by highlighting for students the considerations and constraints of module design as an academic's duty.

Allowing students to consider module design as something other than an administrative task is an important step in the development towards better student knowledge of an important aspect of academia. Therefore, an awareness of these may help students develop a more complete understanding of the concepts surrounding module and curriculum design, and allow them to make contribution to the process in the form of suggestion and feedback. As it is, students have little understanding of curriculum design, and no involvement. If they were aware of their contextual absence from many lecturers' concept of curriculum design, they may want to make their own suggestions to lecturers on what aspects of their own experience of the curriculum ought to be considered for curriculum design.

8.3.5 Implications for DIT School of Computing

This research could impact on the curriculum design and teaching and assessment practices within the School of Computing in DIT. The practices of curriculum design administration could be informed by this extended view of the process of curriculum design. As it is, there are formal practice processes for programme design and review, and recommendations for teaching and

assessment, within the School, but the findings of this study could inform the processes and practices for curriculum design and policy application at the local level of the School of Computing, without administrative complication at higher levels. One example of this is that the findings here could inform future proposals for the placement of module design in the academic year and the management of the process, through to publication of the programme document.

There could be changes to the directives for programme reviews to reflect the need for cooperation among lecturers to share design ideas.

There could be changes to any curriculum design templates to reflect the need for improved module design options – for example, the inclusion of proposals for constructive, horizontal and vertical alignment, and template devices to support their inclusion.

There could be changes to the management of the programme reviews to reflect the need for a better understanding of lecturers' resources and constraints, worries, problems and solutions, professional knowledge, and innovation – all in the context of lecturers as curriculum designers.

These implications describe options that do not currently exist, as part of the programme design and review processes of the School of Computing at DIT.

8.4 Limitations of the Study

As with all research studies there were limitations involved in this computing education research, although at all times I endeavoured to be aware of these limitations in an effort to minimise their effect on the research outcomes. There were limitations involved with the use of the methodology of phenomenology as it was used to conduct a qualitative evaluation of an essentially qualitative phenomenon – conceptual understanding, yet there was quantitative data all around the field of investigation that had value. This point is picked up in Section 8.5, Further Work.

Another limitation of the use of phenomenology within the educational context is that it was developed as a methodology for use largely in the nursing and social sciences communities. However, this limitation is minimised by the fact that it has been used by Max van Manen in the area of pedagogy.

Another limitation of which I was aware, while conducting this research, was that the research study might have been designed differently and therefore the research findings might also have been different. If I had chosen an alternative methodology, such as Case Study, with which to conduct the research the outcomes may not have been the same. However, the methodology employed in this study was deeply grounded in the theoretical assumptions that I brought to the research and which are fully justified and explained in Chapter 3. Included in the area of research design is the limitation of having a limited number of research participants.

Another limitation comes from the context of the research setting; the research was carried out in one institution in one department of one institute. However, readers can draw parallels to their own learning, teaching and curriculum design situation.

8.5 Further Work

This research study has raised further questions that might be asked of curriculum design and academics' involvement in it. It was difficult to prevent the research from losing focus as many interesting issues arose during the course of the study which could not be fully addressed due to lack of time. These issues have important implications for tertiary education and would benefit from further research, such as:

- The investigation was forced to ignore incidents and issues brought up by lecturers that were more suitable to Case Study method. Further work might extend the investigation here to allow consideration of additional, new data, on a 'case-by-case' basis.
- Some of the themes may represent vital issues for curriculum design, but this could only be proven through the use of a longitudinal study, whereby lecturers' participation in curriculum design might be examined, with variations in the curriculum design environment, such as the addition of design resources, or a realignment of their role as a module/curriculum designer.

- It is suggested here that lecturers have positive and negative experiences of curriculum design, but the reasons have not yet been fully investigated. Ongoing further work might involve an investigation of the negative experiences and how to reduce or eradicate them.
- It is a recommendation of this research that lecturers become more aware of the underlying and peripheral issues of module design, and, therefore, further work would involve an examination of academic administration to encourage this development.

8.6 Unique Contribution

This study highlights the complex challenge of curriculum design generally, and the challenge of designing computer science curricula specifically. Few studies have conducted in-depth qualitative research with computer science lecturers in roles relating to curriculum development. I am unaware of a hermeneutic phenomenological study that has involved computer science programme design, or any phenomenological study that has looked at the perspectives of computer science lecturers. This study can therefore be considered unique in its focus.

8.6.1 New and Original Findings

This study elucidates the experience of meeting some of the challenges of curriculum design within a prescribed framework of curriculum design and educational policy. One would expect that this research encourages readers to use this framework to thoughtfully reflect on what professional responsibility is like for computer science lecturers and to consider practice improvements that may support them in their role as programme developers and/or curriculum

designers. The full significance of such reflection will ideally promote further questioning and inquiry about curriculum design generally, programme development and module design specifically, and the ‘human factor’ of this important area of academic endeavour.

No other study has formulated such a myriad of thematic findings and none to date have described the essential nature of the experience for computer science lecturers as proponents of curriculum development and design. This study offers conclusions and insights into how lecturers’ experiences of curriculum design can influence the practice of curriculum design in the future.

8.6.2 Connectedness to Dublin Institute of Technology Policy Initiatives

This study shows the diversity of practice and opinion amongst individual lecturers in the design and delivery of computer science curricula. A number of comments throughout the interviews pertained to a lack of communication, whether it is in terms of referral to appropriate support services or in terms of poor communication among peers in relation to module design. Partnership or cross-referential working is considered to be important to programme development and, if appropriately managed and implemented, should help the School of Computing and the Learning, Teaching and Technology Centre work towards achieving better standards for degree programme development and module design.

In accordance this research will add to the knowledge base, allowing management and lecturers throughout the DIT and beyond to understand the lecturers’ experience of curriculum design better and thus put appropriate plans in place to meet goals all parties may have in relation to:

- Better planning for programme development and review
- Improved data on academic programme requirements
- Better information on required support services for programme and/or module designers
- Responsible and accountable leadership
- Responsible and accountable programme design
- Better cooperation and communication between peer curriculum designers

Furthermore the findings of this research have significance for management of DIT, and other schools in DIT, and other academic departments and faculty of institutes further afield.

8.7 Concluding Remarks

This study contributes to the body of knowledge in terms of an understanding of lecturers' involvement in curriculum and module design. I have argued that the experiences of lecturers in module design have features that have never been discovered properly, but those features are valuable to know – for academics and administration alike.

This research has brought to the fore the feelings and meaning-making that lecturers, as module designers, have and do. These essences are extracted from the expansive context of education, what it is, lecturers, whom they are, and modules and curricula, and what they are.

The ideas and arguments of this thesis should not be considered insignificant because, by examining the phenomena of the experiences of lecturers as module designers, and interpreting

those phenomena to provide meaning of curriculum design, the findings reveal that one cannot take module design for granted, or assume that, as an academic or a programme administrator, one can predict the issues and shortcomings of curriculum design or – worse still – ignore them.

I hope that the concepts within this thesis, which are grounded in the lived experiences of academics, can be seen as providing a complementary discourse to the quantitative discourse.

In designing curricula in higher education there is a place for ‘time-and-motion’ study, and there is a need to create spaces where the experiential and reflective dimensions of the work are considered.

Academic staff who support learning by designing curricula for learning and teaching in higher education know that teaching cannot be reduced to a set of technical skills or knowledge because it brings into play personal experience, prior experience and reflection, and has value added because of that.

Being involved in curriculum design for the sake of teaching and learning is experienced as a very personal process, rooted in a collegial context and connected with a sense of professionalism. Thus the personal and the professional have to be considered together and the phenomena of curriculum design are important in terms of contextualising a lecturer/curriculum designer’s professional life.

Central to the phenomena is the lecturers' concern for the quality of the module, the level and the programme, and a willingness to extend themselves to 'make things better'. Better, ultimately, for the students. This is a challenge that, as concerned educators, we must embrace, and writing this thesis has been my attempt to contribute to the betterment of tertiary education and, within that, academic life.

REFERENCES

ACM/IEEE - The Association for Computing Machinery/Institute of Electrical and Electronics Engineers, (2008). Computer Science Curriculum 2008. Available online at:
<http://www.acm.org/education/curricula/ComputerScience2008.pdf>

ACM/IEEE - The Association for Computing Machinery/Institute of Electrical and Electronics Engineers, (2013). Computer Science Curriculum 2013. Available online at:
<http://www.acm.org/education/CS2013-final-report.pdf>

Åkerlind, G.S. (2005). Variation and Commonality in Phenomenographic Research Methods, *Higher Education Research and Development*, 24(4): 321-334

Ackermann, E. (1991). From De-contextualized to Situated Knowledge: Revisiting Piaget's water-level experiment. In: Harel, I. and Papert, S., Eds Constructionism. New Jersey: Ablex Publishing Corporation

Allan, J. (1996). Learning Outcomes in Higher Education, *Studies in Higher Education*, 21(1): 93-108

Anderson, D., Johnson, R., and Saha, L. J. (2002). Changes in academic work: Implications for universities of the changing age distribution and work roles of academic staff. Canberra: Department of Education Science and Training.

Arellano, E. C., and Martinez, M. C. (2009). Does Educational Preparation Match Professional Practice: The case of higher education policy analysts, *Innovative Higher Education*, 34(2): 105-116

Atkins, E. (1988). Reframing Curriculum Theory in Terms of Interpretation and Practice: A hermeneutical approach, *Journal of curriculum studies*, 20(5): 437-448

Avis, M. (2005). Is There an Epistemology for qualitative Research? In: Holloway, I. *Qualitative Research in Health Care*, Maidenhead: McGraw-Hill International

Baird, J. R. (1999). A Phenomenological Exploration of Teachers' Views of Science Teaching, *Teachers and Teaching: theory and practice*, 5(1):75-94

Bates, R. J. (1980). New Developments in the New Sociology of Education, *British Journal of Sociology of Education*, 1(1): 67-79

Barnacle, R. (2001). Phenomenology and Wonder, in *Phenomenology*, edited by Barnacle, R. Melbourne: RMIT University Press

Barnett R. and Coate K. (2005). *Engaging the Curriculum in Higher Education*, Maidenhead: Open University Press

Barrie, S., Ginns, P., and Prosser, M. (2005). Early impact and outcomes of an institutionally aligned, student focused learning perspective on teaching quality assurance 1. *Assessment and Evaluation in Higher Education*, 30(6): 641-656.

Bath, D., Smith, C., Stein, S., and Swann, R. (2004). Beyond mapping and embedding graduate attributes: bringing together quality assurance and action learning to create a validated and living curriculum. *Higher Education Research and Development*, 23(3): 313-328.

Beard, R. (1976). *Teaching and Learning in Higher Education*, 3rd Edition, Middlesex: Penguin Books Ltd

Beatty, L., Gibbs, G. and Morgan A. (1997). Learning Orientations and Study Contracts; in Marton, F., Hounsell, D. And Entwistle N.J., *The Experience of Learning: Implications for teaching and studying in higher education*. 2nd Edition, Edinburgh: Scottish Academic Press

Besterfield-Sacre, M., Atman, C. J., and Shuman, L. J. (1997). Characteristics of Freshman Engineering Students: Models for determining student attrition in engineering, *Journal of Engineering Education*, 86(2): 139-149

Biggs, J. (2003a). *Aligning Teaching for Constructing Learning*, The Higher Education Academy available online at:

http://egusdsecondary.pbworks.com/f/aligning_teaching_for_constructing_learning.pdf

Biggs, J. (2003b). *Teaching for Quality Learning at University: what a student does*, 2nd Edition, Maidenhead: Open University Press, McGraw Hill Education

Biggs, J. and Tang, C. (2007). *Teaching for Quality Learning at University*, Maidenhead: Open University Press, McGraw Hill Education

Billing, D. (1996). Review of Modular Implementation in a University, *Higher Education Quarterly*, 50(1): 1-21

Blackie, M. A. (2012). A Popperian Perspective on Science Education, *International Journal of Higher Education*, 1(1): 160

Bleakley, A. (1999). From Reflective Practice to Holistic Reflexivity, *Studies in Higher Education*, 24(3): 315-330

Bogdan, R. and Taylor, S. J. (1975). *Introduction to Qualitative Research Methods: a phenomenological approach to the social sciences*, New York: Wiley

Boland, J. A., and McIlrath, L. (2007). The Process of Localising Pedagogies for Civic Engagement in Ireland: The significance of conceptions, culture and context, *Higher Education and Civic Engagement: International perspectives*, 83

Booth, S.A., (1997). On Phenomenography, Learning and Teaching, *Higher Education Research and Development*, 16(2): 135-158

Boud D. and Falchikov, N. (2006). Aligning Assessment with Long-Term Learning, *Assessment and Evaluation in Higher Education*, 31(4): 399-413

Bourke, P. E. (2007). Inclusive education research and phenomenology. In Jeffery, P. L. (Ed.) Australian Association for Research in Education. Research impacts: Proving or improving? 25-29 November, 2007, Fremantle, Western Australia

Brehony, K. J., and Deem, R. (2005). Challenging the Post-Fordist/Flexible Organisation Thesis: The case of reformed educational organisations, *British Journal of Sociology of Education*, 26(3): 395-414

Brook, A. (2009). The Potentiality of Authenticity in Becoming a Teacher, *Educational Philosophy and Theory*, 41(1): 46-59

Brown G., and Atkins, M. (1988). *Effective Teaching in Higher Education*, Abingdon: Methuen and Co Ltd

Buchmann, M. (1989). The Careful Vision: How practical is contemplation in teaching? *American Journal of education*, 93(1): 35-61

Buchmann, M., and Schwille, J. (1983). Education: The overcoming of experience. *American Journal of Education*, 92(1): 30-51

Cannon, R. and Newble, D. (2000). *A Handbook for Teachers in Universities and Colleges: a guide to improving teaching methods*, 4th Edition, London: Kogan Page

Chen, C. M., Lee, H. M., and Chen, Y. H. (2005). Personalized e-Learning System Using Item Response Theory, *Computers and Education*, 44(3): 237-255

Cheung, D., and Wong, H. W. (2002). Measuring Teacher Beliefs About Alternative Curriculum Designs, *Curriculum Journal*, 13(2): 225-2

Chi, M. T. (1997). Quantifying qualitative analyses of verbal data: A practical guide. *The Journal of the Learning Sciences*, 6(3): 271-315

Christians, C. G. (2008). Ethics and Politics in Qualitative Research. in Denzin, N.K and Lincoln, Y. S. *The Landscape of Qualitative Research*, 3rd Edition, London: Sage Publications Ltd.

Cohen, L., Manion, L. and Morrison, K. (2000). *Research Methods in Education*, 5th Edition, Abingdon: Routledge

Cohen, L., Manion, L. and Morrison, K. (2007). *Research Methods in Education*, 6th Edition, Abingdon: Routledge

Connelly, L. M. (2010). What is Phenomenology? *MEDSURG Nursing*, 19(2): 96-100

Conroy, S. A. (2003). A Pathway for Interpretive Phenomenology, *International Journal of Qualitative Methods*, 2(3): 36-62

Cook, A. (1977). Some Recent Phenomenological Research. In 'Professional Problem Areas in Education: Discipline; seminar May 3 1977' edited by O G McKeivitt (University of Western Australia. Extension Service, 1977)

Cook, A. (2001). Assessing the Use of Flexible Assessment, *Assessment and Evaluation in Higher Education*, 26(6): 539-549

Cornford, I. R. (1997). Ensuring Effective Learning from Modular Courses: A cognitive, *Journal of Vocational Education and Training*, 49(2): 237-251

Court, S. (2006). Academic Staff in a Mass Higher Education System: The state we're in. In: McNay, I., *Beyond Mass Higher Education: Building on experience*, Maidenhead: Open University Press

Cousin, G. (2009). *Researching Learning in Higher Education: An introduction to contemporary methods and approaches*, Abingdon: Routledge, Taylor and Francis

Coyle, E. (2007). Discourse Analysis, in: Lyons, A., and Coyle, E. (Eds.), *Analysing Qualitative Data in Psychology: A practical and comparative guide*. London: Sage Publications Ltd.

Cresswell, J. W., (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, 2nd Edition, London: Sage Publications Ltd

Crossley, M. (2007). Narrative Analysis, in: Lyons, A., and Coyle, E. (Eds.), *Analysing Qualitative Data in Psychology: A practical and comparative guide*. London: Sage Publications Ltd.

Crotty M, (1998). *The Foundations of Social Research, Meaning and perspective in the research process*, London: Sage

D'Andrea, V. and Gosling, D. (2001). Joining the Dots: Reconceptualising educational development, *Active Learning in Higher Education*, 2(1): 64-80

Dahlberg, K., Dahlberg, H. and Nystrom, M. (2008). *Reflective Lifeworld Research*, 2nd ed, Lund: Studentlitteratur AB

Dahlgren, M. A. (2000). Portraits of PBL: Course objectives and students' study strategies in computer engineering, psychology and physiotherapy, *Instructional Science*, 28(4): 309-329

De Gagne, J., and Walters, K. (2010). The lived experience of online educators: Hermeneutic phenomenology. *Journal of Online Learning and Teaching*, 6: 357-366

Dearing, R. (1997). Higher Education in the Learning Society: The report of the national committee of inquiry into higher education (NCIHE)

Dewey, J. (2013). My pedagogic Creed. In Flinders, D. J. and Thornton, S. J., (Eds.) *The Curriculum Studies Reader*, 4th Ed, New York: Routledge

Diamond, R.M. (2008). *Designing and Assessing Courses and Curricula: a practical guide*, New York: John Wiley and Sons, Inc

Dijkstra, E. W. (2001). The End of Computer Science? *Communications of the ACM*, 44(3): 92

DIT, (2012). Handbook of Academic Quality Enhancement. Available online at: <http://www.dit.ie/qualityassuranceandacademicprogrammerecords/handbook/>

DIT, (2014). Research at DIT - Guidelines. Available online at: <http://www.dit.ie/researchandenterprise/researchatdit/ethicsindit/content/guidelines/>

DkIT – Dundalk Institute of Technology (2010). Dundalk Institute of Technology Learning and Teaching Strategy. Available online at: <https://www.dkit.ie/celt/documents-and-policies/learning-teaching-strategy>

Donnelly, R. (2004). Fostering of Creativity Within an Imaginative Curriculum in Higher Education, *Curriculum Journal*, 15(2): 155-166

Dorman, T., Scherpbier, A., King, N., and Boshuizen, H. (2005). Clinical Teachers and Problem-Based Learning: A phenomenological study, *Medical education*, 39(2): 163-170

Duff, T, Hegarty, J, and Hussey, M. (2000). Academic Quality Assurance in Irish Higher Education, Blackrock: Blackhall Publishing

Dunican, E. (2006). The Quest for 'Total Alignment' in Computer Science Education. In: 1st Annual Workshop on Constructive Alignment, 23 February 2006, Nottingham, England

Elton, L. (1998). "Are UK Degree Standards Going Up, Down or Sideways?" *Studies in Higher Education*, 23.1: 35-42

EQF (European Qualifications Framework) Eracon. (2014). Available online at:
www.eracon.info

Fee, S. B., and Holland-Minkley, A. M. (2010). Teaching Computer Science Through Problems, Not Solutions, *Computer Science Education*, 20(2): 129-144

Ferree, G. (1985). The Epistemology of Knowing How Students Feel, *American Journal of Education*, 93(2): 240-251

Fetzer J. H. and Almeder, R. F. (1993). Glossary of Epistemology/Philosophy of Science, New York: Paragon House

Fitzmaurice, M. (2010). Considering Teaching in Higher Education as a Practice. *Teaching in Higher Education*, 15(1): 45-55

Flick, U. (2009). An Introduction to Qualitative Research. London: SAGE Publications Ltd

Foddy, W. (1993). Constructing Questions for Interviews and Questionnaires: Theory and practice in social research, Cambridge University Press

Forsyth, I., Jolliffe, A. and Stevens, D. (1999). *Planning a Course: Practical strategies for teachers, lecturers and trainers*, 2nd Edition, London: Kogan Page Ltd

Gagne, R.M., Wagner, W.W., Golas, K.C. and Keller, J.M. (2005). *Principles of Instructional Design*, 5th Edition, Belmont: Wadsworth

Galvin, K., and Todres, L. (2007). The Creativity of 'Unspecialisation': A contemplative direction for integrative scholarly practice, *Phenomenology & Practice*, 1(1): 31-46

Ganeson, K., and Ehrich, L. C. (2009). Transition into High School: A phenomenological study, *Educational Philosophy and Theory*, 41(1): 60-78

Gibbs, G. and Simpson, C. (2004). Conditions under which assessment supports students' learning. *Learning and Teaching in Higher Education*, 1: 3-31

Gibbs, N. E., and Tucker, A. B. (1986). A Model Curriculum for a Liberal Arts Degree in Computer Science, *Communications of the ACM*, 29(3): 202-210

Giorgi, A. (1985). *Phenomenology and Psychological Research*, Pittsburgh, PA: Duquesne University Press

Glesne, C. (1999). *Becoming Qualitative Researchers: An Introduction*, 2nd Edition, New Jersey: Longman, Inc

Gluga, R., Kay, J., Lister, R., and Kleitman, S. (2013). Mastering Cognitive Development Theory in Computer Science Education, *Computer Science Education*, 23(1): 24-57

Gold, J. R. (1991). Why Modularisation, Why Now, and What Implications Does it Have for Geographical Teaching? *Journal of Geography in Higher Education*, 15(2): 180-187

Graham, D. (2004). Assessment Methods Employed in UK Higher Education Programmes, Proceedings of the 5th Annual Conference of the Learning and Teaching Support Network (LTSN. Centre for Information and Computer Sciences, University of Ulster, Belfast, 31 August – 2nd September 2004: 21-25

Grant, R. (2008). A Phenomenological Case Study of a Lecturer's Understanding of Himself as an Assessor, *Indo-Pacific Journal of Phenomenology: Phenomenology and Education: Special Edition*, (8): 1-10

Greasley, K., and Ashworth, P. (2007). The Phenomenology of 'Approach to Studying': The university student's studies within the lifeworld, *British Educational Research Journal*, 33(6), 819-843

Guba, E. G., and Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of Qualitative Research*, 2: 163-194

Guba, E.G and Lincoln, Y.S. (2008) Paradigmatic Controversies, Contradictions and Emerging Confluences. In Denzin, N.K and Lincoln, Y. S. *The Landscape of Qualitative Research*, 3rd Edition, London: Sage

Gunzenhauser, M.G. and Gerstl-Pepin, C.I., (2006). Engaging Graduate Education: A Pedagogy for Epistemological and Theoretical Diversity, *Review of Higher Education*, 29(3): 319-346

Hall, R. (2002). Aligning Learning, Teaching and Assessment Using the Web: an evaluation of pedagogic approaches, *British Journal of Educational Technology*, 33(2): 149-158

Harden, R. M. (2002). Learning outcomes and instructional objectives: is there a difference? *Medical Teacher*, 24(2): 151-155

Harden, R. M. and Crosby, J. R. (2000). AMEE Education Guide No 20: The Good Teacher is More Than a Lecturer – The Twelve Roles of the Teacher, *Medical Teacher*, 22(4): 334-347

Harlen, W. (2007). *Assessment of Learning*. London: Sage

Harvey, L. and Knight, P. T. (1996). *Transforming Higher Education*. Buckingham: SRHE and The Open University Press

Hattie, J. (2003). *Teachers make a difference: What is the research evidence?* Paper presented at the Australian Council for Educational Research Annual Conference on Building Teacher Quality, Melbourne

Hazelkorn, E. (2009). *Rankings and the Battle for World-Class Excellence: Institutional strategies and policy choices*, *arrow.dit.ie*

HEA (Higher Education Authority) and Forfas (2007). *The Role of the Institutes of Technology in Enterprise Development: Profiles and emerging findings*. Available online at: www.heai.ie/sites/default/files/the_role_of_iots_in_enterprise_development.pdf

Hedges, M. R., Pacheco, G. A., and Webber, D. J. (2014). *What determines students' choices of elective modules?* *International Review of Economics Education*. In press. Available online at: <http://www.sciencedirect.com/science/article/pii/S1477388014000127>

Hennessy, E., Hernandez, R., Kieran, P., and MacLoughlin, H. (2010). *Teaching and Learning Across Disciplines: Student and staff experiences in a newly modularised system*, *Teaching in Higher Education*, 15(6): 675-689

Hewitt, T. W. (2006). *Understanding and Shaping Curriculum: what we teach and why*, Thousand Oaks: SAGE Publications Inc

Higham, J. (2003). *Curriculum Change: A study of the implementation of General National Vocational Qualifications*, *The Curriculum Journal*, 14(3): 327-350

Hirschheim, R., and Klein, H. K. (2012). A Glorious and Not-So-Short History of the Information Systems Field. *Journal of the Association for Information Systems*, 13(4): 5

Hodgson, A. and Spours, K. (1997). Modularization and the 14-19 Qualifications System. In Hodgson, A. and Spours, K. (Eds.), *Dearing and Beyond: 14-19 Qualifications, Frameworks and Systems*. London: Kogan Page

Holmes, M. (1986). A Response to Bowers, Howard, Stanley, and Soltis. *American Journal of Education*, 94(4): 537-541

Houston, D. and Foote, J. (2001). Normative Implications of Assessment and Evaluation: a critical view, *Assessment and Evaluation in Higher Education*, 26(5): pp. 403 – 416

Howe, K. R. (1992). Getting over the quantitative-qualitative debate. *American Journal of Education*, 100(2): 236-256

Hubball, H., Pearson, M. L., and Clarke, A. (2013). SoTL Inquiry in Broader Curricular and Institutional Contexts: Theoretical underpinnings and emerging trends, *Teaching and Learning Inquiry: The ISSOTL Journal*, 1(1): 41-57

Hurd, P. D. (1998). Scientific Literacy: New minds for a changing world, *Science Education*, 82(3): 407-416

Hussey, T. and Smith, P. (2002). The Trouble with Learning Outcomes, *Active Learning in Higher Education*, 3(3): 220-233

Ilde, D. (1977). *Experimental Phenomenology*. New York: SUNY Press

Ironside, P. M. (2004). "Covering Content" and Teaching Thinking: Deconstructing the additive curriculum, *Journal of Nursing Education*, 43(1): 5-12

Jenkins, S. B. (2009). Measuring Teacher Beliefs About Curriculum Orientations Using the Modified-Curriculum Orientations Inventory, *The Curriculum Journal*, 20(2): 103-120

Jervis, L. M. and Jervis, L. (2005). What is Constructivism in Constructive Alignment? *Bioscience Education E-Journal*, (6)

Kane, E., and O'Reilly-de Brún, M. (2001). *Doing Your Own Research*, London: Marion Boyars Publishers

Knight P. (2007). Grading, Classifying and Future Learning. In: Boud, D. and Falchikov, N. (Eds.), *Rethinking Assessment in Higher Education: learning for the longer term*, Abingdon: Routledge

Kolikant, Y. Ben-David (2010). Innovative Teaching in Computer Science: What does it mean and why do we need it? *Computer Science Education*, 20(2): 73-78

Kurkovsky, S. (2013). Mobile Game Development: Improving student engagement and motivation in introductory computing courses, *Computer Science Education*, 23(2): 138-157

Kvale, S. (1996). *InterViews: An introduction to qualitative research interviewing*. Thousand Oaks: Sage

Kvale, S. and Brinkmann, S. (2009). *InterViews: Learning the Craft of Qualitative Research Interviewing*, 2nd Edition, Thousand Oaks: SAGE Publications Inc

Ladwig, J. G. (2009). Working Backwards Towards Curriculum: On the curricular implications of quality teaching, *The Curriculum Journal*, 20(3): 271-286

Langdridge, D. (2007). *Phenomenological Psychology: theory, research and method*, New Jersey: Pearson Education, Inc

Laverty, S. M., (2003). Hermeneutic Phenomenology and Phenomenology: A Comparison of Historical and Methodological Considerations, *International Journal of Qualitative Methods*, 2(3): 21-35

Lawless, D., Wu, B., Carroll, D., Gordon, D., Hussey, M., O’Leary, C., O’Shea, B. And Xu, X. (2007). An Industry-Oriented Model for Software Education in China: Adapting an Irish model to Chinese conditions, Dublin: Dublin Institute of Technology

Lawler, J. (1998). Phenomenologies as research methodologies for nursing: from philosophy to researching practice. *Nursing Inquiry*, 5(2): 104-111

Light, G. (2002). From the personal to the public: Conceptions of creative writing in higher education. *Higher Education*, 43(2): 257-276

Light, G. and Cox, R. (2001). Learning and Teaching in Higher Education: The reflective professional. London: Paul Chapman Publishing, SAGE Publishing Ltd

Lindsay, R., Breen, R., and Paton-Saltzberg, R. (2002). Pedagogic Research and Evidence-Based Management, *Psychology Teaching Review*, 10(1): 20-30

Long, M. H., and Crookes, G. (1992). Three Approaches to Task-Based Syllabus Design *TESOL Quarterly*, 26(1): 27-56

Luke, A., Woods, A., and Weir, K. (2013). In: Luke, A., Woods, A., and Weir, K. (Eds.). Curriculum, Syllabus Design and Equity: A primer and model, New York: Routledge

Luxon, T., and Peelo, M. (2009). Internationalisation: Its implications for curriculum design and course development in UK higher education, *Innovations in Education and Teaching International*, 46(1): 51-60

Luxton-Reilly, A., and Denny, P. (2010). Constructive Evaluation: A pedagogy of student contributed assessment, *Computer Science Education*, 20(2): 145-167

Machanick, P. (2007). A Social Construction Approach to Computer Science Education, *Computer Science Education*, 17(1): 1-20

MacLaren, I. (2012). The Contradictions of Policy and Practice: Creativity in higher education, *London Review of Education*, 10(2): 159-172

Maguire, B., Mernagh, E., and Murray, J. (2008). Aligning Learning Outcomes Descriptors in National and Meta-Frameworks of Qualifications - Learning from Irish Experience, *European Journal of Vocational Training*, 42(1): 70-83

Mahnken, P. A. (1995). Multimedia, Hypermedia and Indonesian Language. In: Society of Indonesian Language Educators (ASILE) (pp. 1-7)

Maher, A. (2004). Learning Outcomes in Higher Education: Implications for curriculum design and student learning, *Journal of Hospitality, Leisure, Sport and Tourism Education*, 3(2): 46-54

Marsh, Colin, J., Key Concepts for Understanding Curriculum, Routledge Falmer, New York: 2004

Martin, A. D., and Kamberelis, G. (2013). Mapping Not Tracing: Qualitative educational research with political teeth, *International Journal of Qualitative Studies in Education*, 26(6): 668-679

Marton, F. (1988). In: Sherman, R. R., & Webb, R. B. (Eds.), *Qualitative Research in Education: Focus and methods*. Abingdon: Psychology Press

Marton, F., and Booth, S. A. (1997). *Learning and Awareness*. Abingdon: Psychology Press

Marton, F. and Säljö, S., (1997). *Approaches to Learning*, in: Marton, F., Hounsell, D., and Entwistle, N. (Eds.), *The Experience of Learning: Implications for Teaching and Studying in Higher Education*, Edinburgh

Maxwell, J. A. (2013). *Qualitative Research Design: An interactive approach: 3rd Edition*. Los Angeles: Sage Publications, Inc

McMahon, F. (2010). Ireland and the Bologna Process: Recognition issues for higher education institutions, *arrow.dit.ie*

Merleau-Ponty, M. (1962). *Phenomenology of Perception*, Translated by C. Smith. Henley, Routledge and Kegan Paul Ltd

Mertens, D.M , (2012). *Ethics in Qualitative Research in Education and the Social Sciences*. In Lapan, S. D., Quartaroli, M. T., and Riemer, F. J. (Eds.). (2012). *Qualitative research: An introduction to methods and designs (Vol. 37)*. San Francisco: Jossey-Bass

Metcalf, A., and Game, A. (2006). The Teacher's Enthusiasm, *The Australian Educational Researcher*, 33(3): 91-106

Meyers, N. M., and Nulty, D. D. (2009). How to Use (Five) Curriculum Design Principles to Align Authentic Learning Environments, Assessment, Students' Approaches to Thinking and Learning Outcomes, *Assessment and Evaluation in Higher Education*, 34(5): 565-577

Miles, M. B. and Huberman, A. M. (1994). *Qualitative data Analysis: An Expanded Sourcebook*, 2nd Edition, London: SAGE Publications Ltd

Mimirinis, M. (2007). Constructive alignment and learning technologies: some implications for the quality of teaching and learning in higher education. In: *Advanced Learning Technologies, 2007. ICAALT 2007. Seventh IEEE International Conference on (pp. 907-908) IEEE*

Morris, H. (2000). The Origins, Forms and Effects of Modularisation and Semesterisation in Ten UK-Based Business Schools. *Higher Education Quarterly*, 54(3): 239-258

Moses, I. (1995). Tensions and Tendencies in the Management of Quality and Autonomy in Australian Higher Education. *Australian Universities' Review*, 38(1): 11-15

NQAI - National Qualifications Authority of Ireland (2014). Available online at:
www.nqai.ie

Nunes, M. B., and McPherson, M. (2003). Constructivism vs. Objectivism: Where is difference for Designers of e-Learning Environments? In: *Advanced Learning Technologies, 2003. Proceedings. The 3rd IEEE International Conference on* (pp. 496-500) IEEE.

O'Connor, C.M. (2006). Designing Curriculum and Assessment to Promote Effective Learning in Chemistry in Higher Education, Level3, 1. Available online at:
http://level3.dit.ie/html/issue4/christine_oconnor_paper_1/oconnor1_1.htm

O'Connor, C.M., McDonnell, C., Ennis, P. and Shoemaker, L. (2011). Now For The Science Bit: Implementing community-based learning in chemistry, *Education and Training*, 53(2/3): 218-236

Oppenheim, A. N. (1992). *Questionnaire Design, Interviewing and Attitude Measurement*, New Edition, Continuum

Orange, D. M. (1995). *Emotional Understanding: Studies in psychoanalytic epistemology*, new York: The Guilford Press

Orkwis R. and McLane, K. (1998). A Curriculum Every Student Can Use: Design principles for student access, ERIC/OSEP Topical Brief. Available online at:
<http://eric.ed.gov/PDFS/ED423654.pdf>

Ornstein, A. C. and Hunkins, F. P. (2009). Curriculum: foundations, principles and issues, 5th Edition, New Jersey: Pearson Education, Inc

Østergaard, E., Dahlin, B. and Hugo, A. (2008). Doing Phenomenology in Science Education: A research review, *Studies in Science Education*, 44(2): 93-121

Palmer, S. (2004). Evaluation of an On-Line Reflective Journal in Engineering Education. *Computer Applications in Engineering Education*, 12: 209-214

Papatsiba, V. (2014). Policy Goals of European Integration and Competitiveness in Academic Collaborations: An examination of joint Master's and Erasmus Mundus programmes, *Higher Education Policy*, 27(1): 43-64

Papert, S. (1991). Preface. In: Harel, I and Papert, S. (Eds.), *Constructionism: Research reports and essays, 1985-1990*, New York: Ablex Publishing Corp.

Patricio, M., den Engelsen, C., Tseng, D., and ten Cate, O. (2008). Implementation of the Bologna two-cycle system in medical education: Where do we stand in 2007? – Results of an AMEE-MEDINE survey, *Medical Teacher*, 30, 597-605

Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods*, 3rd Edition, London: SAGE Publications, Ltd

Pinar, W.F., Reynolds, W.M., Slattery, P. and Taubman, P. M. (2004). *Understanding Curriculum: An introduction to the study of historical and contemporary curriculum discourses*, Counterpoints, Volume 17, New York: Peter Lang

Polkinghorne, D. E. (1988). *Narrative Knowing and the Human Sciences*. New York: SUNY Press

Posner G.J (1998). Models of Curriculum Planning. In Beyer, L. E., and Apple, M. W. The curriculum: Problems, politics, and possibilities. 2nd Edition, New York: SUNY Press

Posner, G. J. (2004). Analysing the Curriculum, 3rd Edition, New York: Mc Graw Hill

Prideaux, D. (2003). ABC of learning and teaching in medicine: Curriculum design. *BMJ: British Medical Journal*, 326(7383): 268

Race, P., and Brown, S. (2001). Inspiring Learning About Teaching and Assessment [The ILTA guide]. *Institute of Learning and Teaching*, York: Institute for Learning and Teaching.

Ramsden, P. (1992). Learning to Teach in Higher Education, Abingdon: Routledge

Rand, A., Peikoff, L., and Binswanger, H. (1990). Introduction to Objectivist Epistemology. New York: Dutton Adult. Penguin Group

Rapport, A. (2008). Exchange Programs for Educators: American and Russian perspectives, *Intercultural Education*, 19(1): 67-77

Rapport, F. (2005). Hermeneutic Phenomenology: The science of interpretation of texts. In: Holloway, I. Qualitative Research in Health Care, Maidenhead: McGraw-Hill International

Rasmussen, J. (1998). Constructivism and Phenomenology - What Do They Have in Common, and How Can They Be Told Apart? *Cybernetics & Systems*, 29(6): 553-576

Roberts, R. H. (2004). The Quest for Appropriate Accountability: Stakeholders, tradition and the managerial prerogative in higher education, *Studies in Christian Ethics*, 17(1): 1-21

Robins, A. (2010). Learning Edge Momentum: A new account of outcomes in CS1, *Computer Science Education*, 20(1): 37-71

Rust, C. (2002). The Impact of Assessment on Student Learning: how can the research literature practically help to inform the development of departmental assessment strategies and learner-centred assessment practices? *Active Learning in Higher Education*, 3(2): 145-158

Rust, C., O'Donovan B. and Price M. (2005). A Social Constructivist Assessment Process Model: how the research literature shows us this could be best practice, *Assessment and Evaluation in Higher Education*, 30(3): 231-240

Sadler, D. R. (1989). Formative Assessment and the Design of Instructional Systems, *Instructional Science*, 18(2): 119-144

Saevi, T. and Eilifsen, M. (2008). "Heartful" or "Heartless" Teachers? Or Should We Look for the Good Somewhere Else? Considerations of students' experience of the pedagogical good. *Indo-Pacific Journal of Phenomenology: Phenomenology and Education: Special Edition*, (8) 1-14

Sahami, M., Roach, S., Cuadros-Vargas, E., and Reed, D. (2012). Computer Science Curriculum 2013: Reviewing the Strawman Report from the ACM/IEEE-CS task force. In: *Proceedings of the 43rd ACM technical symposium on Computer Science Education*: (pp. 3-4) ACM

Sambrook, S., Geertshuis, S. and Cheseldine, D. (2001). Developing a Quality Assurance System for Computer-Based Learning Materials: Problems and issues, *Assessment and Evaluation in Higher Education*, 26(5): 417-426

Sampaio, A., and Sampaio, I. (2012). Improving Computing Courses From the Points of View of Students and Teachers: A review and an empirical study, *Computer Science Education*, 22(2): 139-173

Savin-Badin, M., & Major, C. (2013). *Qualitative Research: The essential guide to theory and practice*. London: Routledge

Sheard, J., Carbone, A., and Hurst, A. J. (2010). Student Engagement in First Year of an ICT Degree: Staff and student perceptions, *Computer Science Education*, 20(1): 1-16

Sherman, R. R., and Webb, R. B. (1988). In: Sherman, R. R., & Webb, R. B. (Eds.), *Qualitative Research in Education: Focus and methods*. Abingdon: Psychology Press

Silén, C. (2006). The Tutor's Approach in Base Groups (PBL), *Higher Education*, 51(3): 373-385

Silverman, D. (2006). *Interpreting Qualitative Data: Methods for analyzing talk, text and interaction*, London: SAGE Publications Ltd

Silverman, D. (2010). *Doing Qualitative Research*. 3rd Edition, London: Sage Publications Ltd

Simonite, V. (2000). The Effects of Aggregation Method and Variations in the Performance of Individual Students on Degree Classifications in Modular Degree Courses, *Studies in Higher Education*, 25(2): 197-209

Slattery, P. (2006). *Curriculum Development in the Post-Modern Era*, 2nd Edition Abingdon: Routledge, Taylor and Francis Group

Slattery, P., Krasny, K. A., and O'Malley, M. P. (2007). Hermeneutics, Aesthetics, and the Quest for Answerability: A dialogic possibility for reconceptualizing the interpretive process in curriculum studies, *Journal of Curriculum Studies*, 39(5): 537-558

Small, R. (1987). Uses and Abuses of Phenomenology in Education, *Educational Philosophy and Theory*, 19(1): 12-15

Smith, J. A. (2007). Hermeneutics, human sciences and health: linking theory and practice. *International Journal of Qualitative Studies on Health and Well-being*, 2(1): 3-11.

Smith J.A. and Eatough, V. (2007). Interpretative Phenomenological Analysis, in: Lyons, A., and Coyle, E. (Eds.), *Analysing Qualitative Data in Psychology: A practical and comparative guide*. London: Sage Publications Ltd.

Smith, J. A., Flowers, P. and Larkin, M., (2009). *Interpretative Phenomenological Analysis: Theory, Method and Research*, London: Sage Publications Ltd

Smith, M. (1992). Modularisation - its Versatility and Value, *Nurse Education Today*, 12(2): 137-141

Snaza, N. (2013). Bewildering Education, *Journal of Curriculum and Pedagogy*, 10(1): 38-54

Spinelli, E., (2005). *The Interpreted World: An Introduction to Phenomenological Psychology*, 2nd Edition, London: Sage Publications Ltd

Squires, G. (1991). Decision-making in the Curriculum, *Higher Education Policy*, (4)1: 11-16

Standing, M. (2009). A New Critical Framework for Applying Hermeneutic Phenomenology, *Nurse Researcher*, 16(4): 20-33

Stemhagen, K., Reich, G. A., and Muth, W. (2013). Disciplined Judgment: Toward a reasonably constrained constructivism, *Journal of Curriculum and Pedagogy*, 10(1): 55-72

Stenhouse, L. (1975). *An Introduction to Curriculum Research and Development*, Oxford: Heinemann Educational Books Ltd

Storey, L. (2007). Doing Interpretive Phenomenology Analysis. In: A. Lyons and E. Coyle, (Eds.) *Analysing Qualitative Data in Psychology: A practical and comparative guide*. London: Sage Publications Ltd

Tan, G. (2010). Straddling the Divide: Towards an Associate Degree in Information Technology. *Journal of Information Technology Education*, (9)

TCD – Trinity College Dublin (2014). Modularisation. Available online at:

<https://www.tcd.ie/about/content/pdf/tcd-annual-report-0708.pdf>

Tella, A. and Adu, E.O. (2009). Information Communication Technology (ICT) and Curriculum Development: The challenges for education for sustainable development, *Indian Journal of Science and Technology*, 2(3): 55-59

Tepper, J. A. (2006). Measuring Constructive Alignment: An alignment metric to guide good practice. In: 1st UK Workshop on Constructive Alignment, Higher Education Academy Information and Computer Sciences (ICS) Subject Centre and Nottingham Trent University, UK (23)

Tillema, H. and Orland-Barak, (2006). Constructing Knowledge in Professional Conversations: The role of beliefs on knowledge and knowing, *Learning and Instruction*, 16(6): 592-608

Todres, L. (2005). Clarifying the Life-World: Descriptive phenomenology, in Holloway, I. *Qualitative research in health care*. Maidenhead, McGraw-Hill International.

Todres, L. and Holloway, I. (2010). Phenomenological Research, in K. Gerrish and A. Lacey, *The Research Process in Nursing*, 6th Edition Oxford: Wiley-Blackwell

Todres, L., and Wheeler, S. (2001). The complementarity of phenomenology, hermeneutics and existentialism as a philosophical perspective for nursing research. *International Journal of Nursing Studies*, 38(1): 1-8.

Toohy, S. (1999). *Designing Courses for Higher Education*. Philadelphia, Open University Press

Topi, H., Valacich, J. S., Wright, R. T., Kaiser, K., Nunamaker Jr, J. F., Sipior, J. C., and de Vreede, G. J. (2010). *Communications of the Association for Information Systems*, 26(18): 359-428

Trigwell, K. and Prosser, M., (1996). Congruence Between Intention and Strategy in Science Teachers' Approach to Teaching, *Higher Education*, 32(1): 77 – 87

Trowler, P. (1997). Beyond the Robbins Trap: Reconceptualising academic responses to change in higher education (or... quiet flows the don?) *Studies in Higher Education*, 22(3), 301-318

Trowler, P. (2008). *Cultures and Change in Higher Education: Theories and practice*, Basingstoke: Palgrave

Tyler, R. W. (1949). *Basic Principles of Curriculum and Instruction*, Chicago: The University of Chicago Press

UCC – University College Cork (2014). Modularisation. Available online at:
www.ucc.ie/modules/modularisation.html

UCD – University College Dublin (2014). Modularisation (UCD Horizons). Available online at:
<https://myucd.ucd.ie/courses/horizons.ezc>

van Manen, M. (1991). *The Tact of Teaching, The Meaning of Pedagogical Thoughtfulness*, New York: State University of New York

van Manen, M. (1997). *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*, 2nd Edition, Ontario: The Althouse Press, University of Western Ontario

van Manen, M. (2007). Phenomenology of Practice, *Phenomenology and Practice*, 1(1): 11-30

Volkmann, M. J. and Anderson, M. A. (1998). Creating Professional Identity: Dilemmas and metaphors of a first-year chemistry teacher. *Science Education*, 82(3): 293-310

von Eckartsberg, R., (1998). Introducing Existential-Phenomenological Psychology, in *Phenomenological Inquiry in Psychology: Existential and Transpersonal Dimensions*, edited by Valle, R., Plenum Press

Von Glasersfeld, E. (1995). *Radical Constructivism: A way of knowing and learning*, Studies in Mathematics Education Series: 6. Bristol, PA: Falmer Press, Taylor and Francis Inc.,

Vygotsky, L. (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.

Walker, J. C. (1985). Materialist pragmatism and sociology of education. *British Journal of Sociology of Education*, 6(1): 55-74

Walsh, A. (2007). An Exploration of Biggs' Constructive Alignment in the Context of Work-Based Learning, *Assessment and Evaluation in Higher Education*, 32(1): 79-87

Walsham G. (1995). The Emergence of Interpretivism in IS Research, *Information Systems Research*, 6(4): 376-394

Waring, T.S., and Wainwright, D.W. (2008). Issues and Challenges in the Use of Template Analysis: Two Comparative Case Studies from the Field, *Electronic Journal of Business Research Methods*, 6(1): 85-94

Watson, P. (2002). The Role and Integration of Learning Outcomes into the Educational Process, *Active Learning in Higher Education*, 3(3): 205-219

Wheelahan, L. (2010). *Why Knowledge Matters in Curriculum: A social realist argument*, New York: Routledge

Wiles, J.W. and Bondi, J.C. (2007). *Curriculum Development: A Guide to Practice*, 7th Edition, New Jersey: Prentice Hall

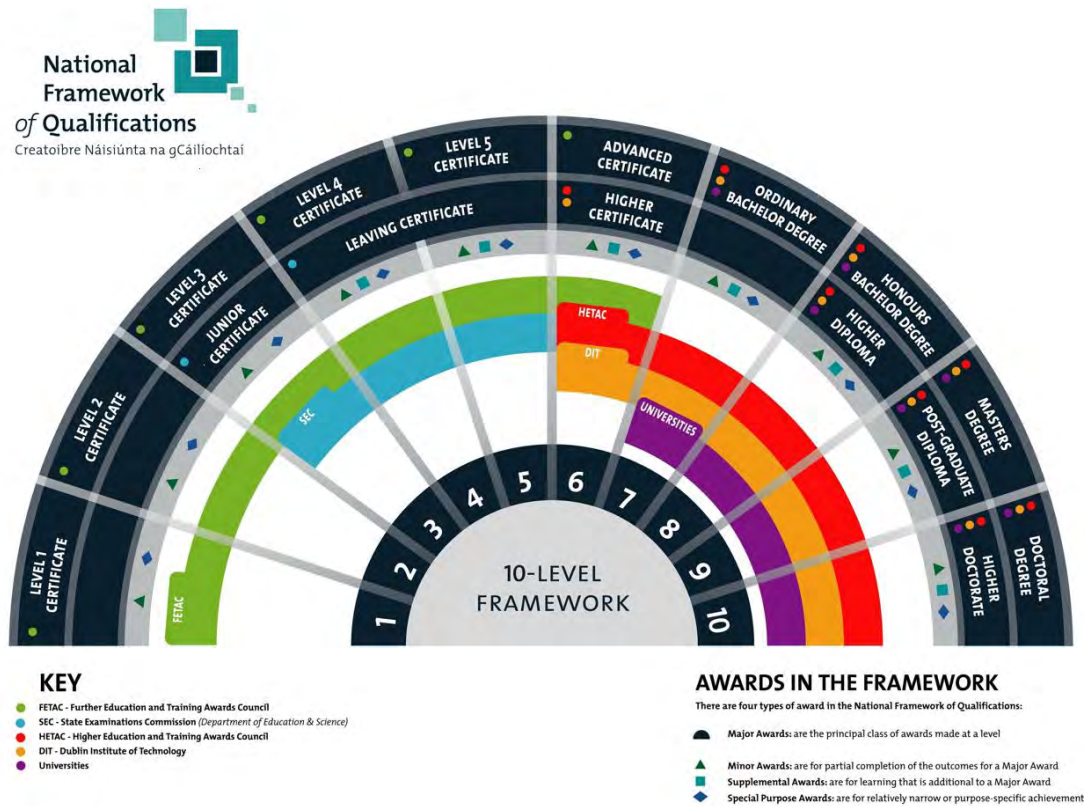
Willis, P. (1999). Looking For What it's Really Like: Phenomenology in reflective practice. *Studies in Continuing Education*, 21(1): 91-112

Zendler, A., McClung, O. W., and Klaudt, D. (2012). Content and Process Concepts Relevant to Computer Science Education: A cross-cultural study, *International Journal of Research Studies in Computing*, 1(2): 27-47

APPENDIX - A

National Qualifications – a 10 Level Framework

The diagram below is a representation of an online interactive diagram of the NQAI website which, when used, explains the details of the qualification levels separately.



The National Framework of Qualifications Fan Diagram (NQAI, 2009)

For tertiary education, and beginning with the normal exit point of secondary education, called the ‘Leaving Certificate’, the levels relating to higher education awards in Ireland are as follows:

Level 4/5: Leaving Certificate

Level 5: Level 5 Certificate

Level 6: Advanced Certificate and Higher Certificate

Level 7: Ordinary Bachelor Degree

Level 8: Honours Bachelor Degree and Higher Diploma

Level 9: Masters Degree and Post-graduate Diploma

Level 10: Doctoral Degree

The NQAI, in their publication entitled ‘Determinations for the Outline National Framework of Qualifications’ on the NQAI website (www.nqai.ie, accessed February 2014), describe the programme learning outcomes for these tertiary levels thus:

Level 4

Independence is the hallmark of this level. Learning outcomes at this level correspond to a growing sense of responsibility for participating in public life and shaping one’s own life. The outcomes at this level would be associated with first-time entry to many occupational sectors.

Level 5

Learning outcomes at this level include a broad range of skills that require some theoretical understanding. The outcomes may relate to engaging in a specific activity, with the capacity to use the instruments and techniques relating to an occupation. They are associated with work being undertaken independently, subject to general direction.

Level 6

Learning outcomes at this level include a comprehensive range of skills which may be vocationally-specific and/or of a general supervisory nature, and require detailed theoretical understanding. The outcomes also provide for a particular focus on learning skills. The outcomes relate to working in a generally autonomous way to assume design and/or management and/or administrative responsibilities. Occupations at this level would include higher craft, junior technician and supervisor.

Level 7

Learning outcomes at this level relate to knowledge and critical understanding of the well-established principles in a field of study and the application of those principles in different contexts. This level includes knowledge of methods of enquiry and the ability to

critically evaluate the appropriateness of different approaches to solving problems. The outcomes include an understanding of the limits of the knowledge acquired and how this influences analyses and interpretations in a work context. Outcomes at this level would be appropriate to the upper end of many technical occupations and would include higher technicians, some restricted professionals and junior management.

Level 8

Innovation is a key feature of learning outcomes at this level. Learning outcomes at this level relate to being at the forefront of a field of learning in terms of knowledge and understanding. The outcomes include an awareness of the boundaries of the learning in the field and the preparation required to push back those boundaries through further learning. The outcomes relate to adaptability, flexibility, ability to cope with change and ability to exercise initiative and solve problems within their field of study. In a number of applied fields the outcomes are those linked with the independent, knowledge-based professional. In other fields the outcomes are linked with those of a generalist and would normally be appropriate to management positions.

Level 9

Learning outcomes at this level relate to the demonstration of knowledge and understanding which is the forefront of a field of learning. The outcomes relate to the application of knowledge, understanding and problem-solving abilities in new or unfamiliar contexts related to a field of study. The outcomes are associated with an ability to integrate knowledge, handle complexity and formulate judgements. Outcomes associated with this level would link with employment as a senior professional or manager with responsibility for the work outputs of teams.

Level 10

Learning outcomes at this level relate to the discovery and development of new knowledge and skills and delivering findings at the frontiers of knowledge and application. Further outcomes at this level relate to specialist skills and transferable

skills required for managing such as the abilities to critique and develop organisational structures and initiate change.

APPENDIX - B

The Study Participants' Invitation to Take Part

Art Sloan wrote:

>Hello, XXXXX

>

>Many thanks for your participation in my research discussion recently.

It has proved very, very useful and my research plan is nearly complete.

>

>My supervisor has suggested that I gather data to relate to the research and I plan to engage in a phenomenological study.

I would like to ask if you would like to, and be able to participate in a qualitative study that

>will involve an interview with you as a curriculum designer.

>This is a means to discuss your experiences in designing curricula for one of our BSc and/or MSc programmes.

>I have received permission from Dr Lillis to proceed with this investigation to include academic staff.

>I can arrange a location and there have been time slots proposed.

>Firstly, I would like to invite you to participate, and if you feel that you

>can contribute to my research in this way, I would be most grateful.

>

>Since you were at the research seminar, and were one of the colleagues engaged in the discussion,

>I want to include you in my research if you would like to, and I hope it will be interesting for all concerned.

>

>Anyway, that would be great. MANY THANKS, INDEED for help before and in

>this!

>

>Best regards

>

>Art

>

This message has been scanned for content and viruses by the DIT Information Services E-Mail Scanning Service, and is believed to be clean. <http://www.dit.ie>

APPENDIX - C

Interview Set 1 Questions for Lecturers

Nine broad, discursive questions:

1. Describe one of your course modules.
2. Did you design that module?
 - a. YES: How did you design that module?
 - b. NO: How would you design that module yourself?
3. Describe your experiences of teaching that module.
 - a. How do you teach the module?
 - b. Why do you teach it that way?
 - i. Did you consider any other approaches
4. On assessment:
 - a. How is the module assessed?
 - b. How did you choose the assessment method?
5. Tell me about your experiences of curriculum design.
6. How have you dealt – or how would you deal - with learning outcomes in curriculum design?
7.
 - a. How could you improve the module if redesigning?OR
 - b. How would you go about designing a new module?
8. Do the learning outcomes associated with your module influence the way you might design, teach and assess the module?
 - a. How do you teach, in practice, to match this learning outcome?
 - b. How do you assess to match this learning outcome?
9. Are you familiar with the term of constructive alignment?

Include, where appropriate, questions relating to:

1. Examples
2. Experience of specific problems
3. Teaching and learning objectives
4. Elaboration, expansion of experiences described by the interviewee

Checklist – The following items MUST be mentioned and discussed during the interview:

Teaching (Experiences, approaches)

Assessment (Experiences, approaches)

Course design (Experiences, approaches)

Constructive alignment (Experiences, understanding of)

Course design (Experiences, approaches)

Constructive alignment (Experiences, understanding of)

APPENDIX - D

Interview Transcript Example – Interview Set 1

INTERVIEW TRANSCRIPT FOR INTERVIEW SET 1

Participant 11

Interviewer: The date is Thursday the 18th of December and I'm here with colleague PK to discuss some aspects of course modules so the first question is could you please describe one of your course modules

P 11: I have two, two main course modules eh C++ programming in second year and systems software in fourth year, to describe them, em, C++ is a follow on from first year programming in C and eh it is really the basis of programming in object orientated em, style if you like, also systems software in fourth year is fairly much a techie subject dealing with Linux, the insides and outsides of Linux eh, little details lots of programming, lots of operating systems concepts and em very much techie subject, certainly a very good subject for teaching and about the internals of computing

Interviewer: Okay did you design that subject

P 11: (interjects) I did, I did

Interviewer: Ok

P 11: Both I did yeah

Interviewer: And eh can you tell me about the design of the module

P 11: Well the design was based on my own experience of what I thought was required now I, em, consulted with eh, one of the external examiners on the fourth year, eh, wasn't particularly helpful because he wasn't familiar with Linux, eh, him being a windows type person but eh I got some ideas so eh major design was really looking also at courses run in other universities

Interviewer: Okay

P 11: And then with a view, since I have a very good overview of all the courses in 228 with a view of what they'd be capable of when they reach fourth year em, you know and also what I thought would be relevant for people going to industry

Interviewer: What features were there in the design for that module whenever you wrote it up?

P 11: Features really were eh, lots of, lots of assessments, lots of practical lab works for 228 year four and for 228 year two both of those are really lab based work, eh its really its very practical so, they, they need plenty of practice in the lab now with a view of getting them all into the lab,

eh practice the key, I actually eh, every week We give assess, not so much assessment but I, I assess the work that they do in the lab and then we give them marks now that has actually resulted in lots and lots of eh increases in attendances and also the lab people that work with me are, feel that they are contributing to the labs, you know, and their quite keen on that technique of getting students into lab as part of continuous assessment and then giving them marks for, not so much attending but for the work that they do in that lab, the result is really that, that they get, I've got them practicing and their also quite happy that their getting some continuous assessment marks

Interviewer: Okay, so your design included course content and a practical perspective on the course

P 11: Practical, very practical perspective on it yeah

Interviewer: And

P 11: Without, yeah without them attending the lab, without the practical aspects of it then it really is, it's a not much in course work, to be honest, it's very much practical orientated

Interviewer: Okay, eh, I've lost me, notes to myself, on the course design, were there any elements of the em, course design that you needed to concentrate on whenever you were writing up the actual course document, was there, did you find that your writing from scratch

P 11: Yes, yes

Interviewer: Some of the features of the course document

P 11: Of the course, of the module content, yeah

Interviewer: Okay

P 11: Yeah I had to do some of that from scratch yeah

Interviewer: Okay

P 11: You know with a view to em, it's a computer science course

Interviewer: Right

P 11: But it really is computer applications

Interviewer: Okay

P 11: We're not really computer science, its computer applications

Interviewer: Right

P 11: Eh, so computer science would be very theoretical this really is a mixture, a good mixture of computer applications and computer science but towards computer applications

Interviewer: Okay

P 11: So there was some unique aspects in it, yeah that I had to concentrate on, sort of design myself, yeah

Interviewer: Right and eh how do you teach that module?

P 11: Now, eh, both those modules say systems software in fourth year, okay, I have eh practical's two hours per week same in second year, both of those are two hours labs per week, as I say I try and get as many people into those labs by assessing the work that they do on the day, eh and then there's two lectures, two hour lectures for both of those courses as well, now sometimes with fourth years what I do is, I don't have a, a lab, I don't have a classroom lecture, I generally bring them down to the lab, A115, which is generally free and then we do a lecture come practical demonstration session em, you know so, just purely teaching it by lecturing doesn't work for certain aspects of that course so I need to go down to the lab and we do it together if you like

Interviewer: Okay

P 11: You know see the effects of x and y and z, you know, so on

Interviewer: most of the teaching is done in front of a computer machine

P 11: Oh for me yeah, yeah, and I will actually show if I'm in the lecture I will actually run all the software, it can be risky enough because sometimes you can make a complete mess of it but

Interviewer: Right

P 11: But all the stuff is actually, run in the class, so for second year programming, demonstration programmes there actually run, and then people who ask various questions, you know what would happen if, I'll change the programme and see you know

Interviewer: Right

P 11: So it's, it's, it's quite good for me as well, it's a, you know the time goes by quite quickly and you can also gauge eh you know did they understand it and sometimes I throw out a question you know, what would happen if I changed this line, so you know, you make it a little bit interactive and then I actually go off and change the line, so they see it in front of them you know

Interviewer: So it's quite interactive with the students

P 11: Very interactive, yeah, yeah, yeah, yeah its up to them in a sense as well, its more interaction on my part than you know, sometimes you have to drag it out especially on a Monday morning

Interviewer: Right

P 11: But fourth years would be more, would be more interactive

Interviewer: Okay, so you've got a, em, some straight forward lecturing, presentation of material and then a good deal of discussion interaction and eh practical demonstration

P 11: Practical demonstration yeah, yeah

Interviewer: Alright and why did you choose those particular eh teaching methods

P 11: Because the subject is very practically orientated it's towards industry, it's towards eh, acquiring skills

Interviewer: Ok

P 11: So not in the purely theoretical sense but in a practical sense, that you actually acquire that skill and the only way of acquiring those skills in systems software and in second year C++ programming is to practice and more practice and more practice so with that in mind I was aware of that then I in turn make my labs my lectures, very practical, I bring in the lap top, I bring in the programmes I require and I load them up, I have on one, on one screen I have the lecture notes which they all should have and on the other screen I have the actual programmes and the two of them can be run, I can show you if you want

Interviewer: Ah no, eh the, the methods are very specific for your topic, are there any other methods or approaches you would consider using

P 11: Yeah well there's other things that I do okay, I use the (inaudible) but I don't like to use Web CT the reason I don't use Web CT is that I got to China, I go to Tanzania, they can't afford Web CT (inaudible)

Interviewer: Ok

P 11: All the stuff is on it, all the lecture notes, but I also use online quizzes there, now the online quizzes just allows me to eh test them on very basic syntac, very basic terms, now they need to know the terms because the terms are used in the language and they need to know the language to know what I'm talking about, if I'm talking about a particular term then they should be familiar with if their not their completely lost, so the online test for me, the online quizzes gives me the opportunity to see, did they understand the terminology

Interviewer: Right

P 11: And that's all, and that's all I use it for, it's a, you know, some, I have some lessons on noodle,

Interviewer: Okay

P 11: Eh but the majority of the stuff, is, is just simply, downloading and web pages and stuff like that

Interviewer: Are there any other methods or approaches that you don't use for the module that you may know of and may use some time

P 11: I don't

Interviewer: Okay

P 11: (inaudible) to be quite honest

Interviewer: Okay so you're not familiar with other ones that exist that you don't use

P 11: Well I would like, I would like to have very big group projects

Interviewer: Okay

P 11: But I just found that, marking group projects is a problem

Interviewer: Why's that?

P 11: Because I don't who's done what,

Interviewer: Okay

P 11: That's the problem with it and it can end up sometimes where you get people doing nothing absolutely nothing em and then other times you just get one student who does the whole lot and you've also got difficulty of constructing a group, I get people coming back saying I don't want to be in the group and so on, so I'm left really with this situation of individual, individual assignments

Interviewer: Okay and how do you assess that module?

P 11: Continuous assessment and exam

Interviewer: Alright

P 11: Second year 60/40 exam to assessment, fourth year is 70/30 exam and assessment

Interviewer: Okay

(PK gets some water)

P 11: Is this okay yeah?

Interviewer: Perfect

P 11: Have I told you everything you want

Interviewer: Absolutely but

P 11: I've put a fair amount of thought in teaching, especially the final year, you know

Interviewer: Yes

P 11: And the attendance is good in them all you know so must be doing something right somewhere

Interviewer: Absolutely, on the assessment what sort of methods would you use for first for assessment, perhaps within continuous assessment for example

P 11: Yeah I use the lab work every week, so the lab work every week

Interviewer: Weekly lab work

P 11: Weekly lab work they enjoy that too, because they get instant feedback

Interviewer: Okay

P 11: They get a mark and they know what the mark is there and then, okay, now em, online quizzes

Interviewer: Online quizzes

P 11: Yeah now, this sometimes opens up great debates especially with multiple choices

Interviewer: Right

P 11: You know to the accuracy of each answer

Interviewer: Yes

P 11: And very often the questions that I make a mistake on they generate a fair amount of discussion, sometimes heated discussion but the discussion is taking place

Interviewer: Right

P 11: And you know if there's anything in doubt I just give them all the one mark, you know, its not that critical but very often, you know, I would say, you know, a particular term, what is the closest definition of it

Interviewer: Right

P 11: And this very often you know grows some discussion in the class, you know I thought it was A no, I thought it was B at least we got people thinking about it, you know

Interviewer: Yes

P 11: And that's that one and the other one is assignments, take home assignments again plagiarism is a problem

Interviewer: Okay

P 11: It's too difficult, to em, you know, detect, detect the plagiarism, and then to deal with it, I think the dealing with it can be a problem, it's not worth it really, you know, to be quite honest

Interviewer: Right, because you can detect it, it probably is there but it's very difficult to eh

P 11: It's very difficult to know eh exactly, I do see ones that are very similar but you know eh, taking it any further is a lot of, a lot of hassle,

Interviewer: Yes

P 11: I don't know what you think; I could say its something else though

Interviewer: Right

P 11: But it's a very small thing, but for final year projects certainly but for these take home assignments but you know, I try to encourage them to be honest, to be academically honest

Interviewer: Right

P 11: And generally if I suspect plagiarism, I will sort of, I won't accuse them of it, but I'll certainly point it out the similarities, you know

Interviewer: Right, why do you choose those assessment methods in particular?

P 11: There the only ones I know, the only ones I'm familiar with and there reasonably easy to do, the group, the group assignment I've tried doesn't really work, for my subject anyway, it doesn't really work, em

Interviewer: It doesn't work in what respect sorry

P 11: Well in knowing who has involved, who has done what in that group?

Interviewer: Okay

P 11: And also in constructing that group can be a problem, you've got people saying I don't want to be that group and so on, and sometimes you have, you have a domineering member of that group and they will simply go the way their doing it, go the way they do their own work, you know

Interviewer: Right

P 11: Leaving the weaker ones behind, they'll participate, the weaker student doesn't really gain very much from a group project that's been my experience

Interviewer: Okay, that's interesting

P 11: The weaker student will not because he'll be dominated

Interviewer: Yes your methods for assessment are based on experience and things that you've discovered over the years

P 11: Yeah, yeah

Interviewer: And is it the case that eh that there are other methods that you could use but you don't use for example, is there anything else you'd say, I could use that as an alternative

P 11: I don't know of any, I don't know of any but I'd be willing to, to try various methods

Interviewer: Would it be safe to infer that you use these methods because it fits the topic

P 11: It fits it, it fits it and also I'm familiar with them

Interviewer: Right

P 11: I'm confident with them, reasonably confident with them

Interviewer: Okay

P 11: That I'm getting a fair mark assigned to each student

Interviewer: Okay fairness

P 11: Its fairness yeah, student has to be, a student has to be aware that it's a fair mark he's getting and if there is any dispute I eh, I sit the student down and we come, we come to a

(inaudible) I'm willing to give more marks, Its just, if they are in correct at least they learn something by me going through the paper,

Interviewer: Right

P 11: I also give written lab, written class tests, I give those

Interviewer: To second year

P 11: Not to fourth year

Interviewer: Right

P 11: Certainly to second year I give them a written, in order to practice for the final exam in the summer

Interviewer: Right

P 11: At the end of semester two

Interviewer: Okay

P 11: I give a written class test, practice, at the end of semester one, or practice for the end of semester two exam

Interviewer: Yeah, right the next question is about curriculum design, what is your experience of curriculum design, it slightly goes back on the question that I asked you earlier but generally have you been involved in curriculum design and what experiences did you have in that

P 11: Well it's a sort of, curriculum design is really a, it's a iterative process, you know you keep going over and over it again, and like I've been teaching for a long time and if I look at the first curriculum the first syllabus I developed actually, you know, then over the years that becomes refined you know, eh you do it first year, you refine it, you refine it then and then when it comes up for review you know what, what are good points and bad points,

Interviewer: Right

P 11: Is that the type of thing you want, is that the answer

Interviewer: Well, you describing experiences of

P 11: Yeah

Interviewer: Changing the design over, over

P 11: Time, it will change, you just keep refining it

Interviewer: Right

P 11: Look at things that are, are not working and are maybe not relevant

Interviewer: Right

P 11: Maybe far too theoretical em I try to get some interaction with em, you know using noodle

Interviewer: Right

P 11: You know so, things like em, especially in systems software, eh some of those concepts eh, have some little videos from you tube and so on that you can; you can get onto and have a look at

Interviewer: Okay

P 11: You know

Interviewer: so when you were dealing with curriculum design what was your start point?

P 11: For us the start point is em, what is the requirements of industry that's our ethos

Interviewer: Right so

P 11: That is our ethos, so I would try to find out

Interviewer: Industry would influence, would influence

P 11: Yeah, yeah that's our ethos here in the school so

Interviewer: Yes, it influences your curriculum design almost immediately

P 11: Sorry

Interviewer: The industry requirements perhaps

P 11: Yeah the would influence it really big

Interviewer: Yes

P 11: You know there is also a academic content, its not purely industry, industry alone will give you, will actually give you some training, I know, you end up with some training rather than educating people so you have to balance it a little bit, as to training and the education

Interviewer: What part of the curriculum design would influence, would be eh industry influence

P 11: Eh the continuous assessment part mostly

Interviewer: Okay, okay

P 11: Mostly that, the type of work that they're doing and their requirements I would try and reflect in the assignments

Interviewer: Right, eh so not necessarily just the content then,

P 11: The entire content no, I would talk to the externs, especially the industrial externs when they come here and I show them the assignments and this type of thing and see what their comments are

Interviewer: Right so you take industry into consideration and then use the feedback from industry to help form the continuous assessment description and the design

P 11: Mostly, mostly that will influence the continuous assessment

Interviewer: At that point would you begin to look at content or something else

P 11: Oh content yeah, definitely that point

Interviewer: That point content

P 11: Yeah

Interviewer: Alright, all, not all content though eh, grand, what have, how have you dealt with learning outcomes in curriculum development

P 11: How I dealt with learning outcomes

Interviewer: Yes

P 11: Learning outcomes for me, gives me a good focus

Interviewer: Okay, for focus

P 11: For focus

Interviewer: Right oh, and would you write those learning outcomes yourself

P 11: Yeah

Interviewer: Right

P 11: That gives me the focus

Interviewer: What will you base the learning outcomes descriptions on?

P 11: From feedback from industry, okay

Interviewer: Okay

P 11: Partly, partly

Interviewer: Okay

P 11: As I said there not just based on what industry said, you just end up with a training programme

Interviewer: Yes

P 11: So it's little bit of both right, but I will have eh my own views of what should be in a curriculum with respect to education now I would know more about that than industrial externs would

Interviewer: That's right

P 11: You know so eh, I have a good mixture of it but certainly the learning outcomes for me give me a very good focus

Interviewer: Right

P 11: And then this is what I want the students to do so I go and I try and design around that entire curriculum, it's a syllabus say,

Interviewer: Okay, so are you saying the syllabus follows the learning outcomes

P 11: For me it does but that wouldn't be every bodies but for me it does yeah

Interviewer: Okay

P 11: So I would start there, what am I trying to achieve here and then start and the syllabus will be education plus training in it

Interviewer: Okay, education would that include

P 11: Educational content

Interviewer: Content, yeah

P 11: Yeah, education content

Interviewer: And training, of course you'd expect the assessment to fit in

P 11: The assessments mostly fit in with the training requirements of industry

Interviewer: Okay, yeah so would it be safe to infer that in reality you begin with learning outcomes and

P 11: That's what I do

Interviewer: You begin with learning outcomes

P 11: I begin with learning outcomes

Interviewer: Right and then the other parts follow

P 11: Yeah

Interviewer: From that, okay and so do the learning outcomes influence your design, teaching and assessment of the module

P 11: Absolutely

Interviewer: I suppose you've partly answered that already

P 11: I've answered that already, yeah I have

Interviewer: The answer is

P 11: Absolutely, yes, that's where I start from, you know

Interviewer: Okay

P 11: And then of course the syllabus has to reflect those

Interviewer: Okay so you, I infer from what you're saying you see a connection between learning outcomes teaching and assessment

P 11: Of course

Interviewer: Oh yes, that's a given

P 11: That's given, I would taken that as given

Interviewer: I know that you, I know that you've implied that all the way through

P 11: Yeah, yeah, yeah

Interviewer: Okay so

P 11: It doesn't make sense, nothing makes sense if your learning outcomes are completely different from what your course content is then I don't see any point in having learning outcomes

Interviewer: Right

P 11: There's something wrong the two of those have to be aligned properly, so you know

Interviewer: Right (pause) right, okay well that's fairly clear, there's a distinct connection between all three and would you, follow that path between the three of them

P 11: That would be my, like my guide for the year, you know, my guide

Interviewer: Do you make specific reference to each thing in reference to itself, to each other, pardon,

P 11: Not in front of the class necessarily

Interviewer: No

P 11: But I would certainly look at before I start a new topic

Interviewer: Yes

P 11: I would say you know, what am I trying to achieve here, eh so, I would make reference to, by myself, but not necessarily to the class, because the class doesn't necessarily understand what that's all about

Interviewer: No

P 11: Not clearly, they don't their not capable enough to understand all the in's and outs of that

Interviewer: Okay and after establishing the module after one year, after using the alignment between the three, would you leave it off and work off the experience of that or would you go back and refresh your memory

P 11: No, no certain aspects of it I would just work off experience but other times I would just go back,

Interviewer: Alright

P 11: When I start, when I start, start a new topic, I quickly have a look again and see what was my learning outcome, what was my

Interviewer: Yes

P 11: Now naturally enough I won't have to do it after three or four years, you have it in your mind, you have it in your head you know

Interviewer: Yes

P 11: If it's the first, first or second year you'll do that, you know, what were your original thoughts on this

Interviewer: Alright

P 11: Again to me that makes sense, you put a lot of work into it to begin with, two or three lines, two or three years down the line maybe you've forgotten what you originally felt were

Interviewer: Right

P 11: So you know, I have to, have the stuff on, along with my lecture notes I have what my learning outcomes are and what my syllabus is you know

Interviewer: Okay, now I'm going to describe a principle here, that you might be familiar with we'll see, constructive alignment is a principle for devising teaching and learning activities and assessment tasks that directly assess the learning outcomes intended for the course or module, continuous, constructive alignment represents a marriage between a constructivist understanding of the nature of learning and an aligned design for outcomes based teaching education are you familiar with that principle,

P 11: I need the first one yeah (takes a page) (pause) yeah

Interviewer: You've seen that in

P 11: Yeah Biggs, yeah I'm familiar with Biggs

Interviewer: Okay so you recognise the thing

P 11: I'm familiar with that paper as well eh by Biggs

Interviewer: So would you say that use that principle as part of your design

P 11: Well to me, to me it's a terribly obvious thing

Interviewer: Obvious

P 11: Terribly obvious

Interviewer: Okay (pause) alright,

P 11: Like a lot of obvious things Biggs's was the first to state it

Interviewer: Yes

P 11: You know to me it's a terribly obvious thing, to do, you know, your teaching and your learning activities, everything should be directed towards, well, what are you trying to do here, which is your learning outcomes,

Interviewer: Yes

P 11: You know without that, there's something wrong, your learning outcomes, are x, y and z your teaching and learning activities and assessments are a, b, c then your making life difficult for yourself

Interviewer: Yes

P 11: You know, very difficult, for your students as well, so really is eh, for me learning outcomes are the key to it and then when I'm designing things I have the learning outcomes and then the teaching and learning activities and all the assessments for all of those

Interviewer: Okay

P 11: In order to achieve those

Interviewer: Yes

P 11: It's such a simple thing you know, I can't see that everybody isn't following constructive alignment

Interviewer: And do you think everybody is following constructive alignment

P 11: I can't really answer that

Interviewer: Okay

P 11: I can't answer that

Interviewer: do you think constructive alignment is your responsibility as a lecturer,

P 11: yeah, yeah oh absolutely yeah, definitely yeah

Interviewer: Yours entirely or does it belong to anyone else

P 11: Oh the students as well

Interviewer: Students as well

P 11: Your team in this, you know, you, you, they have to, also play ball with this and you know with what your trying to achieve and I do that, I say look guys this is what we're trying to achieve, I don't go along through out the year but certainly at the beginning of the year I'll say this is what we're trying to achieve here

Interviewer: Do you think that it should be departmental policy or institute policy perhaps

P 11: I think, I have no doubt it just has to be

Interviewer: Right

P 11: Just has to be, such an obvious thing it just has to be, it couldn't, it couldn't not be,

Interviewer: Right

P 11: You know, I've done constructive alignment for many years without knowing that term

Interviewer: Right

P 11: You know

Interviewer: Yes

P 11: You know and then Biggs come up with the paper

Interviewer: Yes

P 11: Gosh, isn't that terribly obvious, I've been doing that for years, but I didn't write the paper Biggs did, (laughs)

Interviewer: Me to too but yeah

Interviewer: What's your experience of eh managements attitude, or institutional or departmental attitude towards constructive alignment

P 11: Well I think in general teaching is not regarded as a very high priority here, to be quite honest

Interviewer: Okay

P 11: I've seen now, I've been in DIT for a long time and I've seen the teaching eh, been down graded in respect to things like research

Interviewer: Okay

P 11: You know, and that's where it is at, to be quite honest that's where the credit is at, it's not in teaching, you can teach as much as you want, you can run a course as well as you can and the students and all appreciate it okay?

Interviewer: Hmm, hmm

P 11: Now are you going to get more credit for that or are you going to get more credit for going to a conference with a paper, the answer is now your going to get more compliments with a paper,

Interviewer: Yes

P 11: And you know that's the truth of it, and you know that's a simple fact, now for me, I've come to teach, okay I'm teaching, I always will teach and that will be my priority, I notice with new staff it's not there priority, because they've come up knowing that, publications and the research and other activities other than teaching is where the credit is at,

Interviewer: Right

P 11: Now I'm just saying that as a fact, that's my opinion I'm not feeling that, I'm bitter about it or anything like that

Interviewer: No

P 11: You know, but I think that's a fact, you know, em, so, like if I went and talked to em, about how well I did in a course, my students or even my Q6's okay

Interviewer: Yes

P 11: You know, I've been doing my Q6's every year, I've looked at them and nobody has ever asked me what, except this year we've been asked to give the Q6B but I've always did that, I did it also in Harbin

Interviewer: Right

P 11: When I was over there eh and I was quite surprised other people weren't doing it, you know but to me, em getting feedback from students is really important, and you know the Q6 is a great way of doing it, you know, but look em, what was your question

Interviewer: Whether it relates

P 11: Yeah

Interviewer: Whether it relates to management

P 11: Yeah, I'm not too sure they'd have a terribly great interest in it, other than say yeah you go ahead and do that,

Interviewer: Right

P 11: I would think, I would think

Interviewer: Okay so eh would it be safe to infer that management don't have a responsibility for constructive alignment or

P 11: No

Interviewer: They don't have a responsibility for it and that's why

P 11: No management in my opinion don't have responsibility for day to day teaching

Interviewer: Okay

(Pause)

P 11: And to be fair to them their probably snowed under with lots of admin, again when I started there was no admin,

Interviewer: Okay

P 11: But now there's lots and lots of admin, so em, there probably snowed under with lots of stuff, I think you know we should all be, reasonably competent people to take care of our own courses, take ownership of them and do the best we can,

Interviewer: Right

P 11: So I don't necessarily think its management's responsibility to do it

Interviewer: Okay

P 11: You know, we're all reasonable people, you know. Em, I would think that it's the course and the course teams, up to the individual to look after

Interviewer: Okay, that concludes the interview

APPENDIX - E

Hermeneutic Phenomenology Analysis – the ‘Focus Documents’

Transcript Analysis 1 - Participant 11

Hermeneutic Phenomenology

Phenomenology of Course Module Design First Extraction (Version 5)

The design was based on my own experience of what I thought was required. (The) major design was really looking... at courses run in other universities, and then... since I have a very good overview of all the course (modules) in DT228; with a view of what they’d be capable of, when they reach Fourth Year, and, also, what I thought would be relevant for people going to industry.

Now, I consulted with one of the external examiners on the Fourth Year (document description)... (but that) wasn’t particularly helpful because he wasn’t familiar with Linux, (the operating system) - him being a Windows type person, but I got some ideas.

(The) features really, were lots of assessments, lots of practical lab work for DT228 Year Four, and for DT228 Year Two: both of those are really lab based work, it’s very practical, so they need plenty of practice in the lab. (There is a) very practical perspective on (the module design). Without them attending the lab, without the practical aspects of it... then it really is... in coursework, to be honest, it’s very much practical orientated.

... With a view of getting them all into the lab, practice (is) the key... every week we give... not so much assessment, but I assess the work that they do in the lab and then we give them marks.

That has actually resulted in lots and lots of increases in attendances, and, also, the lab people that work with me... feel that they are contributing to the labs, and they’re quite keen on that technique of getting students into lab as part of continuous assessment, and then giving them marks for... not so much (for) attending, but for the work that they do in that lab.

The result is, really that I’ve got (the students) practicing and they’re also quite happy that they’re getting some continuous assessment marks.

(Concentrating on the module design), I had to do some of (the module design) from scratch... It’s a Computer Science course, but it really is Computer Applications. Computer Science would be very theoretical – this, really, is a mixture, a good mixture of Computer Applications and Computer Science, but towards Computer Applications. So there was some unique aspects in it, yeah, that I had to concentrate on... design myself...

But all the stuff is actually... run in the class, so for Second Year Programming, demonstration programs there actually run, then (the students) ask various questions... 'What would happen if...?' I'll change the program and (demonstrate the results of the experiment).

All the lecture notes (are on the Web page), but I also use online quizzes – (they) just allow me to test (the students) on very basic syntax, very basic terms. They need to know the terms, because the terms are used in the language and they need to know the language to know what I'm talking about... so the online quizzes give me the opportunity to see (whether) they understand the terminology... That's all I use it for.

I have some lessons on Moodle. I've put a fair amount of thought (into) teaching, especially the final year.

I try and get as many people into those labs (as possible) by assessing the work that they do on the day.

(In the) two-hour lectures for both of those courses... sometimes, with fourth years, what I do is; I don't have a classroom lecture - I generally bring them down to the lab... and then we do a lecture-come-practical-demonstration session... Just purely teaching it by lecturing doesn't work for certain aspects of that course, so I need to go down to the lab and we do it together... (For example, in practical terms); see the effects of X and Y and Z and so on...

For me, (most of the teaching is done in front of a computer), and, if I'm in the lecture, I will actually run all the software - it can be risky enough, because sometimes you can make a complete mess of it, but all the (examples) are actually run in the class.

It's quite good for me as well; the time goes by quite quickly and you can also gauge (whether) they understand it. Sometimes I throw out a question; what would happen if I changed this line? You make it a little bit interactive. Then I actually change the line, so they see it in front of them

(The class session is) very interactive. It's up to them in a sense as well. It's more interaction on my part than... Sometimes you have to drag it out (of students), especially on a Monday morning, but Fourth Years would be more interactive.

I have some lessons on Moodle, but the majority of the (material) is just simply (placed for downloading) and Web pages (to be referred to) and stuff like that.

(I teach it that way) because the subject is very practically orientated towards industry...

It's (orientated) towards acquiring skills. Not in the purely theoretical sense, but in a practical sense... that you actually acquire that skill, and the only way of acquiring those skills in Systems Software, and in Second Year C++ programming, is to practice, and more practice, and more practice...

With that in mind, I was aware of that, then, I, in turn, make my labs - my lectures - very practical. I bring in the laptop, I bring in the programs I require, and I load them up. I have, on one screen, the lecture notes, which they all should have, and, on the other screen, I have the actual programs... The two of them can be run (at the same time).

All the stuff is on (Moodle); all the lecture notes, but I also use online quizzes... The online quizzes just allow me to test (the students) on very basic syntax, very basic terms. They need to know the terms because the terms are used in the language and, (as I said before), they need to know the language to know what I'm talking about... So the online quizzes give me the opportunity to see (whether) they understand the terminology.

I would like to have very big group projects, but I just found that, marking group projects is a problem... because I don't know who's done what.

(To assess the module) I use the lab work every week: weekly lab work. They enjoy that too, because they get instant feedback. They get a mark and they know what the mark is there and then.

(Also, online quizzes); this sometimes opens up great debates, especially with multiple choices (as) to the accuracy of each answer. And very often the questions that I make a mistake on, they generate a fair amount of discussion, sometimes heated discussion, but the discussion is taking place.

It's not that critical, but very often... I would say a particular term - what is the closest definition of it? And this very often (causes) some discussion in the class... 'I thought it was A'... 'No, I thought it was B!' At least we got people thinking about it.

The other (type of assessment) is take-home assignments. Again, plagiarism is a problem. It's too difficult to detect the plagiarism, and then to deal with it. I think the dealing with it can be a problem; it's not worth it really, to be quite honest.

It's very difficult to know exactly. I do see ones that are very similar, but taking it any further is a lot of hassle... but it's a very small thing.

But for final year projects, certainly... For these take-home assignments... but I try to encourage them to be honest, to be academically honest, and, generally, if I suspect plagiarism, I won't accuse them of it, but I'll certainly point out the similarities.

(My assessment methods): they're the only ones I know, the only ones I'm familiar with, and they're reasonably easy to do.

The group assignment I've tried doesn't really work. For my subject anyway, it doesn't really work... (in terms of) knowing who was involved, who has done what in that group, and, also, in

constructing that group, (it) can be a problem; you've got (students) saying (they) don't want to be that group and so on...

Sometimes you have a domineering member of that group, and they will simply go the way they're doing it, go the way they do their own work... leaving the weaker ones behind. They'll participate... The weaker student doesn't really gain very much from a group project; that's been my experience. The weaker student will not (gain much) because he'll be dominated.

(These methods for assessment are based on experience and (techniques) that I have discovered over the years.) I don't know of any (alternatives), but I'd be willing to try various methods.

(These methods)... fit (the module topics)... and, also, I'm familiar with them. I'm reasonably confident with them. (Confident) that I'm getting a fair mark assigned to each student. It's (for) fairness, yeah. The student has to be aware that it's a fair mark (that) he's getting. If there is any dispute, I sit the student down and we come to an (agreement). I'm willing to give more marks – it's just, if they are incorrect, at least they learn something by me going through the paper.

I also give written lab (or) class tests. I give those (to Fourth Years). To Second Years... in order to practice for the final exam in the summer, at the end of Semester Two, I give a written class test. Practice, at the end of Semester One, or practice for the end of Semester Two exam.

Curriculum design is really an iterative process; you keep going over and over it again. I've been teaching for a long time, and if I look at the first curriculum, the first syllabus I developed...over the years, that becomes refined. You do it first year, you refine it then, and then, when it comes up for review, you know what are good points and bad points.

Over time it will change. You just keep refining it. (You) look at things that are not working and are maybe not relevant. Maybe far too theoretical... I try to get some interaction (by) using Moodle, (and other online tuition options)...

For us the start point (of curriculum design) is (to discover) what the requirements of industry (are)... I would try to find out (about industry's needs). That's our ethos, here in the School... Industry would (be a) really big influence. There is also academic content, its not purely industry. Industry alone will give you some training... You end up with some training, rather than educating people, so you have to balance it a little bit; as to training and the education.

(Industry influences) the continuous assessment part, mostly. Mostly that: the type of work that they're doing and their requirements: I would try and reflect in the assignments.

(Not necessarily) the entire content, no. I would talk to the externs (external examiners), especially the industrial externs, when they come here, and I show them the assignments and this type of thing, and see what their comments are.

(We use the feedback from industry to help form the continuous assessment description and the design), mostly... That will influence the continuous assessment.

(At that point I would begin to look at content)... definitely, (at) that point.

Learning outcomes, for me, gives me a good focus. (Writing those learning outcomes myself)... that gives me the focus.

(I would base the learning outcomes descriptions on) feedback from industry, partly. They're not just based on what industry said: you would just end up with a training programme, so it's a little bit of both... But I will have my own views of what should be in a curriculum, with respect to education. I would know more about that than industrial externs would... So I have a good mixture of it, but certainly, the learning outcomes, for me, give me a very good focus.

... Then this is what I want the students to do, so I go and I try and design around that entire curriculum - it's a syllabus, say.

For me (the syllabus follows the learning outcomes)... but that wouldn't be everybody's (idea). So I would start there; what am I trying to achieve here? Then start, and the syllabus will be education, plus training in it - educational content.

The assessments mostly fit in with the training requirements of industry.

(I begin with learning outcomes and (continue into teaching)), that's what I do, yeah.

(The learning outcomes influence my design, teaching and assessment of the module) – absolutely. That's where I start from, and then, of course, the syllabus has to reflect those (aspects).

(I do see a connection between learning outcomes, teaching and assessment), of course... I would take that as given. It doesn't make sense; nothing makes sense, if your learning outcomes are completely different from what your course content is, then I don't see any point in having learning outcomes. There's something wrong - the two of those have to be aligned properly.

(It is clear that there is a distinct connection between all three. Following that path between the three of them)... would be my guide for the year.

(I do not make specific reference to each thing in reference to each other) in front of the class, necessarily, but I would certainly look at before I start a new topic. I would say, 'What am I trying to achieve, here?' So I would make reference to (them), by myself, but not necessarily to the class, because the class doesn't, necessarily, understand what that's all about... Not clearly. They don't... They're not capable enough to understand all the 'ins and outs' of that.

(After establishing the module after one year, after using the alignment between the three, I leave it off and work off the experience – but only for) certain aspects of it, but other times I would just go back (to refresh my memory).

When I start a new topic, I quickly have a look again, and see what my learning outcome was... Now, naturally enough, I won't have to do it after three or four years; you have it in your mind, you have it in your head. If it's the first or second year, you'll do that: 'What were your original thoughts on this?' Again, to me, that makes sense. You put a lot of work into it to begin with, two or three years down the line, maybe you've forgotten what you originally felt were... So I have to... have the stuff on (my desk), along with my lecture notes: I have what my learning outcomes are, and what my syllabus is.

(I am familiar with the principle of constructive alignment), yeah. (I have seen that in) Biggs, yeah. I'm familiar with Biggs.

(I do use that principle (of constructive alignment) as part of my (curriculum) design.) Well to me, it's a terribly obvious thing. Like a lot of obvious things, (but) Biggs's was the first to state it.

To me it's an obvious thing to do. Your teaching and your learning activities; everything should be directed towards... Well, what are you trying to do here? Which are your learning outcomes. Without that there's something wrong. Your learning outcomes are X, Y and Z, your teaching and learning activities and assessments are A, B, C; then your making life difficult for yourself. Very difficult for your students as well, so really, for me, learning outcomes are the key to it, and then, when I'm designing things, I have the learning outcomes, and then the teaching and learning activities, and all the assessments for all of those. In order to achieve those. It's such a simple thing; I can't see (why) everybody isn't following constructive alignment.

(Constructive alignment is my responsibility as a lecturer) – oh, absolutely! (And) the students as well. You are a team in this. They have to also play ball with this, and with what you're trying to achieve, and I do that. I say, 'Look, guys, this is what we're trying to achieve.' I don't go along throughout the year, but certainly, at the beginning of the year, I'll say, 'This is what we're trying to achieve here.'

(Constructive alignment should be departmental policy or Institute policy.) I have no doubt it just has to be. Such an obvious thing... It couldn't not be.

I've done constructive alignment for many years without knowing that term. And then Biggs came up with the paper. I've been doing that for years, but I didn't write the paper - Biggs did! (laughs)

... In general teaching (constructive alignment) is not regarded as a very high priority here, to be quite honest... I've been in DIT for a long time, and I've seen the teaching downgraded, in respect to things like research... And that's where it is at, to be quite honest. That's where the credit is at: it's not in teaching, you can teach as much as you want, you can run a course as well as you can, and the students and all appreciate it... Now, are you going to get more credit for that or are you going to get more credit for going to a conference with a paper? The answer is, you're going to get more compliments with a paper, and that's the truth of it, and that's a simple

fact. Now, for me, I've come to teach. I'm teaching, I always will teach - and that will be my priority.

I notice, with new staff, it's not their priority, because they've come up knowing that publications and the research and other activities, other than teaching, is where the credit is at. Now, I'm just saying that as a fact. That's my opinion. I'm bitter about it or anything like that, but I think that's a fact. If I... talked about how well I did in a course, my students or even my Q6's... I've been doing my Q6's every year, I've looked at them and nobody has ever asked me what... except this year; we've been asked to give the Q6B, but I always did that.

To me, getting feedback from students is really important, and the Q6 is a great way of doing it.

I'm not too sure (Management would) have a terribly great interest in constructive alignment, other than (to let) you go ahead and do that...

Management, in my opinion, don't have responsibility for day to day teaching. And, to be fair to them, they're probably snowed under with lots of admin(istration)

When I started, there was no admin, but now there are lots and lots of admin, so they're probably snowed under with lots of stuff. I think we should all be reasonably competent people to take care of our own courses, take ownership of them, and do the best we can. So I don't necessarily think it's management's responsibility to (represent constructive alignment). We're all reasonable people. I would think that it's the course, and the course teams... (It is) up to the individual to look after.

PARTICIPANT 11 - PHENOMENOLOGY

Hermeneutic Phenomenology of Course Module Design First Extraction (Version 1)

Question 1:

Describe your course module design experience.

The design was based on my own experience of what I thought was required

Now, I consulted with one of the external examiners on the Fourth Year (document description)... (but that) wasn't particularly helpful because he wasn't familiar with Linux, (the operating system) - him being a Windows type person, but I got some ideas

(The) major design was really looking... at courses run in other universities, and then... since I have a very good overview of all the course (modules) in DT228; with a view of what they'd be capable of, when they reach Fourth Year, and, also, what I thought would be relevant for people going to industry

(What features were there in the design for that module whenever you wrote it up?)

(The) features really, were lots of assessments, lots of practical lab work for DT228 Year Four, and for DT228 Year Two: both of those are really lab based work, it's very practical, so they need plenty of practice in the lab

... With a view of getting them all into the lab, practice (is) the key... every week we give... not so much assessment, but I assess the work that they do in the lab and then we give them marks

That has actually resulted in lots and lots of increases in attendances, and, also, the lab people that work with me... feel that they are contributing to the labs, and they're quite keen on that technique of getting students into lab as part of continuous assessment, and then giving them marks for... not so much (for) attending, but for the work that they do in that lab

The result is, really that they get... I've got them practicing and their also quite happy that they're getting some continuous assessment marks

(Did your design include module content and a practical perspective on the module?) (There is a very practical perspective on (the module design). Without them attending the lab, without the practical aspects of it... then it really is... in coursework, to be honest, it's very much practical orientated

(Concentrating on the module design), I had to do some of (the module design) from scratch. With a view to... it's a Computer Science course, but it really is Computer Applications

We're not really Computer Science, its Computer Applications, so Computer Science would be very theoretical – this, really, is a mixture, a good mixture of Computer Applications and Computer Science, but towards Computer Applications. So there was some unique aspects in it, yeah, that I had to concentrate on... design myself, yeah

But all the stuff is actually... run in the class, so for Second Year Programming, demonstration programs there actually run, and then people who ask various questions... 'What would happen if..?' I'll change the program and see

Question 2:

Describe your teaching experience.

All the lecture notes (are on the Web page), but I also use online quizzes – (they) just allow me to test them on very basic syntax, very basic terms

They need to know the terms, because the terms are used in the language and they need to know the language to know what I'm talking about

If I'm talking about a particular term then they should be familiar with (it). If they're not they're completely lost... so the online quizzes give me the opportunity to see (whether) they understand the terminology... That's all I use it for

I have some lessons on Moodle. I've put a fair amount of thought (into) teaching, especially the final year

Question 3:

How do you teach that module?

... Those modules, (for example), Systems Software in fourth year; I have practicals two hours per week, (and the) same in second year. Both of those are two hours (of) labs per week

I try and get as many people into those labs (as possible) by assessing the work that they do on the day

(In the) two-hour lectures for both of those courses... sometimes, with fourth years, what I do is; I don't have a classroom lecture - I generally bring them down to the lab... and then we do a lecture-come-practical-demonstration session...

Just purely teaching it by lecturing doesn't work for certain aspects of that course, so I need to go down to the lab and we do it together... (For example, in practical terms); see the effects of x and y and z and so on...

For me, (most of the teaching is done in front of a computer), and, if I'm in the lecture, I will actually run all the software - it can be risky enough, because sometimes you can make a complete mess of it, but all the (examples) are actually run in the class

For second year programming, demonstration programmes actually run, and then people (can) ask various questions, (for example), 'What would happen if...' I'll change the programme and (let them) see.

It's quite good for me as well; the time goes by quite quickly and you can also gauge (whether) they understand it. Sometimes I throw out a question; what would happen if I changed this line? You make it a little bit interactive. Then I actually change the line, so they see it in front of them

(The class session is) very interactive. It's up to them in a sense as well. It's more interaction on my part than... Sometimes you have to drag it out (of students), especially on a Monday morning, but fourth years would be more interactive

Practical demonstration... and that's all I use it for. I have some lessons on Moodle, but the majority of the (material) is just simply downloading and Web pages and stuff like that

Question 4:

Why do you teach it that way?

Because the subject is very practically orientated towards industry, it's towards acquiring skills

Not in the purely theoretical sense, but in a practical sense... that you actually acquire that skill, and the only way of acquiring those skills in Systems Software, and in Second Year C++ programming, is to practice, and more practice, and more practice...

With that in mind, I was aware of that, then, I, in turn, make my labs - my lectures - very practical. I bring in the laptop, I bring in the programs I require, and I load them up

I have, on one screen, the lecture notes, which they all should have, and, on the other screen, I have the actual programs... The two of them can be run (at the same time)

Question 5:

Have you considered teaching alternatives?

There's other things that I do. I use (Moodle on the internet) but I don't like to use WebCT. The reason I don't use WebCT is that I go to China, I go to Tanzania, they can't afford WebCT

All the stuff is on (Moodle); all the lecture notes, but I also use online quizzes... The online quizzes just allow me to test (the students) on very basic syntax, very basic terms. They need to know the terms because the terms are used in the language and they need to know the language to know what I'm talking about. If I'm talking about a particular term then they should be

familiar with if their not their completely lost, so the online test for me, the online quizzes gives me the opportunity to see, did they understand the terminology

(Are there any other methods or approaches that you do not use for the module that you may know of and may use some time?) I don't... (inaudible), to be quite honest

I would like to have very big group projects, but I just found that, marking group projects is a problem. (Why is that?) Because I don't who's done what

Question 6:

How do you assess that module?

I use the lab work every week

Weekly lab work; they enjoy that too, because they get instant feedback. They get a mark and they know what the mark is there and then

(Online quizzes); this sometimes opens up great debates, especially with multiple choices (as) to the accuracy of each answer. And very often the questions that I make a mistake on, they generate a fair amount of discussion, sometimes heated discussion, but the discussion is taking place

If there's anything in doubt I just give them all the one mark

Its not that critical, but very often... I would say a particular term - what is the closest definition of it? And this very often (causes) some discussion in the class... I thought it was A... No, I thought it was B! At least we got people thinking about it.

The other (type of assessment) is take home assignments. Again, plagiarism is a problem

It's too difficult to detect the plagiarism, and then to deal with it. I think the dealing with it can be a problem, it's not worth it really, to be quite honest

It's very difficult to know exactly. I do see ones that are very similar, but taking it any further is a lot of hassle... but it's a very small thing

But for final year projects, certainly... For these take home assignments... but I try to encourage them to be honest, to be academically honest, and, generally, if I suspect plagiarism, I won't accuse them of it, but I'll certainly point out the similarities

Question 7:

How do you choose the assessment method?

(My assessment methods): they're the only ones I know, the only ones I'm familiar with, and they're reasonably easy to do.

The group assignment I've tried doesn't really work. For my subject anyway, it doesn't really work... (in terms of) knowing who was involved, who has done what in that group, and, also, in constructing that group, (it) can be a problem; you've got (students) saying (they) don't want to be that group and so on...

Sometimes you have a domineering member of that group, and they will simply go the way they're doing it, go the way they do their own work... leaving the weaker ones behind. They'll participate... The weaker student doesn't really gain very much from a group project; that's been my experience. The weaker student will not (gain much) because he'll be dominated

(Are your methods for assessment based on experience and (techniques) that you have discovered over the years?) Yeah, yeah

(Are there other methods that you could use but do not; for example, is there anything else you could use as an alternative?) I don't know of any, I don't know of any but I'd be willing to, to try various methods

(These methods)... fit (the module topics)... and, also, I'm familiar with them. I'm reasonably confident with them. (Confident) that I'm getting a fair mark assigned to each student. It's (for) fairness, yeah. The student has to be aware that it's a fair mark (that) he's getting. If there is any dispute, I sit the student down and we come to an (agreement). I'm willing to give more marks – it's just, if they are incorrect, at least they learn something by me going through the paper

I also give written lab (or) class tests. I give those (to fourth years)

To second years... I give them a written... In order to practice for the final exam in the summer, at the end of Semester Two, I give a written class test. Practice, at the end of Semester One, or practice for the end of Semester Two exam

Question 8:

Describe your curriculum design experience

Curriculum design is really an iterative process; you keep going over and over it again. I've been teaching for a long time, and if I look at the first curriculum, the first syllabus I developed...over the years, that becomes refined

You do it first year, you refine it then, and then, when it comes up for review, you know what are good points and bad points

Over time it will change. You just keep refining it. (You) look at things that are not working and are maybe not relevant. Maybe far too theoretical... I try to get some interaction (by) using

Moodle, so things like... especially in Systems Software; some of those concepts have some little videos from YouTube and so on, that you can get onto and have a look at

(When you were dealing with curriculum design, what was your start point?) For us the start point is (to discover) what the requirements of industry (are), that's our ethos

(Would industry influence (your approach?) That is our ethos, so I would try to find out (about industry's needs). That's our ethos, here in the School...

Industry would (be a) really big influence. There is also academic content, its not purely industry. Industry alone will give you some training... You end up with some training, rather than educating people, so you have to balance it a little bit; as to training and the education

(Industry influences) the continuous assessment part, mostly. Mostly that: the type of work that they're doing and their requirements: I would try and reflect in the assignments

(Not necessarily) the entire content, no. I would talk to the externs (external examiners), especially the industrial externs, when they come here, and I show them the assignments and this type of thing, and see what their comments are

(So you take industry into consideration and then use the feedback from industry to help form the continuous assessment description and the design?) Mostly... mostly that will influence the continuous assessment

(At that point would you begin to look at content or something else?) Oh content,... definitely, (at) that point

Question 9:

How do you deal with learning outcomes?

Learning outcomes for me, gives me a good focus. (Do you use them for focus?) For focus

(Would you write those learning outcomes yourself?) Yeah. That gives me the focus

(What would you base the learning outcomes descriptions on?) From feedback from industry, partly. They're not just based on what industry said: you would just end up with a training programme, so it's a little bit of both... But I will have my own views of what should be in a curriculum, with respect to education. I would know more about that than industrial externs would... So I have a good mixture of it, but certainly, the learning outcomes, for me, give me a very good focus

... Then this is what I want the students to do, so I go and I try and design around that entire curriculum - it's a syllabus, say.

(Does the syllabus follow the learning outcomes?) For me it does, but that wouldn't be everybody's, but for me it does, yeah. So I would start there; what am I trying to achieve here? Then start, and the syllabus will be education, plus training in it

(What would education include?) Educational content. Yeah, education content

(And training, of course? You would expect the assessment to fit in.) The assessments mostly fit in with the training requirements of industry

(Do you begin with learning outcomes and (continue into teaching)?) That's what I do. I begin with learning outcomes. (And then the other parts follow?) Yeah

Question 10:

How have you/would you improve module design?

No detailed response.

Question 11:

Are the learning outcomes matched to your teaching and assessment?

(Do the learning outcomes influence your design, teaching and assessment of the module?) Absolutely

(You have partly answered that already.) I've answered that already, yeah, I have. (But the answer is yes?) Absolutely, yes. That's where I start from, and then, of course, the syllabus has to reflect those

(Do you see a connection between learning outcomes, teaching and assessment?) Of course. That's a given. I would take that as given

(You have implied that all the way through.) Yeah, yeah, yeah. It doesn't make sense; nothing makes sense, if your learning outcomes are completely different from what your course content is, then I don't see any point in having learning outcomes. There's something wrong - the two of those have to be aligned properly

(It is clear that there is a distinct connection between all three. Would you follow that path between the three of them?) That would be my guide for the year

(Do you make specific reference to each thing in reference to each other?) Not in front of the class, necessarily, but I would certainly look at before I start a new topic. I would say, 'What am I trying to achieve, here?' So I would make reference to (them), by myself, but not necessarily to the class, because the class doesn't, necessarily, understand what that's all about. (No?) Not clearly. They don't... They're not capable enough to understand all the 'ins and outs' of that

(After establishing the module after one year, after using the alignment between the three, would you leave it off and work off the experience, or would you go back and refresh your memory?) No, no. Certain aspects of it, I would just work off experience, but other times I would just go back.

When I start a new topic, I quickly have a look again, and see what my learning outcome was... Now, naturally enough, I won't have to do it after three or four years; you have it in your mind, you have it in your head. If it's the first or second year, you'll do that: 'What were your original thoughts on this?' Again, to me, that makes sense. You put a lot of work into it to begin with, two or three years down the line, maybe you've forgotten what you originally felt were... So I have to... have the stuff on (my desk), along with my lecture notes: I have what my learning outcomes are, and what my syllabus is

Question 12:

Are you familiar with constructive alignment?

(A constructivist understanding of the nature of learning and a aligned design for outcomes based teaching education: are you familiar with that principle?) Yeah, (I have seen that in) Biggs, yeah. I'm familiar with Biggs. (So you recognise (constructive alignment)?) I 'm familiar with that paper, as well, by Biggs

(Do you use that principle (of constructive alignment) as part of your (curriculum) design?) Well to me, it's a terribly obvious thing. (Obvious?) Terribly obvious. Like a lot of obvious things, (but) Biggs's was the first to state it

To me it's a terribly obvious thing to do. Your teaching and your learning activities; everything should be directed towards... Well, what are you trying to do here? Which are your learning outcomes. Without that there's something wrong. Your learning outcomes are X, Y and Z, your teaching and learning activities and assessments are A, B, C; then your making life difficult for yourself. Very difficult for your students as well, so really, for me, learning outcomes are the key to it, and then, when I'm designing things, I have the learning outcomes, and then the teaching and learning activities, and all the assessments for all of those. In order to achieve those. It's such a simple thing; I can't see (why) everybody isn't following constructive alignment

(Is everybody following constructive alignment?) I can't really answer that. I can't answer that

(Is constructive alignment your responsibility as a lecturer?) Yeah, yeah – oh, absolutely! (Yours, entirely, or does it belong to anyone else?) Oh, the students as well. You are a team in this. They have to also play ball with this, and with what you're trying to achieve, and I do that. I say, 'Look, guys, this is what we're trying to achieve.' I don't go along throughout the year, but certainly, at the beginning of the year, I'll say, 'This is what we're trying to achieve here.'

(Should it be departmental policy or institute policy?) I have no doubt it just has to be. Just has to be. Such an obvious thing, it just has to be. It couldn't not be. I've done constructive alignment for many years without knowing that term. And then Biggs came up with the paper. Gosh, isn't

that terribly obvious? I've been doing that for years, but I didn't write the paper - Biggs did!
(laughs)

(What is your experience of management's attitude, or institutional or departmental attitude, towards constructive alignment?) Well, I think, in general teaching, it is not regarded as a very high priority here, to be quite honest... I've been in DIT for a long time, and I've seen the teaching downgraded, in respect to things like research... And that's where it is at, to be quite honest. That's where the credit is at: it's not in teaching, you can teach as much as you want, you can run a course as well as you can, and the students and all appreciate it... (Yes.) Now, are you going to get more credit for that or are you going to get more credit for going to a conference with a paper? The answer is, you're going to get more compliments with a paper, and that's the truth of it, and that's a simple fact. Now, for me, I've come to teach. I'm teaching, I always will teach - and that will be my priority

I notice, with new staff, it's not their priority, because they've come up knowing that publications and the research and other activities, other than teaching, is where the credit is at. Now, I'm just saying that as a fact. That's my opinion. I'm bitter about it or anything like that, but I think that's a fact. If I... talked about how well I did in a course, my students or even my Q6's... I've been doing my Q6's every year, I've looked at them and nobody has ever asked me what... except this year; we've been asked to give the Q6B, but I always did that

To me, getting feedback from students is really important, and the Q6 is a great way of doing it

I'm not too sure (management would) have a terribly great interest in constructive alignment, other than (to let) you go ahead and do that, I would think

(Is it that management do not have a responsibility for constructive alignment?) No. No, management, in my opinion, don't have responsibility for day to day teaching. And, to be fair to them, they're probably snowed under with lots of admin(istration)

When I started, there was no admin, but now there are lots and lots of admin, so they're probably snowed under with lots of stuff. I think we should all be reasonably competent people to take care of our own courses, take ownership of them, and do the best we can. So I don't necessarily think it's management's responsibility to (represent constructive alignment). We're all reasonable people. I would think that it's the course, and the course teams... (It is) up to the individual to look after

Participant 11

Hermeneutic Phenomenology

Eidetic Reduction for Course Module Design Second Extraction (Version 2)

ESSENTIAL PREDICATES

Participant 11 based the module design on academic experience and observation of modules of other degrees that were comparable to this one.

The design was based on my own experience of what I thought was required. (The) major design was really looking... at courses run in other universities, and then... since I have a very good overview of all the course (modules) in DT228; with a view of what they'd be capable of, when they reach Fourth Year, and, also, what I thought would be relevant for people going to industry.

Participant 11 found it useful to consult with an academic from outside the Institute on the design of the module.

Now, I consulted with one of the external examiners on the Fourth Year (document description)... (but that) wasn't particularly helpful because he wasn't familiar with Linux, (the operating system) - him being a Windows type person, but I got some ideas.

Participant 11 found it useful to establish a module that was mainly practical and lab-based.

(The) features really, were lots of assessments, lots of practical lab work for DT228 Year Four, and for DT228 Year Two: both of those are really lab based work, it's very practical, so they need plenty of practice in the lab. (There is a) very practical perspective on (the module design). Without them attending the lab, without the practical aspects of it... then it really is... in coursework, to be honest, it's very much practical orientated.

Participant 11 found it useful to assess lab work frequently.

... With a view of getting them all into the lab, practice (is) the key... every week we give... not so much assessment, but I assess the work that they do in the lab and then we give them marks.

I try and get as many people into those labs (as possible) by assessing the work that they do on the day.

Participant 11 considered that the lab assistants see the benefit of frequent lab assessments.

That has actually resulted in lots and lots of increases in attendances, and, also, the lab people that work with me... feel that they are contributing to the labs, and they're quite keen on that technique of getting students into lab as part of continuous assessment, and

then giving them marks for... not so much (for) attending, but for the work that they do in that lab.

Participant 11 found that the students prefer to be attaining marks for participation in all labs.
The result is, really that I've got (the students) practicing and they're also quite happy that they're getting some continuous assessment marks.

Participant 11 designed the module from scratch.
(Concentrating on the module design), I had to do some of (the module design) from scratch... It's a Computer Science course, but it really is Computer Applications. Computer Science would be very theoretical – this, really, is a mixture, a good mixture of Computer Applications and Computer Science, but towards Computer Applications. So there was some unique aspects in it, yeah, that I had to concentrate on... design myself...

Participant 11 found it useful to allow lab work to be discursive and to interact with the students via code testing.
But all the stuff is actually... run in the class, so for Second Year Programming, demonstration programs there actually run, and then (the students) ask various questions... 'What would happen if...?' I'll change the program and (demonstrate the results of the experiment).

Participant 11 found it useful to place module content online.
All the lecture notes (are on the Web page), but I also use online quizzes – (they) just allow me to test (the students) on very basic syntax, very basic terms. They need to know the terms, because the terms are used in the language and they need to know the language to know what I'm talking about... so the online quizzes give me the opportunity to see (whether) they understand the terminology... That's all I use it for.

Participant 11 had planned teaching methods meticulously.
I have some lessons on Moodle. I've put a fair amount of thought (into) teaching, especially the final year.

Participant 11 found that some aspects of the module required practical classes.
(In the) two-hour lectures for both of those courses... sometimes, with fourth years, what I do is; I don't have a classroom lecture - I generally bring them down to the lab... and then we do a lecture-come-practical-demonstration session... Just purely teaching it by lecturing doesn't work for certain aspects of that course, so I need to go down to the lab and we do it together... (For example, in practical terms); see the effects of X and Y and Z and so on...

Participant 11 found it useful to run the experiments online during class time.
For me, (most of the teaching is done in front of a computer), and, if I'm in the lecture, I will actually run all the software - it can be risky enough, because sometimes you can make a complete mess of it, but all the (examples) are actually run in the class.

Participant 11 found it useful to gather feedback from students during experiments.

It's quite good for me as well; the time goes by quite quickly and you can also gauge (whether) they understand it. Sometimes I throw out a question; what would happen if I changed this line? You make it a little bit interactive. Then I actually change the line, so they see it in front of them.

Participant 11 found that interactive teaching required some effort on his or her part.
(The class session is) very interactive. It's up to them in a sense as well. It's more interaction on my part than... Sometimes you have to drag it out (of students), especially on a Monday morning, but Fourth Years would be more interactive.

Participant 11 found it useful to use the Internet to reinforce learning.
I have some lessons on Moodle, but the majority of the (material) is just simply (placed for downloading) and Web pages (to be referred to) and stuff like that.

Participant 11 saw a clear link between this module and industry.
(I teach it that way) because the subject is very practically orientated towards industry...

Participant 11 saw the module as being a means of programming skill acquisition.
It's (orientated) towards acquiring skills. Not in the purely theoretical sense, but in a practical sense... that you actually acquire that skill, and the only way of acquiring those skills in Systems Software, and in Second Year C++ programming, is to practice, and more practice, and more practice...

Participant 11 found it useful to use mainly practically oriented teaching methods.
With that in mind, I was aware of that, then, I, in turn, make my labs - my lectures - very practical. I bring in the laptop, I bring in the programs I require, and I load them up. I have, on one screen, the lecture notes, which they all should have, and, on the other screen, I have the actual programs... The two of them can be run (at the same time).

Participant 11 found online quizzes a useful means of determining students' understanding of program syntax.
All the stuff is on (Moodle); all the lecture notes, but I also use online quizzes... The online quizzes just allow me to test (the students) on very basic syntax, very basic terms. They need to know the terms because the terms are used in the language and, (as I said before), they need to know the language to know what I'm talking about... So the online quizzes give me the opportunity to see (whether) they understand the terminology.

Participant 11 was concerned about plagiarism in coursework.
I would like to have very big group projects, but I just found that, marking group projects is a problem... because I don't who's done what.

Participant 11 found that students appreciated quick feedback on their assessment work.
(To assess the module) I use the lab work every week: weekly lab work. They enjoy that too, because they get instant feedback. They get a mark and they know what the mark is there and then.

Participant 11 found that online quizzes caused discussion to be generated.

(Also, online quizzes); this sometimes opens up great debates, especially with multiple choices (as) to the accuracy of each answer. And very often the questions that I make a mistake on, they generate a fair amount of discussion, sometimes heated discussion, but the discussion is taking place.

It's not that critical, but very often... I would say a particular term - what is the closest definition of it? And this very often (causes) some discussion in the class... 'I thought it was A'... 'No, I thought it was B!' At least we got people thinking about it.

Participant 11 found it difficult to deal with plagiarism judiciously.

The other (type of assessment) is take-home assignments. Again, plagiarism is a problem. It's too difficult to detect the plagiarism, and then to deal with it. I think the dealing with it can be a problem; it's not worth it really, to be quite honest. It's very difficult to know exactly. I do see ones that are very similar, but taking it any further is a lot of hassle... but it's a very small thing.

But for final year projects, certainly... For these take-home assignments... but I try to encourage them to be honest, to be academically honest, and, generally, if I suspect plagiarism, I won't accuse them of it, but I'll certainly point out the similarities.

Participant 11 based his or her assessment methods on academic experience.

(My assessment methods): they're the only ones I know, the only ones I'm familiar with, and they're reasonably easy to do.

Participant 11 found that group work does not suit this module.

The group assignment I've tried doesn't really work. For my subject anyway, it doesn't really work... (in terms of) knowing who was involved, who has done what in that group, and, also, in constructing that group, (it) can be a problem; you've got (students) saying (they) don't want to be that group and so on...

Participant 11 was aware of the importance of including consideration for weaker students in assessment methods.

Sometimes you have a domineering member of that group, and they will simply go the way they're doing it, go the way they do their own work... leaving the weaker ones behind. They'll participate... The weaker student doesn't really gain very much from a group project; that's been my experience. The weaker student will not (gain much) because he'll be dominated.

Participant 11 was willing to experiment with assessment method alternatives.

(These methods for assessment are based on experience and (techniques) that I have discovered over the years.) I don't know of any (alternatives), but I'd be willing to try various methods.

Participant 11 considered the assessment methods to be fair and equitable.

(These methods) ... fit (the module topics) ... and, also, I'm familiar with them. I'm reasonably confident with them. (Confident) that I'm getting a fair mark assigned to each student. It's (for) fairness, yeah. The student has to be aware that it's a fair mark (that) he's getting. If there is any dispute, I sit the student down and we come to an (agreement). I'm willing to give more marks – it's just, if they are incorrect, at least they learn something by me going through the paper.

Participant 11 found it useful to use class tests as a precursor to the end-of-year examination.

I also give written lab (or) class tests. I give those (to Fourth Years). To Second Years... in order to practice for the final exam in the summer, at the end of Semester Two, I give a written class test. Practice, at the end of Semester One, or practice for the end of Semester Two exam.

Participant 11 found that curricula designs evolve from years of teaching and syllabus development experience.

Curriculum design is really an iterative process; you keep going over and over it again. I've been teaching for a long time, and if I look at the first curriculum, the first syllabus I developed...over the years, that becomes refined. You do it first year, you refine it then, and then, when it comes up for review, you know what are good points and bad points.

Over time it will change. You just keep refining it. (You) look at things that are not working and are maybe not relevant. Maybe far too theoretical... I try to get some interaction (by) using Moodle, (and other online tuition options)...

Participant 11 found it useful to begin curriculum design with the requirements of industry and build academic content on it.

For us the start point (of curriculum design) is (to discover) what the requirements of industry (are)... I would try to find out (about industry's needs). That's our ethos, here in the School... Industry would (be a) really big influence. There is also academic content, its not purely industry. Industry alone will give you some training... You end up with some training, rather than educating people, so you have to balance it a little bit; as to training and the education.

Participant 11 saw a clear link between the continuous assessment and industry.

(Industry influences) the continuous assessment part, mostly. Mostly that: the type of work that they're doing and their requirements: I would try and reflect in the assignments.

(Not necessarily) the entire content, no. I would talk to the externs (external examiners), especially the industrial externs, when they come here, and I show them the assignments and this type of thing, and see what their comments are.

(We use the feedback from industry to help form the continuous assessment description and the design), mostly... That will influence the continuous assessment.

Participant 11 found it useful to allow industry to influence his or her module content.

(At that point I would begin to look at content)... definitely, (at) that point.

Participant 11 found learning outcome gave focus for the module.

Learning outcomes, for me, gives me a good focus. (Writing those learning outcomes myself)... that gives me the focus.

Participant 11 would base his or her learning outcomes on influences from industry.

(I would base the learning outcomes descriptions on) feedback from industry, partly. They're not just based on what industry said: you would just end up with a training programme, so it's a little bit of both... But I will have my own views of what should be in a curriculum, with respect to education. I would know more about that than industrial externs would... So I have a good mixture of it, but certainly, the learning outcomes, for me, give me a very good focus.

Participant 11 would follow learning outcomes with a syllabus description in curriculum design.

... Then this is what I want the students to do, so I go and I try and design around that entire curriculum - it's a syllabus, say.

For me (the syllabus follows the learning outcomes)... but that wouldn't be everybody's (idea). So I would start there; what am I trying to achieve here? Then start, and the syllabus will be education, plus training in it - educational content.

Participant 11 saw a link between industry and assessment.

The assessments mostly fit in with the training requirements of industry.

Participant 11 designed curricula so that learning outcomes constructively aligned with teaching and assessment.

(I begin with learning outcomes and (continue into teaching)), that's what I do, yeah.

(The learning outcomes influence my design, teaching and assessment of the module) – absolutely. That's where I start from, and then, of course, the syllabus has to reflect those (aspects).

Participant 11 saw constructive alignment 'as a given'.

(I do see a connection between learning outcomes, teaching and assessment), of course... I would take that as given. It doesn't make sense; nothing makes sense, if your learning outcomes are completely different from what your course content is, then I don't see any point in having learning outcomes. There's something wrong - the two of those have to be aligned properly.

Participant 11 used constructive alignment as a teaching guide throughout the year.

(It is clear that there is a distinct connection between all three. Following that path between the three of them)... would be my guide for the year.

Participant 11 found it useful to refer to learning outcomes at the start of a semester but not to involve the students.

(I do not make specific reference to each thing in reference to each other) in front of the class, necessarily, but I would certainly look at before I start a new topic. I would say, 'What am I trying to achieve, here?' So I would make reference to (them), by myself, but not necessarily to the class, because the class doesn't, necessarily, understand what that's all about... Not clearly. They don't... They're not capable enough to understand all the 'ins and outs' of that.

Participant 11 found that he or she was able to work from memory of learning outcomes when the module had become established.

(After establishing the module after one year, after using the alignment between the three, I leave it off and work off the experience – but only for) certain aspects of it, but other times I would just go back (to refresh my memory).

When I start a new topic, I quickly have a look again, and see what my learning outcome was... Now, naturally enough, I won't have to do it after three or four years; you have it in your mind, you have it in your head. If it's the first or second year, you'll do that: 'What were your original thoughts on this?' Again, to me, that makes sense. You put a lot of work into it to begin with, two or three years down the line, maybe you've forgotten what you originally felt were... So I have to... have the stuff on (my desk), along with my lecture notes: I have what my learning outcomes are, and what my syllabus is.

Participant 11 was aware of constructive alignment and was familiar with John Biggs' book. *(I am familiar with the principle of constructive alignment), yeah. (I have seen that in) Biggs, yeah. I'm familiar with Biggs.*

Participant 11 saw constructive alignment as necessary to curriculum design. *(I do use that principle (of constructive alignment) as part of my (curriculum) design.) Well to me, it's a terribly obvious thing. Like a lot of obvious things, (but) Biggs's was the first to state it.*

Participant 11 saw constructive alignment as being an obvious benefit to curriculum design. *To me it's an obvious thing to do. Your teaching and your learning activities; everything should be directed towards... Well, what are you trying to do here? Which are your learning outcomes. Without that there's something wrong. Your learning outcomes are X, Y and Z, your teaching and learning activities and assessments are A, B, C; then your making life difficult for yourself. Very difficult for your students as well, so really, for me, learning outcomes are the key to it, and then, when I'm designing things, I have the learning outcomes, and then the teaching and learning activities, and all the assessments for all of those. In order to achieve those. It's such a simple thing; I can't see (why) everybody isn't following constructive alignment.*

Participant 11 felt the lecturer, as module designer, to be responsible for constructive alignment. *(Constructive alignment is my responsibility as a lecturer) – oh, absolutely! (And) the students as well. You are a team in this. They have to also play ball with this, and with what you're trying to achieve, and I do that. I say, 'Look, guys, this is what we're trying*

to achieve.' I don't go along throughout the year, but certainly, at the beginning of the year, I'll say, 'This is what we're trying to achieve here.'

Participant 11 felt that constructive alignment ought to be departmental policy.

(Constructive alignment should be departmental policy or Institute policy.) I have no doubt it just has to be. Such an obvious thing... It couldn't not be.

Participant 11 felt that he or she had been constructively aligning modules for years without knowing the term.

I've done constructive alignment for many years without knowing that term. And then Biggs came up with the paper. I've been doing that for years, but I didn't write the paper - Biggs did! (laughs)

Participant 11 felt that efforts in curriculum design are overshadowed by efforts in research in our department.

... In general teaching (constructive alignment) is not regarded as a very high priority here, to be quite honest... I've been in DIT for a long time, and I've seen the teaching downgraded, in respect to things like research... And that's where it is at, to be quite honest. That's where the credit is at: it's not in teaching, you can teach as much as you want, you can run a course as well as you can, and the students and all appreciate it... Now, are you going to get more credit for that or are you going to get more credit for going to a conference with a paper? The answer is, you're going to get more compliments with a paper, and that's the truth of it, and that's a simple fact. Now, for me, I've come to teach. I'm teaching, I always will teach - and that will be my priority.

Participant 11 considered that quality in curriculum design is more important than research publication to the Department.

I notice, with new staff, it's not their priority, because they've come up knowing that publications and the research and other activities, other than teaching, is where the credit is at. Now, I'm just saying that as a fact. That's my opinion. I'm not bitter about it or anything like that, but I think that's a fact. If I... talked about how well I did in a course, my students or even my Q6's... I've been doing my Q6's every year, I've looked at them and nobody has ever asked me what... except this year; we've been asked to give the Q6B, but I always did that.

Participant 11 found it useful to gather feedback from students, asking them to specify what they found good and bad about the module.

To me, getting feedback from students is really important, and the Q6 is a great way of doing it.

Participant 11 felt that Management might not be concerned with constructive alignment.

I'm not too sure (Management would) have a terribly great interest in constructive alignment, other than (to let) you go ahead and do that...

Participant 11 felt that Management might have responsibilities that precluded an interest in constructive alignment.

Management, in my opinion, don't have responsibility for day to day teaching. And, to be fair to them, they're probably snowed under with lots of admin(istration).

Participant 11 feels that lecturers should take responsibility for the design of their own modules.

When I started, there was no admin, but now there are lots and lots of admin, so they're probably snowed under with lots of stuff. I think we should all be reasonably competent people to take care of our own courses, take ownership of them, and do the best we can. So I don't necessarily think it's Management's responsibility to (represent constructive alignment). We're all reasonable people. I would think that it's the course, and the course teams... (It is) up to the individual to look after.

MEANINGS SUMMARY FOR PARTICIPANT 11

Participant 11 is student-centred in their perspective on teaching, assessment and curriculum design. Participant 11 is very familiar with constructive alignment and advocates alignment strongly

Hermeneutic Phenomenology

Essences and Meanings for Interview Participant 11

Eidetic Reduction for Course Module Design

Third Extraction

Participant 11

- based the module design on academic experience and observation of modules of other degrees that were comparable to this one.
- found it useful to consult with an academic from outside the Institute on the design of the module.
- found it useful to establish a module that was mainly practical and lab-based.
- found it useful to assess lab work frequently.
- considered that the lab assistants see the benefit of frequent lab assessments.
- found that the students prefer to be attaining marks for participation in all labs.
- designed the module from scratch.
- found it useful to allow lab work to be discursive and to interact with the students via code testing.
- found it useful to place module content online.
- had planned teaching methods meticulously.
- found that some aspects of the module required practical classes.
- found it useful to run the experiments online during class time.
- found it useful to gather feedback from students during experiments.
- found that interactive teaching required some effort on his or her part.
- found it useful to use the Internet to reinforce learning.
- saw a clear link between this module and industry.
- saw the module as being a means of programming skill acquisition.

- found it useful to use mainly practically oriented teaching methods.
- found online quizzes a useful means of determining students' understanding of program syntax.
- was concerned about plagiarism in coursework.
- found that students appreciated quick feedback on their assessment work.
- found that online quizzes caused discussion to be generated.
- found it difficult to deal with plagiarism judiciously.
- based his or her assessment methods on academic experience.
- found that group work does not suit this module.
- was aware of the importance of including consideration for weaker students in assessment methods.
- was willing to experiment with assessment method alternatives.
- considered the assessment methods to be fair and equitable.
- found it useful to use class tests as a precursor to the end-of-year examination.
- found that curricula designs evolve from years of teaching and syllabus development experience.
- found it useful to begin curriculum design with the requirements of industry and build academic content on it.
- saw a clear link between the continuous assessment and industry.
- found it useful to allow industry to influence his or her module content.
- found learning outcome gave focus for the module.
- would base his or her learning outcomes on influences from industry.
- would follow learning outcomes with a syllabus description in curriculum design.
- saw a link between industry and assessment.

- designed curricula so that learning outcomes constructively aligned with teaching and assessment.
- saw constructive alignment 'as a given'.
- used constructive alignment as a teaching guide throughout the year.
- found it useful to refer to learning outcomes at the start of a semester but not to involve the students.
- found that he or she was able to work from memory of learning outcomes when the module had become established.
- was aware of constructive alignment and was familiar with John Biggs' book.
- saw constructive alignment as necessary to curriculum design.
- saw constructive alignment as being an obvious benefit to curriculum design.
- felt the lecturer, as module designer, to be responsible for constructive alignment.
- felt that constructive alignment ought to be departmental policy.
- felt that he or she had been constructively aligning modules for years without knowing the term.
- found that efforts in curriculum design are overshadowed by efforts in research in our department.
- felt that quality in curriculum design is more important than research publication to the Department.
- found it useful to gather feedback from students, asking them to specify what they found good and bad about the module.
- found that Management might not be concerned with constructive alignment.
- felt that Management might have responsibilities that precluded an interest in constructive alignment.
- felt that lecturers should take responsibility for the design of their own modules.

MEANINGS SUMMARY FOR PARTICIPANT 11

Participant 11 is student-centred in their perspective on teaching, assessment and curriculum design. Participant 11 is very familiar with constructive alignment and advocates alignment strongly

APPENDIX - F

INITIAL REPORT

These are descriptions of issues identified by reading and rereading the first four of twelve transcripts of interviews with individuals for a qualitative research project.

For this initial report the issues are listed as they occur in the reading of the transcripts.

The categories identified generally are:

1. Course Design
2. Teaching and Learning
3. Assessment
4. Constructive Alignment
5. Other Issues for Lecturers

1. Course Design

- 1.1 Use of previous module design documents
- 1.2 Beginning with learning outcomes, 'working backwards' towards content
- 1.3 Personal, professional experience as a guide
- 1.4 Acknowledging 'Inter-module links' across the programme
- 1.5 Acknowledging a need for flexibility
- 1.6 Acknowledging the changeability of the field of Computing
- 1.7 Modularisation and its 'time-constraints'
- 1.8 Using design as guidance for module delivery
- 1.9 Collaboration/discussion with peers, making external consultation
- 1.10 Using prescribed guidelines
- 1.11 Using constructive feedback from students (and being student-centred)
- 1.12 Acknowledging the 'Lifespan' of a course design

1.13 Using constructive alignment in design

2. Teaching and Learning

2.1 Influence of learning outcomes on module delivery

2.2 Preferring traditional lectures

2.3 Making reference to learning outcomes

2.4 Using discussion and interaction in class

2.5 Trying to improve student motivation

2.6 Considering the pace of delivery

2.7 Giving student feedback

2.8 Acknowledging the practical (skill-based) aspects of the module

2.9 Using a problem-based teaching approach

2.10 Using an industry-influenced teaching approach

2.11 Inviting guest lecturers

3. Assessment

3.1 Acknowledging the assessment of technical skill

3.2 Acknowledging the proportion of marks as important

3.2 Matching written exams to content

4. Constructive Alignment

4.1 Acknowledging the importance of constructive alignment to curriculum design

4.2 Aligning learning outcomes with module content/teaching

- 4.3 Aligning learning outcomes with assessment
- 4.4 Aligning continuous assessment with content
- 4.5 Aligning content with assessment
- 4.6 Considering constructive alignment over all modules and all levels
- 4.7 Lecturers need to accept constructive alignment (- 'buy into it')
- 4.8 Constructive alignment needs resources

5. Other Issues for Lecturers

- 5.1 High attrition rates
- 5.2 Emergent technologies
- 5.3 Links to industry

INTERMEDIATE REPORT

1. Course Design

Use of previous module design 2 3 (or not)

LO – Content, ‘working backwards’ 2

LO is v important (integral) to design -CORE

Student feedback (Student-centred)

Personal experience 2 3

Inter-module links 2

Student feedback (Student-centred) 3

Flexibility

Changeability

Modularisation and its ‘time-constraints’

Design as guidance

Collaboration (peer-discussion)/consultation/guidelines

‘Lifespan’

C A in design 2 (or not used)

Assessment is central

Industry-influenced design approach

CA, horizontal and vertical

Lecturer freedom

Generic module descriptors

Use of module design template

2. Teaching and Learning

Influence of learning outcomes

Traditional lectures 3

Discussion and interaction 2

Content online

Reference to learning outcomes

Student motivation

Pace of delivery 2

Student feedback

Practical (skill-based)

Personal experience

Problem-based teaching approach

Industry-influenced teaching approach

Guest lecturers

Encourage creativity

Challenge students

LO met through teaching – incidentally

Alternative teaching meth

3. Assessment

Assessment of tech skill

Concern about plagiarism 2

Proportion of marks as important

Exam for content

Reference to learning outcomes

Influence of learning outcomes

Cont Ass only

'Overassessment' problem

Separation of practical and theoretical

4. Constructive Alignment

Important to curriculum design

LO and content 2/teaching

LO and assessment 2

Cont Assess with content

Content with assessment 3

CA over all modules and all levels

Lecturers need to accept CA (buy into it)

CA needs resources 3

5. Other

High attrition rates

Emergent technologies

Links to industry 3

FINAL REPORT

These are descriptions of issues identified by reading and rereading the last four of twelve transcripts of interviews with individuals for a qualitative research project. (For participants 9 - 12 or I – L.)

For this final report the list of issues of the Intermediate Report is reviewed – the list added to and reduced whereby appropriate. The reduction is made by removing items that occur only once and have no pejorative effect on the category. Each item is placed in order of recurrence in the further reading of the transcripts.

The five categories identified remain the same.

1. Course Design

- 1.1 Use of previous module design documents
- 1.2 Personal, professional experience as a guide
- 1.3 Using constructive feedback from students (and being student-centred)
- 1.4 Beginning with learning outcomes, ‘working backwards’ towards content
- 1.5 Acknowledging ‘Inter-module links’ across the programme
- 1.6 Acknowledging learning outcomes as important – integral - to module design
- 1.7 Using constructive alignment in design
- 1.8 Using an industry-influenced design approach
- 1.9 Modularisation and its ‘time-constraints’
- 1.10 Acknowledging the changeability of the field of Computing
- 1.11 Acknowledging the ‘lifespan’ of a course design
- 1.12 Acknowledging a need for flexibility
- 1.13 Collaboration/discussion with peers, making external consultation
- 1.14 Using prescribed guidelines (or generic module descriptors)

2. Teaching and Learning

- 2.1 Using discussion and interaction in class
- 2.2 Preferring traditional lectures
- 2.3 Acknowledging the practical (skill-based) aspects of the module
- 2.4 Placing module content online
- 2.5 Considering the pace of delivery
- 2.6 Giving student feedback
- 2.7 Influence of learning outcomes on module delivery
- 2.8 Making reference to learning outcomes
- 2.9 Inviting guest lecturers
- 2.10 Considering alternative teaching methods
- 2.11 Using varied teaching methods
- 2.12 Using a problem-based teaching approach
- 2.13 Using an industry-influenced teaching approach
- 2.14 Using personal, professional experience

3. Assessment

- 3.1 Concern about plagiarism by students
- 3.2 Giving feedback to students
- 3.3 Making reference to learning outcomes
- 3.4 Allowing learning outcomes to influence assessment
- 3.5 Preferring to use continuous assessment only
- 3.6 Acknowledging the proportion of marks as important

- 3.7 Using alternative assessment methods
- 3.8 Using group work
- 3.9 Matching written exams to content
- 3.10 Acknowledging the assessment of technical skill
- 3.11 Using online assessment

4. Constructive Alignment

- 4.1 Aligning learning outcomes with assessment
- 4.2 Aligning learning outcomes with module content/teaching
- 4.3 Aligning continuous assessment with content
- 4.4 Aligning content with assessment
- 4.5 Acknowledging the importance of constructive alignment to curriculum design
- 4.6 Constructive alignment needs resources
- 4.7 Considering '3D alignment': constructive alignment, horizontal alignment and vertical alignment (Over all modules and all levels)
- 4.8 Lecturers need to accept constructive alignment (- 'buy into it')
- 4.9 Constructive alignment through collaboration with peers
- 4.10 Constructive alignment for professional accreditation

5. Other Issues for Lecturers

- 5.1 Links to industry
- 5.2 High attrition rates
- 5.3 Emergent technologies

APPENDIX - G

Interview Set 2 - Questions for Lecturers

Curriculum Design Analysis - Through Hermeneutic Phenomenology - Using Phenomenological Questioning - and Following Interview Set 1

Questions for Lecturers

The lecturer, having chosen one course module previously designed by them for discussion, would have received a list of aspects for discussion. These aspects would have been chosen by the researcher based on issues arising from the literature review AND the previous 12 interviews reviewed and analysed. There follows fifteen broad, discursive questions for the phenomenological interviews:

1. Please describe briefly the module which you have chosen as the one that you have designed.
2. How did you go about designing this module?
(Looking for a description in terms of:
How learning outcomes were written
How assessment was developed
How teaching and learning was included
and with consideration of:
3. Who was involved
Documents that might have been used
and whether there was any evaluation/feedback by anybody)
4. Why do/did you design your module(s) this way?
5. What was it like to design this module?
6. What was difficult about the module design?
7. Do you use this process with all modules?
8. What did you learn from your designing of the module(s)?

9. How do you consider the student in your module design?
10. How did the process of your module design affect the implementation of the module?
11. What, if anything, would you do differently in a future module design?
12. Are you happy with the curriculum design process?
13. Issues important to lecturers are:
 - Student attrition rates
 - Plagiarism
 - Giving feedback
 - Marking schemes
 - Using different assessment methods
 - How have you found that these relate to module design?
14. Are you proud of your module design?
15. Do you feel that you have changed personally due to the design experience?
16. Is there anything you wish to add?

APPENDIX - H

Interview Transcript Example – Interview Set 2

Hermeneutic Phenomenology Interviews 2011

PARTICIPANT ELEVEN

Interviewer/Researcher (R): This is Tuesday 14th June, 2011, and I'm here with Participant 11 to discuss some aspects of curriculum design. The first question, please, Participant 11, is to briefly describe the module that you have chosen as the one that you have designed from scratch. Or that you have designed, generally.

Participant 11 (P 11): So you want me to give a, give a brief description?

(R): Yes, a brief description.

(P 11): OK. So what is module does, is, actually, erm, builds on Programming. Erm. So you want to have a, a good skill set, already, in Programming. And the idea is, how do you go and install the programs that you've actually developed? From a user's point of view. From a security point of view.

(R): OK.

(P 11): So those two points, from usability, ease of which the thing can be installed. Programs that are not easy to install never get used.

(R): Is this in Third Year or Fourth Year, or both?

(P 11): Third year. Yeah, Third Year.

(R): Third Year, OK. And how did you go about designing the module?

(P 11): Er. Designing the module was to have a look at existing software for installation. Existing software, how it was maintained, and then, have a look at the tools and the techniques that is in the literature and is in existence, already, to software. And saying, 'Well, how do I go about teaching how to do that?' So it was really from that practical point of view, and considering, how do people do it? And then, these other techniques that I teach. It's not programming. I don't teach programming. I teach the techniques, it's really a Programming Techniques...

(R): So it's a very technical course - a very technical module?

(P 11): It's a technical module, yeah.

(R): Alright. Far more technical than theoretical?

(P 11): Oh, absolutely, yes. Practical more than theoretical, you know, absolutely. Yes, yes. You, you need to be in the lab, you know?

(R): Alright.

(P 11): You need to be in the labs, and, er, the exam, itself, is a practical exam. It's not, it's not – it's something that you can't write about.

(R): OK. What did you begin the module descriptor with? Did to begin it with, er, a list of books and journals, or did you have another starting point?

(P 11): Pauses. What did I begin it with? For the description?

(R): Yes. Did you gather the content?

(P 11): Oh, y- I, I gathered the content first, and then we wrote the description.

(R): OK, so content came first?

(P 11): Content. Absolutely, yes. Yes.

(R): Alright, and then...?

(P 11): And then say, 'Well, what are we trying to do here, and this. Well, before the content, actually, is, really, the research, or finding out, you know, what are the techniques that are currently being used. So if you - that's, really, is the content.

(R): OK.

(P 11): And then... the description.

(R): How did you collect the, erm, the, the outline of the techniques? Did you talk to somebody, or did you, er, find them from journal articles?

(P 11): Well, I knew some of them, myself, right? Some of them were from journals, some of them are, er, are on the Web. I had a look at how, erm, Microsoft actually implement their installation procedures. Linux procedures are well-known, erm, and... So I picked up on those.

(R): OK. Did you have a chat with anybody from outside here?

(P 11): Only myself and 'D', that was it. Nobody else at DIT, no.

(R): OK, so you participated in discussions with one other person?

(P 11): One other person – at least, well two, two, actually.

(R): OK, and were those, those were both people from the (Computing) Department?

(P 11): They were. From within the School, yeah.

(R): Did you consult them because of their knowledge and expertise in a similar area?

(P 11): Yes. Of course, yeah.

(R): Oh, OK. And, er, did you, did you organise formal meetings, or was this just, er, informal discussions?

(P 11): (Pauses) Uuhm. Mostly by e-mail. Sometimes by phone. There was no meeting, I didn't say, 'Look, 2 o'clock, Wednesday, we, we'll get together on that.' There wasn't any great need for it, now, to be honest.

(R): Oh, why was that? Because, er, you had...

(P 11): We could do it, actually, electronically, just as well.

(R): OK. Right.

(P 11): You know, erm, that was it. There was no need for an hour's meeting or anything like that.

(R): Did you e-mail over and back, with attachments that was content and, er, Web pages and things like that?

(P 11): Yes. Yeah.

(R): So the, sort of, the consultations, if you want to call them that, were informal and, and fairly brief?

(P 11): Well, when you say informal...?

(R): Yes, you didn't organise meetings with minutes, or anything like that.

(P 11): No.

(R): And did you, er, were you working to a deadline, er, a particular date?

(P 11): Yes.

(R): And how did you find that?

(P 11): Short.

(R): OK. Did the shortness cause you any...?

(P 11): Stress? Yes.

(R): Oh – stress? OK.

(P 11): Of course he did, yes. (Laughs) You would have liked to (be able to) do a bit more, but then I got the opportunity to, to, erm... Having taught it once, I actually got the opportunity, then, to, to make those little changes.

(R): When did you get the opportunity to make the changes?

(P 11): On the last, our last review. A couple of weeks ago.

(R): So it was, how long later?

(P 11): A year.

(R): A year later?

(P 11): Nearly a year later, yeah.

(R): And was that because the course had been running, and you saw some elements...?

(P 11): Yes. That's right, yeah!

(R): OK, so the...

(P 11): Then, even further, I found out more. Little bits about the, the actual topic that I hadn't been aware of. So I did a bit of reading into those.

(R): Alright. So you mentioned that you found the, erm, the writing of the module descriptors stressful. Is that fair to...?

(P 11): No, no. Only in that we had to have it done by a particular date. D'you know? Apart from that...

(R): Alright. What was going on (at that time) that would have added to the, er, complications?

(P 11): We were, we were actually marking scripts.

(R): Right. So it was during script marking time?

(P 11): Yeah. It was. It was actually - so that original, the original, er, module was written last May. It had to be, had to be passed by the College before the 1st September, so...

(R): So it was during -

(P 11): The (incoherent) was on at the same time, so you had to write the module at the same time as question scripts.

(R): So was that what caused the, the... let's call it stress?

(P 11): Yes. Yeah.

(R): OK, and, er, did the then the, er... Did you find that, working, that you had a priority with other jobs?

(P 11): Yes.

(R): OK, so...

(P 11): Ah... Well, no, to be fair, because I knew I would be teaching it, then I paid particular attention to it. No. The - that was equal priority, because, if you get the thing wrong, it's just... I knew it would be a mess for the entire year, so I did some genuine thinking about this, erm, this particular module, and, erm, because I, I knew I would have to teach it.

(R): Right.

(P 11): And so things had to be right in the syllabus. They - definitely, you know, erm. The module content had to be something that I knew was going to be relevant, because I was going to be teaching it in September. So, erm...

(R): And were you writing it as a modularised course?

(P 11): Yes.

(R): Had it been a year-long course previously?

(P 11): No. It was its first time to be run.

(R): Alright, so, erm, you designed it with the modular, thirteen-week, er, structure in (mind)?

(P 11): Yes. Yes.

(R): And how did you find that?

(P 11): What, running the course or...?

(R): Oh. Designing the module with the thirteen-week...

(P 11): Yeah, thirteen weeks is very short, you know? Erm, er... (Pauses) You just simply get used to what you think you, you can actually fit into the module content. And add a little bit more, so that, if, erm, you know, things take shorter than you expect, then you've also got another, a few little things in the, in the content- which students don't mind if you don't cover.

(R): Right.

(P 11): You know, so it was a little bit of leeway. Erm. But with experience, I mean, experience of teaching you shouldn't, you should be able to figure out what should be in Week 1, and what should be in Week 2. So I went through all the thirteen weeks and looked at what I had in the content, and, erm, matched the weeks by the, by what was in the content. And it worked out fairly close to that. Fairly close to it.

(R): Alright. So did you make the comparison, in your own mind, with the module, if it had been running for a year, what you could have done in, in a year-long course?

(P 11): No.

(R): No? OK.

(P 11): No, I never did that. No. There was no reason for me to do that.

(R): I suppose not, no.

(P 11): No, I didn't, er, I didn't see any point in saying, 'Well, if this was running for a year...'
No.

(R): Do you find, erm, modules in a semester... Do you find modules that run in a single semester, do you find them restricted - or restrictive?

(P 11): Well, what I do find is that students who are pretty who are, let's say, weak, right? Previously, over a year, they would have picked up the subject. And I would have been able to bring them along. Erm, on all modules, I just find the thirteen weeks, (Pauses, puffs) you might recognise somebody, after the first assessment, (that) they are weak, they need extra help. But that might be Week 5 or 6, which is nearly half way through the module.

(R): Right.

(P 11): So you haven't got that time had be helping students who, previously, would be, for the want of a better word, slow learners, but not that slow. You know, erm, and you didn't get to know the students sufficiently enough, within thirteen weeks, to be able to say, 'Look, you know, these students don't quite get it.' And it's very hard for them to recover. They miss, they miss two or three weeks – that's a quarter of the course.

(R): OK.

(P 11): That's 25% of the course! Wow!

(R): Yes.

(P 11): You know, that's quite substantial.

(R): Alright. Erm. Do find that that's a teaching issue, or a design issue?

(P 11): Well, the two of them are related, anyway.

(R): OK. I'm glad you said that. (Laughs)

(P 11): The two of them - of course, yeah, I mean, you teach, you design - you design it to teach. You're designing for teaching, so... Whatever!

(R): Yes.

(P 11): Yeah. Yeah.

(R): OK. Er. Did you use any documents, any specific documents, for designing the module, that stand out?

(P 11): Documents?

(R): Yes.

(P 11): Do you mean the template?

(R): Oh, OK.

(P 11): The template, yeah? I just used that, yes.

(R): OK. A template?

(P 11): Whatever it was were required to fill in, I filled it in.

(R): OK, so you got a template for the design?

(P 11): We did, actually, yeah. Yes, there is templates for those, so... It's reasonably well laid-out, and we knew what to do. Erm. You know, the outcomes and the aims and the, the content and then, finally, you know, an overall description for what it was. So the, it's all there. I just simply went along with that.

(R): Did you find the template, er, to be particularly useful as a guide?

(P 11): Yeah. Ah, yeah. I mean, the, the main headings were there, so...

(R): Would you prefer to have the template, rather than have to write the, er, document from scratch?

(P 11): Oh, yes. The template's grand, you know. Because most of it's there, you know? The headings are there, and you fill in... So, yeah, it was fine.

(R): Did you consider that there were headings that might have been there, that you would have liked to have seen, that weren't?

(P 11): No. No. It's fine.

(R): OK, you were happy enough with the...

(P 11): Do you know, I think the, I think the template covers everything.

(R): OK.

(P 11): Erm. Now, I'm trying to think if there was anything, that I would have said no, that I would like to add to that. No, nothing.

(R): Right. And did you follow - the content that you described earlier - did you follow that, did you use that to focus your learning outcomes, or write them?

(P 11): Yeah. Yeah, absolutely. On complet- you see, you knpw, 'On completion of the module', it says, 'the learner will...' OK, so, the content is directly related to that.

(R): Right.

(P 11): You know? To be honest, I don't know whether it's the way it is to be done, but, for me, the content comes first.

(R): Yes.

(P 11): And then I start going up. Even though - the order in the template is different, d'you know, but I would go from the content. (Then) the outcomes, the aim and then the, the description.

(R): Alright. And would you...?

(P 11): Well, I could write the description any time, it's sort of a generic sort of statement of what the module is about. I could have written that at any time. To be honest. that's, sort of, a general, overall summary of it.

(R): OK.

(P 11): Yeah.

(R): So, erm, whenever you were, erm, developing the course, you think 'content first', then...

(P 11): Yes, I do, absolutely.

(R): ...structure the learning outcomes, and then, afterward, do you think about assessment, or did you...?

(P 11): Oh! No, no, no, no! That was part of content.

(R): Yes.

(P 11): That was part of content, absolutely, yeah.

(R): You would see the assessment as part of content?

(P 11): Yeah. I would, aw, yeah, absolutely, yeah. Because, then, what am I going to assess?

(R): Yes.

(P 11): Do you know, it's a very practical course; the installation of software, so I had to, had to make sure, you know, that, erm, there was assessable topics in there.

(R): Yes.

(P 11): You know, I could actually say, 'OK, in the lab I'm going to be assessing you to do...' you know, sort of, erm, 'the use of, er, software maintenance tools.'

(R): Yes. So the assessment would have reflected that practicality?

(P 11): Yes. Oh, absolutely, yeah.

(R): Alright, and then, did...?

(P 11): And they were all in the lab, all the assessments were in the lab.

(R): OK. So did you, er, with the lab resource, did you consider the assessment based on that, or did you consider the assessment, er, based on the skills that you wanted the students to acquire?

(P 11): The skills. The skills that I wanted them to acquire.

(R): OK, so you, er, you matched the assessment with a list of skills that you perceived should be, erm, should be gained?

(P 11): Yes. Yeah, absolutely, which would reflect in the content.

(R): OK.

(P 11): You know, because they are the skills that the people need.

(R): Right. So that's where the link between content and assessment is?

(P 11): Yes.

(R): Alright, so er... Then, did you design the module in this way for any particular reason. Is there a reason why you designed the, the module in, in the way that it appears?

(P 11): You mean the order in which appears, the content and that?

(R): Yes.

(P 11): To me, it just makes common sense, really.

(R): OK.

(P 11): You know, from my own way of thinking about things. I would go into content and then move back.

(R): Alright.

(P 11): Ah, well, maybe the description, no, probably the description, you know, well, what's, what's – what are we trying to – you know, what is this module all about? Do you know?

(R): OK.

(P 11): Erm, and, erm... You know, sort of, the description and then, and then you, sort of, say, 'OK, well, the content, then.' And then you move back.

(R): Alright. OK. And so, you see that, er, that procedure...?

(P 11): Yeah, that would be my method of doing it.

(R): Yeah, OK.

(P 11): Well, other people, I've no doubt, would have, would have different ways of doing it.

(R): Alright. As a, as an experience, what was it like to design the module?

(P 11): It was good. I enjoyed it. Yeah. I enjoyed it.

(R): OK. Why did you find it enjoyable?

(P 11): Er, because it was an intellectual sort of, er, a satisfaction of, sort of, saying, 'Well, OK...' Pulling all those ideas together, and then putting them down onto a piece of paper, and then running that course. Designing that course from, you know, what was, originally, diverse bits and pieces. It was nice to, actually, just, from my own point of view, just grab up all those pieces and say, 'OK, now I can actually have that as a, one piece of, erm, coherent, er, teaching module.'

(R): OK.

(P 11): That's, that's - I just got an intellectual challenge, an intellectual satisfaction from doing it. Yeah.

(R): Right. And did you get that satisfaction and enjoyment because you were particularly familiar with the content- the subject, or, er, because you weren't familiar with it, perhaps?

(P 11): No. I was familiar with the subject. But they were all, the content was all separate, little issues, which I brought together, into one module, where they were all related to one another.

(R): OK. So the integration was the challenge?

(P 11): The integration was the challenge of it, and say, 'OK, look, there is a subject there called Software Installation and Maintenance.'

(R): Right.

(P 11): You know, and, erm, there was enough content there to be able to call it a module. And then, to show how the diverse little, erm, if you like, sub-modules within the subject area were brought together; that was good fun. D'you know, genuinely, I get a nice kick out of putting things in a particular order, and, you know, that was it.

(R): OK. So an enjoyable experience, altogether?

(P 11): I would say so - apart from the rush, having to do it at the same time as you're doing exams. I do remember saying, 'Gosh! I could do without this, now.' to be honest. (Laughs)

(R): Right.

(P 11): You know, but, as I was finishing it off, actually, the exams were, were all corrected. Still, we had Module Boards and all the rest of it, so. But that would not normally happen, to be honest. That wouldn't, we wouldn't be doing that at the same time. You know?

(R): Right. If it had been in lecturing time, would that have caused you...?

(P 11): Aw, no. That would have been much better! (Laughs) Much better!

(R): OK. Would you prefer to be designing a module during lecturing time?

(P 11): Yes. Oh, yeah.

(R): Why is that?

(P 11): Well, you've less pressure. You haven't got that pressure of getting the scripts done, and, maybe, some late continuous assessment to mark, and then thinking about Preliminaries, and then org- from my point of view, organising, you know, some of the (meetings), because I am Course Tutor, grabbing their marks, and all that type of stuff, which has to take priority, at that time of year. So, apart from that, you know, I know... I won't make a big issue out of it, but it would have been, it would have been better at a different time.

(R): Yes.

(P 11): Yes.

(R): And during the teaching, er, do you feel there is less pressure, in terms of your workload?

(P 11): Erm. Yeah. Yeah. I would say that's true.

(R): Right. And is there any other effect of designing modules during teaching time?

(P 11): No, I wouldn't have thought so.

(R): OK.

(P 11): You – if you could pick the time, I mean, you wouldn't be picking them at a time where you are, you are marking assessments, or assignments, anything like that. So you could pick your time, you know, whereas, this one had to be done at the same time.

(R): Yes.

(P 11): Before we broke up.

(R): Yes.

(P 11): Last year, the 20th June, so. You know, I could schedule it better, yeah. You know, you could say, 'Well, OK, I am going to, going to design this new module in the first two weeks of the semester.' In which case, you're never going to have assignments to correct at that point. You just go out teaching.

(R): Yes.

(P 11): So it would go along with, with the preparation, with your lecture preparation, so it could be also, would be developed at the same time.

(R): Do you think that would be optimal?

(P 11): Optimal.

(R): Right. Why would, why would that suit better?

(P 11): You would have more time.

(R): Right.

(P 11): You would have time, more time to be thinking about it, erm... And that's it, you know, there's no other reason.

(R): Alright. Was there anything that was difficult about designing the module?

(P 11): Yeah, just bringing all the, all the parts of it together, into a coherent, erm, a coherent module, and a step-by-step module. Topic B follows Topic A and so on. So - and that's where the intellectual satisfaction came out of it.

(R): Alright.

(P 11): You know, I saw the threads, and then brought the threads together.

(R): And that -

(P 11): So, from a student's point of view, it, it wasn't jumping all over the place. It was actually progression.

(R): Yes.

(P 11): And that's, you know, from a teaching point of view, as well, that's easy. It's easier to do when there's, er, when they're not separate topics, that they are all related to one another.

(R): OK. So the difficulty was in picking the threads that...?

(P 11): The threads were there, and then putting them into a coherent set of topics where, erm, one topic led to the next, led to the next.

(R): OK. But you found that difficulty enjoyable?

(P 11): Oh, I did, ah, of course, yeah. Just bringing them together.

(R): Yes. Alright. Do you use the same design process with all of your modules?

(P 11): Yes.

(R): And why would you... Is that a matter of choice?

(P 11): Just a matter of choice, yeah.

(R): Is that because you find them the most practical method?

(P 11): Yeah. Most of the stuff I teach is practical. So the method I have of doing it, is, I think, as good as any.

(R): OK. So it gets the job done?

(P 11): Yes. I don't think- I don't like thinking about modules at, sort of, a high theoretical level. I like to down to the nitty gritty: 'Well, what am I going to do here? Where are the topics? How are they related?' And then work backwards. Do you know?

(R): Yes.

(P 11): Er. Rather than you have - I'm not saying it won't work for some people, but, for me, the idea of, you write the outcomes and you write the aims, that just won't work for me. You know? It just doesn't work, OK? For some people it would. I can well imagine me writing the aims and the outcomes, and then I'd go into the content, only to find that there's so much stuff missing from the outcomes and the aim, that I'd have to start rewriting them again.

(R): Right. OK. So the... If you...

(P 11): It's just a method of doing it, that's all.

(R): Yes.

(P 11): I, I still believe if you, if you go up for the aims and the outcomes, and you do those first, and then you do the content, I don't believe anybody could write the aims and the outcomes without, erm, modification, after they write the content.

(R): Right.

(P 11): So it's the same thing, in effect.

(R): Yes, they would have to...

(P 11): They would have to modify, absolutely, yes.

(R): Yes. They would have to know that they would be able to do...

(P 11): Yes, well, look. If it was a, if it was a very elementary subject, I think you could do that.

(R): OK.

(P 11): Very elementary subject. But, where this is a completely new, erm, module for our course, and, in fact, I don't see it in any other universities either, erm, but there was a crying need for it. Er, and, erm, you know, it was brand-new, er, it's not something I could write off the top of my head.

(R): Right, OK.

(P 11): So maybe, if it was something I could write off the top of my head, I could write it in a different order.

(R): Alright, so the process seems to work for you?

(P 11): Yes. Well, it depends on... It does work, it works for me and, you know, most of the stuff we write, it's, er... For, for me, the Third and Fourth Year stuff, I just need to do it that way.

(R): OK. And what would you say that you've learned from doing the module design?

(P 11): That I learned from doing module design? (Pauses) Erm. Well, if I didn't do module design – now, I wasn't forced to do it, if you like. I think your teaching practice would be affected.

(R): Compromised?

(P 11): Absolutely.

(R): OK.

(P 11): I think, if you have it written down, and in my mind I, I, when I'm writing the content, I try to break it down into weeks: how long that would take, and so on. And that would restrict me to the content. As I said earlier, you know, the amount that you have to write, you have to keep reminded that you have thirteen weeks. You haven't even thirteen weeks, now, to be honest.

(R): Yes.

(P 11): You've got, you've got one week in there for review, and then, maybe, you know, Bank Holidays and what not, and things happen. So you could, you could end up losing two or three lectures, no problem, between one thing and another. So I tend to just go week by week; what would I be doing that week? So I have here, Scripting, so how long would you take to do that Scripting? And then, a new version of Control Tools, how long would it take to do that, and so on, and so on and so on.

(R): Right.

(P 11): So I probably would end up doing a sort of a teaching plan for the module anyway, but wouldn't be very much different from what the module content is here.

(R): Right.

(P 11): OK? But, to be honest, I probably wouldn't - I'd have a module description, erm, what I think, roughly, this learner is going to do, and the outcomes and what the aim is. And I'd, I'd probably follow that, yeah. It's a good, it's a good template to follow.

(R): OK. So you've learned, essentially, I infer that you have learned how to structure your courses because of your design - module design experience?

(P 11): Erm. Yes. Yes. That would be fair to say, yeah.

(R): OK.

(P 11): I've learned to be more aware of it. And the module, having to write the module does help you to plan ahead.

(R): Right.

(P 11): Definitely.

(R): OK. Er. How do you consider the student whenever you are doing a module design?

(P 11): How do you consider our students? Well, the amount that they can actually take in within the, within each lecture, and then in the whole module, overall. And also, the usefulness of the module.

(R): Right.

(P 11): You know, I'm, you know... So that's, that's my consideration, you know, from a learner - what is the learner, er, what's the learner's experience going to be, of this, of this module?

(R): Right.

(P 11): You know, is it going to be too much? Erm. You know, if it's too much for them, then you're wasting your time, completely.

(R): OK.

(P 11): So that would be my main thing, is; can they handle this?

(R): OK. And how do you measure whether you think they can handle it?

(P 11): Just experience, insight. And then, as is said earlier, erm, after you run the module once, you'll know. If you are aware. If you – you know, not everybody thinks about these things.

(R): Right.

(P 11): You know, but, I, I tend to think about; 'Well, that class didn't go too well, why not? It didn't go well because that topic needs more explanation, or needs more fleshing out, or whatever.' You know?

(R): Right. OK, so the teaching of the module would inform your own analysis of the design itself?

(P 11): It would.

(R): Alright. So you would, you would, er, see the pros and cons of the design, maybe, the quality of the design of the modules, through the experience of teaching?

(P 11): Yeah. The – yeah. So you design something and you run it. It's the implementation of the design, and it's an iterative thing. I'd like to be able to change it, you know, regularly, but you can't do that. You know what I mean, you can only... so many times you can do it. Maybe once, and then, after that... You can make small changes, but, erm... You know, every time you run something, I think you learn something from it.

(R): Right.

(P 11): If you are, if you are, you know, if you're doing your teaching well, you should be, you should be aware of how your subject is going, and how the students are actually progressing in it.

(R): OK.

(P 11): And if they're not progressing, then why not? If their progressing very well, great! That's grand! You know, you've, erm... This particular module, then, is, is nicely designed, and, you know?

(R): Yes, so you can keep the good and ditch the bad, sort of thing?

(P 11): You can get the bad stuff, yeah. You can get the bad stuff. And there is bad stuff.
(Laughs)

(R): OK. Alright, the next question is fairly – it could be - you might think it's related, it's, er, how did the process of the module design affect the implementation of the module?

(P 11): How did the process...? Er, the design, or the process of the design?

(R): Yeah, well, yeah, the process of module design... Yeah... OK, maybe I should...

(P 11): How I went about designing the module? Out does that affect the teaching?

(R): Yes. Well, maybe I am...

(P 11): No, No, because... No, I do know what you mean, right?

(R): Yes.

(P 11): My module design was to go for the content. Mainly, first, right? Now, and then I relate that directly to the teaching.

(R): Yes.

(P 11): You know, so they're hand in hand.

(R): Yes.

(P 11): You know, so, if that's what you mean?

(R): That's it, yes. In fact, you answered that question already.

(P 11): Yes, I did answer that question already. Yeah.

(R): I just pitched it in, there, a second time, just to see if anything else emerged.

(P 11): Yeah, grand. OK.

(R): So that's fair enough. Alright, then. Er, what would you do differently, if you were going to design that module again tomorrow?

(P 11): There would be a few, erm, more topics in it, now.

(R): OK.

(P 11): A few more topics that, erm...

(R): Additional?

(P 11): Additionally, yeah. But, within thirteen, within twelve weeks or whatever the time is, I don't think I would be able to, to do them, you know? Something else would have to come out, so, you know, if I had my choice, thirteen weeks; it's just not long enough.

(R): Yes.

(P 11): So, erm, so there's not an awful lot more, to be honest, because, if I... I had two goes at this. I had a first go, and then I had our review. So I've had two goes, and, and I'm really happy with it.

(R): OK. Well, that's the next question, anyway; are you happy with the curriculum design process?

(P 11): Yeah – ah, the process? Yeah. It's fine.

(R): And then the curriculum design, itself?

(P 11): I'm happy enough with that.

(R): OK. In a previous discussion with lecturers, in some research I did before, from all, er, the, er, data from that, there emerged a list of issues that are important to lecturers, and I've got the top five here, and I'll, I will read them out. The first one is student attrition rates, second is plagiarism, third is giving feedback to students in coursework, fourth is marking schemes, for assessment.

(P 11): Yes.

(R): Fifth is the idea of using different assessment methods, and then the question is; how have you found that these relate to module design? Now, I will give you those to have a look at.

(P 11): Let me look at those, OK. (The interviewee reads the list.) Issues important to lecturers are... Yes, well, the student attrition rates would relate to participation rates.

(R): Yes.

(P 11): And that is a problem. You've stuff on the Net, erm, and the notes, and my Web page - I have what a note is. It's not a book! (Both laugh) Erm, and then, very often, students will complain to me about, erm, you know, 'Well, it wasn't on the Web.' Well, no, it wasn't on the Web, because I'm not writing an online course, or anything like that. Erm. So, erm, plagiarism, I tend to recognise fairly quickly. So, and I have no problems in saying to students (that) 'these two, these two assignments are the same.' Erm, giving feedback - important issues? Erm, yeah. How have you found that these relate to module design? (Pauses) Erm. I think, using different assessment methods. To me, the others are not that important for module design. Well, the attrition rate, people have to participate in a module.

(R): Yes.

(P 11): Especially a practical module like that one. Plagiarism, I can get over. Giving feedback, well, you have to give feedback to every course, so I can't see how that's related to module design. Or marking scheme is simply, erm, to do with your assessment, and also the exams, so that's true of all modules. So, er, different assessment methods.

(R): Alright. That's the only one that relates...?

(P 11): That's the only one that, to me, relates to module design.

(R): If you were to group the other ones, what you think they would relate to?

(P 11): Erm. (Pauses) Well, giving feedback is related to, erm, er... Well, marking schemes are related to, to exams, OK, and giving out assignments, OK? So you have a marking scheme for all of those. Erm. Giving feedback? Well, that's also related to participation. Students sometimes have, as you see over there, quite a number of, er, things which are marked, and people never came back for them.

(R): OK.

(P 11): OK? Erm. Student... Plagiarism, right, well, students should not plagiarise. If they participate they won't have any need to plagiarise. (Pauses) I have lost the, I've lost what we were saying. (Laughs)

(R): OK.

(P 11): How do, how do they relate to module design? The only one, I think, that's module-related, I, I - for me, is using different assessment methods, depending on the module.

(R): Yes, the only one...

(P 11): The other ones, there, erm, I, I don't know what group to put them into, to be honest, erm. I don't, you know, I, I...

(R): Teaching perhaps?

(P 11): Well, perhaps, yeah. Perh- well, student attrition rates, plagiarism has nothing, really, to do with teaching. That's to do with, to me, that has to do with participation. And giving feedback, yeah, that's to do with teaching. Marking schemes are to do with exams, I can see how that's... you know, erm. That's part of an assessment method. So, for me, the only one that's - I think, is relevant to this is assessment methods, er... OK?

(R): OK. And so, the next question is - you've half answered this already, but, er, the summary question, for that, for this area, is; are you proud of your module design?

(P 11): 'Proud' might be a bit, erm, might be a bit strong. Satisfied.

(R): Satisfied? OK.

(P 11): Satisfied, I would say.

(R): Alright.

(P 11): Yeah. I would say that's... I wouldn't be afraid to show that to somebody and say, 'OK, that module there, that - I designed that.'

(R): Yes.

(P 11): Do you know, and that's, you know... I presume that's why they have 'Module Author' on it.

(R): OK. Alright.

(P 11): Anyway! So... Yeah!

(R): The next question is, having done module design; do you feel that you have changed, personally, from your experience of module design?

(P 11): No.

(R): OK.

(P 11): Why would I?

(R): You don't feel that you have become a stronger, or a better lecturer or anything?

(P 11): No. Absolutely not!

(R): Alright.

(P 11): No. I did – I mean, anybody who is, who plans out there teaching, OK, er, would already have looked at - I mean, the old content, you know, where it's just that syllabus, and nothing else?

(R): Yes.

(P 11): They'd already have planned that out. You know, and they already know what their module aim was, and the descriptions, and what the outcomes would be. What you're trying to, erm, achieve with that learner, at the end, at the completion of that module. So, erm, no, absolutely not. It's made it a little more formal.

(R): Right.

(P 11): That's it! Nothing else.

(R): Alright, and then, erm, and the last question is to ask you, is there anything in the discussions, erm, that occurred to you, that I didn't ask, that, perhaps, you would like to add?

(P 11): Erm. About the module?

(R): About module design, that is. Sorry.

(P 11): About module design. Well, I think, myself, what's very important is that, erm, all modules should be related to each other. And that's a big thing that I see here. The modules are designed in isolation.

(R): Right.

(P 11): There is no great relationship between my modules and somebody else's that I'm teaching, do you know? They are loosely related, but they should be much more. Like, they should be much more, erm, closely integrated.

(R): Right.

(P 11): You know, I'll not even say that's the one thing about a module. It's supposed to be this thing you design, but we tend to design them in isolation.

(R): Right.

(P 11): Not related. Do you know what I mean? I would look at other modules, but I would only see them after they've been completed.

(R): OK.

(P 11): Now, maybe I'll say, 'OK, I see somebody is doing something else, OK? So now and have to go back here and...' You know, apart from that.

(R): And have there been any instances where you have seen some integration, better integration in modules?

(P 11): Oh, yes.

(R): And how did you experience those? Did you find those to be much higher quality or just...

(P 11): Well, there would be higher quality. Absolutely.

(R): You think it's quality, er, is the (effect)?

(P 11): Yeah. Oh, yeah. For the student as well, to actually relate to two modules.

(R): Right.

(P 11): And rather than have them in isolation. It's a bit like, in the module itself, the actual topics shouldn't be isolated. You know, they should be related, and in a coherent sequence, and

the same thing, I just feel, in the Programme Year (of a course), they all should have a coherent sequence and be related to one another. And that makes it easier for students - to see the relationship.

(R): OK.

(P 11): You know, but, very often, here, there just isn't - they're done in isolation.

(R): So it's, erm, it would be a move towards better quality and, perhaps, an easier...?

(P 11): A better experience for students.

(R): Well, a better experience, yes, for students!

(P 11): Yeah. Yeah, and easier for them to pick up and see... You know, you cover something twice, so, 'OK, you've done this in that other module,' you know...

(R): Have you found that some modules have overlapped because of that, that non-integration?

(P 11): Yeah. Oh, yes.

(R): That, of course, is, er, that's a poor show.

(P 11): Yeah. They have.

(R): Do you think that's the problem - that's thee problem?

(P 11): No, not thee problem, but it is a problem.

(R): Oh, OK. It is a problem.

(P 11): It is a problem. It doesn't look well, either, erm, if it's done in one place and also in another. I mean, I have an experience where, er, a First Year topic appeared in one of my modules, has also appeared in a Fourth Year (module), and examined at a Fourth Year level. And also examined at a First Year level. And there wasn't that much difference in, erm, in the actual question that was being asked. The First Year could have had a good go at what was actually asked in Fourth Year. You know, because, whoever was designing the Fourth Year module never looked back and see; well, that was also included in there.

(R): Yes.

(P 11): You know? Now, it wasn't a particularly difficult topic, so it never should have been in Fourth Year in the first place, but... But that's the type of thing, exactly!

(R): So it would have been an oversight if there had been a structure in place to look for it, but it wasn't an oversight because there was no opportunity.

(P 11): There was no opportunity.

(R): OK.

(P 11): There was no opportunity.

(R): OK, so, er...

(P 11): I would say. That's the only thing I would say about this - that the, the integration 'across' isn't what it should be.

(R): OK. So would you prefer to see this, erm, horizontal alignment and, perhaps, vertical alignment - from one year to the next, and, erm, just a full, integrated package, in a, in a degree?

(P 11): Aw, yeah. Yes.

(R): That would make for a very robust and useful degree course?

(P 11): Absolutely.

(R): What do you suppose, or, maybe, have you experienced any sort of, erm, techniques or devices that could help in integrating courses, or modules in courses? Topics within a Year – or within a module?

(P 11): Yeah. Topics within a module, top topics within a year?

(R): Topics within a module.

(P 11): Within a module!

(R): Within a module. Well, that's what you mentioned earlier, that...

(P 11): Yeah, yeah. All these, yeah. All these are related to one another.

(R): Or they should be, yes?

(P 11): Yeah. All the topics within that module were related to one another. Erm, techniques to do that?

(R): Techniques to go beyond... When a person takes responsibility for their module, they can apply an integration method in their own practice, for their own module, because they're taking responsibility for that.

(P 11): Yes.

(R): Have you experienced any techniques that would allow for different lectures to integrate their modules, or to align their modules across a Year or from Year to Year?

(P 11): No techniques, as such, other than, you know, having the time, and having the organisation, for us to sit down and have a look at the modules across a particular Year. And just see, well, detail, even, of, of what the content is in each of them.

(R): Yes.

(P 11): The ones – you needn't do them all. Ones that are actually related, could be related. Erm, and then you do the same for the four years, but it's not done.

(R): No. Why do you – What, or have you had experience of why that is the case?

(P 11): No. Other than we always seem to be in a rush when we are doing these things. (Laughs)

(R): Alright. Do you think the rush causes that, er...?

(P 11): Yes. Well... yes.

(R): OK. All right, so it's time: time is the big factor there?

(P 11): Time is the thing. But also, there should be, we should have somebody looking at them overall.

(R): Right.

(P 11): You know, and what we did in the Programming was quite good. As a Programming Group we got together, and, as a group, we looked at that.

(R): OK.

(P 11): But that's not done on – right across: it's not done for Internet, it's not on for Information Systems, but the Programming Group certainly did that.

(R): Did somebody take the lead in that?

(P 11): I took the lead in that.

(R): OK.

(P 11): I took the lead in that.

(R): And were you asked to take responsibility for it as well?

(P 11): No, because what, erm, well... (Pauses) Er. What we did, actually, for the module orders, we simply put School of Computing Programming Group.

(R): OK.

(P 11): You know, because we all did it. And that was enjoyable, too. People learned a lot, as well.

(R): Oh, did they?

(P 11): Yes. Absolutely, yes.

(R): Did they learn about things outside their own modules?

(P 11): Well, just cooperating - things outside and cooperating on them. You know, so I looked at the whole thing right throughout the three years, and that's when we got a common 211 and 228 Programming stream.

(R): Right.

(P 11): But that needs to be done. All, all threads throughout the programme.

(R): Yes.

(P 11): So, for example, Internet Development. And that avoids the duplication. And avoids doing easier things in Fourth Year that should have been done in First Year.

(R): Do you, have you discovered that there is an unwillingness to take part in that sort of an effort?

(P 11): Oh, well, that's just a personality thing. Most, most people in our School took part in the Programme Review.

(R): Would they take part after 'current political changes'?

(P 11): I would, I would say yes.

(R): Oh, OK.

(P 11): I would say yes. You mean the two hours, the extra two hours?

(R): Yes.

(P 11): Yes. I think people who...

(R): There would still be a professional willingness?

(P 11): There's a professional willingness. I think people who come in to teach here are very, very professional. Very, very willing to do things. You know, you can push them around to be quite honest. If it affects their teaching and their performance in front of a class, most good, most good lecturers will say, 'OK, I'll put up with that.'

(R): Right.

(P 11): You know, and say, OK, er, you know, but, they would say, 'I can't actually do anything about that, but I'm going to be judged by my students, by how I perform in class. I am not going to make myself unavailable to a student because of extra hours.' You know, I think, most people are professional enough to be able to do that.

(R): Right.

(P 11): And that's and that's part of our problems, to be quite honest! (Laughs)

(R): Yes.

(P 11): That we are willing to do that. You know, willing to...

(R): Do you feel that, er, that desire to look after students and their needs, causes stress amongst the - and anxiety - amongst the lecturing staff?

(P 11): Yeah because, erm, most staff would be, erm, would be keen to do that, but, at the same time, not to be moaning and groaning in front of the class. You know, and saying, 'Well, look guys, I can't do this because I've been given extra duties.' You don't bring that into the classroom.

(R): That's right, yes.

(P 11): Do you know, and you just, you still have to do it, you still have to get that feedback to the student. You still have to be looking out for students who need extra help. You know, erm, and you can't turn round and say, 'Well, sorry, I got a pay cut, I got extra hours, I can't do that anymore.'

(R): OK. That's good, well that brings to a conclusion the interview, I think. Thank you for...

(P 11): OK, then. Well, I don't know whether that was useful for a lot! (Laughs)

(R): Absolutely, yes. Well, thank you very, very much. Thank you, Participant 11...

APPENDIX - I

ETHICS STATEMENT

As an education researcher, I realise that I am in a position of responsibility and trust, and this statement aims to show this.

“Whilst carrying out this research, I will observe the highest possible ethical standards. I will maintain integrity at all times regarding data gathering. I will only report information that is in the public domain and within the law. I will avoid plagiarism and fully acknowledge the work of others to which I have referred to in this study. I will report my findings honestly. I consider the research project worthwhile and of benefit to the academic staff and students with whom I work.

The permission of all the participants will be sought from each individual participant prior to any data collection. The identity of all undergraduate and postgraduate participants will remain anonymous in any and all disseminations of this research.

This research is designed to operate within an ethic of respect for any persons involved directly or indirectly in the research process, regardless of age, sex, race, religion, political beliefs, and lifestyle.

I recognise the importance of all participants in the research understanding the process in which they are to be engaged, including why their participation is necessary, how it will be used and how and to whom it will be reported.

I recognise the right of any participant to withdraw from the research for any or no reason, and at any time, and I will inform them of this right.

I intend to debrief participants at the conclusion of the research, to provide participants with copies of talk aloud protocol recordings and make available any reports or other publications arising from their participation.”

Art Sloan
School of Computing
Dublin Institute of Technology
Kevin Street
Dublin 8
Ireland.

I,, have read the above ethics statement and agree to participate in the research outlined by Art Sloan

Signed..... Date.....