Investigating enquiry-based learning in higher education: dimensions, dissonances and power.

A thesis submitted to The University of Manchester for the degree of Doctor of Education (EdD) in the Faculty of Humanities.

YEAR OF SUBMISSION: 2014

CANDIDATE’S NAME: Adele Aubrey

CANDIDATE’S SCHOOL: Environment, Education and Development

DECLARATION

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.
COPYRIGHT STATEMENT

i. The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the "Copyright"), and she has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.

ii. Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it, or where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.

iii. The ownership of certain Copyright, patents, designs, trademarks and other intellectual property (the “Intellectual Property”) and any reproductions of copyright works in the thesis, for example, graphs and tables ("Reproductions"), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.

iv. Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property and/or Reproductions described in it may take place is available in the University IP Policy (see http://documents.manchester.ac.uk/DocuInfo.aspx?DocID=4870), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see http://www.manchester.ac.uk/library/aboutus/regulations) and in The University’s policy on Presentation of Theses.
ACKNOWLEDGEMENTS

I wish to express my gratitude to those who have supported me in completing this thesis, and those who have participated in the research study:

- Special thanks extend to my supervision team: Prof Olwen McNamara and Dr Liz Smith who guided me through the complexities of my unique journey.
- To Julia McMorrow who introduced me to her first Two Dimensional EBL Model, and allowed me to extend and change it.
- To Daisaku Ikeda, the President of the Soka Gakkai International, a constant source of hope and inspiration.
- All the participants: the staff and students who gave their time, and engaged in the study with such enthusiasm.
- To my family and friends who missed me, and were patient whilst I was tucked away working on my thesis.
- Special thanks to my mum who used her impressive typing speed to help me transcribe some of the interviews.
- To John Hamilton for creating the three-dimensional representations in Photoshop.
- And last but not least my colleagues at University who have kindly given me support and practical assistance.
  - From the Faculty of Engineering & Physical Sciences: Alison Hamilton & Ian Bradley
  - The University President Nancy Rothwell for providing support through the Investors in Success Fund, providing me with additional time to complete this project.
  - At CEEBL: especially Dr Norman Powell & Kate Jones
Contents

Abstract .......................................................................................................................... 10

1 Overview of thesis ........................................................................................................ 11
   1.1 Researcher philosophical perspective ................................................................. 11
   1.2 Professional context ............................................................................................ 13
   1.1 Rationale for the study ....................................................................................... 14
   1.2 Aims and research design ................................................................................... 15
       1.2.1 Action research phases ............................................................................... 18
   1.3 Parameters of the research study ....................................................................... 20
   1.4 Structure of the thesis ....................................................................................... 21

2 Review of literature ...................................................................................................... 23
   2.1 What is EBL? ..................................................................................................... 23
   2.2 How have pedagogical devices been used to facilitate tutors’ reflections on EBL? 33
       2.2.1 Context of reflective educational practice ................................................. 33
       2.2.2 Existing enquiry-based pedagogical models .............................................. 35
   2.3 Summary ........................................................................................................... 43

3 Methodology ................................................................................................................ 48
   3.1 Research aims and questions ............................................................................. 48
   3.2 Research methodology ....................................................................................... 50
   3.3 Research design .................................................................................................. 55
       3.3.1 Data collection methods .............................................................................. 55
       3.3.2 Data analysis .............................................................................................. 62
   3.4 Trustworthiness and validity ............................................................................. 70
   3.5 Ethical issues ...................................................................................................... 73
4  Practitioner research journey ................................................................. 76

4.1  Practitioner/researcher interface .......................................................... 76

4.2  Action Research Phases......................................................................... 78

4.2.1  Phase One: Initial Three-dimensional EBL Model.............................. 79

4.2.2  Phase Two: Values-based EBL Model ............................................... 84

4.2.3  Phase Three: Student Involvement in Learning and Teaching Model..... 87

4.2.4  Phase Four: Assessment EBL Model ............................................... 91

4.3  Professional Learning........................................................................... 92

5  Presentation of participant data .................................................................. 101

5.1  Student narratives .................................................................................. 101

5.2  Tutor narratives...................................................................................... 122

5.3  Tutor dilemmas ...................................................................................... 137

5.3.1  Internal factors and external influences .......................................... 140

5.3.2  Analysis of dilemmas disaggregated by dimensions.......................... 147

5.3.3  Dissonance between tutors’ reported actual and espoused ideal practice .154

6  Discussion of participant data .................................................................... 161

6.1  RQ1: How do students experience the teaching and learning process? ....... 161

6.1.1  Students’ reflections on teaching and learning situations .................... 161

6.1.2  Responses of students to teaching and learning situations................... 164

6.2  RQ2: How do tutors experience the teaching and learning process? ......... 167

6.2.1  Internal factors (tutor’s personal characteristics)............................... 170

6.2.2  External influences (context of the tutor’s University social systems) ...... 172

6.3  RQ3: What is the nature of the teaching and learning process which takes place between tutors and students? ......................................................... 178

6.3.1  Tutor descriptions of the proximal processes between tutors and students 178

6.3.2  Student descriptions of the proximal processes between tutors and students 181

6.3.3  Power in the teaching and learning process....................................... 182
7 Conclusions .................................................................................................................. 184

7.1 Findings .................................................................................................................... 184

7.2 Contribution to knowledge ...................................................................................... 186

7.3 Development of my professional learning ............................................................. 189

7.4 Reflections on the research process and recommendations for further research .... 194

Abbreviations and Glossary ......................................................................................... 197

Works Cited .................................................................................................................. 201

Appendices .................................................................................................................. 232

Appendix 1: Literature search strategy ................................................................. 232

Appendix 2: Summaries of CEEBL project holders’ projects ............................ 235

Appendix 3: Invitation to teaching staff to attend workshops .............................. 238

Appendix 4: Example of worksheet for one dimension of an EBL model ............ 239

Appendix 5: Initial workshop programme ............................................................... 240

Appendix 6: Final workshop programme ................................................................. 242

Appendix 7: Semi-structured interview questions to tutors ................................. 244

Appendix 8: Semi-structured interview questions to students ............................. 245

Appendix 9: Tutors’ participation consent form ..................................................... 246

Appendix 10: Student commentator participation consent form ......................... 247

Appendix 11: Student photo-elicitation participation consent form .................... 248

Appendix 12: Worked example of the process of dilemma analysis of an EBL worksheet 249

Appendix 13: Abductive content analysis of student data for empirical EBL model. 254

Appendix 14: Quantitative placing of tutors’ actual and ideal practice on EBL dimensions 261

Appendix 15: Worked example of Spearman’s Rank Correlation Coefficient for the Content Dimension 266

Appendix 16: Spearman’s Rank Correlation Coefficient indicators for the Faculty & interdisciplinary tutors 268
Appendix 17: Worksheets with positive dissonance towards student-centred/enquiry-based espoused ideal practice ................................................................. 269

Appendix 18: Interdisciplinary tutors’ positioning and dissonance ......................... 270

Appendix 19: Worksheets where tutors expressed zero dissonance .......................... 271

Appendix 20: Radar graphs of tutors’ positioning on dimensions ............................ 272

Appendix 21: Tutor participants codes and key ..................................................... 274

Appendix 22: Example of PowerPoint presentation (used in Workshop Three: 19th May 2010) 277

Appendix 23: Examples of worksheets completed by tutors during a one-to-one interview and workshop ................................................................. 281

Final word count: 52874

Figures

Figure 1: An overview of the action research phases, and associated pedagogic models developed. ......................................................................................... 19

Figure 2: Two-dimensional EBL Model (Aubrey & McMorrow, 2010). ....................... 36

Figure 3: Three dimensions of curriculum design for the research-teaching nexus, Healey (2005) ................................................................................................. 37

Figure 4: Curriculum design and the research-teaching nexus (Healey, 2005, p. 70)..... 37

Figure 5: Levy’s (2009) model of modes of inquiry-based learning ............................ 38

Figure 6: Conceptual model showing the relation between different modes of inquiry-based learning (Spronken-Smith & Walker, 2010, p. 727)................................. 41

Figure 7: Octahedron representation of the Conole et al’s (2004) model................. 42

Figure 8: Visual representation of Bronfenbrenner & Ceci’s (1994) bioecological model.. 68
Tables

Table 1: Chart for linking research questions, data sources, rationale and methods of analysis. ................................................................. 49

Table 2: Chart outlining three main data sets and associated analytical frameworks. ..... 63

Table 3: Summary of external and internal influences on practice reported by tutors....139

Table 4: Spearman's Rank Correlation Coefficient indicators for the three University Faculties .................................................................268

Table 5: Spearman's Rank Correlation Coefficient indicators for the interdisciplinary tutors .................................................................268

Table 6: Summary of positive dissonances on tutor worksheets...............................269

Table 7: Content/Knowledge Dimension positioning for interdisciplinary module tutors.270

Table 8: Process/Interaction Dimension positioning for interdisciplinary module tutors..270

Table 9: Context/Authenticity Dimension positioning for interdisciplinary module tutors270

Table 10: Summary of worksheets where tutors expressed zero dissonance between reported actual and espoused ideal practice.................................................................271
Abstract

University of Manchester | Adele Aubrey
Degree Title: Doctor in Education (EdD)
Thesis Title: Investigating enquiry-based learning in higher education: dimensions, dissonances and power.
Date: 01/09/2014

The purpose of the thesis is to explore excellence in Enquiry-Based Learning (EBL), its philosophical underpinnings, pedagogical implications and possibilities. How pedagogic devices can be used to encourage tutors’ reflections on EBL, and is concerned with producing and sharing knowledge in relation facilitating student-centred teaching and learning practices. The study is in the tradition of practitioner research, where my role was that of an educational developer at the Centre for Excellence in Enquiry-based Learning. It is centred around the development of EBL models as pedagogic instruments to facilitate tutors’ reflections on their practice. The thesis investigates how to facilitate the incorporation of more student-centred approaches into tutors’ practice in a UK university through employing EBL models as a tool for reflection, how these models were introduced to tutors, and the findings from the process. A critical action research approach was undertaken for the educational development practitioner research journey. The primary methods of data collection consisted of interviews with students and tutors, and data obtained during individual reflections and group discussions in a series of workshops that involved tutors studying EBL models. Thirty-one tutors were involved in these workshops and interviews where they quantitatively and qualitatively explored multiple dimensions of teaching and learning. Content analysis of the results was conducted on the data with an emphasis on dilemma analysis to gain insights into tutors’ decisions about their practice, and an empirical abductive strategy was employed to inform the development of new EBL models. In the course of the action research phases two new EBL models were iteratively developed informed by the literature and stakeholders. Finally, a new Student Involvement in Learning and Teaching Model was proposed, empirically abducted from student narratives derived from photo-elicited interviews. This Model constituted the development of a new conceptual framework for thinking about EBL within the context of broader teaching and learning practice. This study articulates new student involvement dimensions which conveyed the nature of power within the proximal processes of teaching and learning. The thesis contributes towards the practice of educational development by documenting both the process and outcomes of introducing EBL and learning and teaching models to tutors as reflective instruments, and by proposing a new perspective on excellence in EBL where student involvement is enhanced when reciprocal power relationships exist in the proximal processes between tutors and students. Tutor decisions were framed as a series of dilemmas created by external contextual influences (the University social micro, meso, exo and macro-systems); and internal factors (the tutors’ personal force-resource characteristics) which affected tutors’ reported actual and espoused ideal practice. The data demonstrated that most tutors espoused including more EBL, but they preferred an incremental change in their practice.
1 Overview of thesis

This thesis explores how pedagogic devices can be used to encourage tutors’ reflections on EBL, and is concerned with producing and sharing knowledge in relation facilitating student-centred teaching and learning practices. The thesis explores the development of EBL and learning and teaching model as pedagogic instruments to facilitate tutors’ reflections on their practice, and outlines how these models were introduced to tutors and the findings from the process of using this pedagogic instrument as a tool for reflection.

This chapter provides an overview of the thesis firstly by introducing my personal philosophical perspective; I elucidate my personal experiences, influences and beliefs that I held at the beginning of the research, to be transparent regarding my ideological perspective. Next I outline the professional context, rationale of the action research study, research design, and outline the area in which my contribution to knowledge will be.

1.1 Researcher philosophical perspective

I start my journey autobiographically, by explaining my personal experiences of education as a student, and my underlying beliefs concerning the purpose of education, by introducing the key philosophers who have influenced my ideological position. This background in part explain what has driven my personal and professional interests in EBL, and how I came to be Manager at CEEBL. The role of Manager of EBL was to develop the scholarship of EBL, included in this was a necessity to disseminate what EBL is to tutors in the University via training sessions and publications.

My experience of the UK educational system has been mixed. Prior to postgraduate studies which were undertaken to contribute to continuing my professional development, I found the majority of my time seemed to be spent on subject matter that was irrelevant to my life, often there seemed to be little explanation of how what I was learning was going to be useful to me outside of the classroom. For example, during a mathematics
class at secondary school, in frustration with not seeing the reason why we were studying a particularly theoretical mathematical concept, I asked 'What is the point of learning this'? It was not that I did not enjoy the challenge of equations, or see the beauty of the mathematical symbols, it was just that I did not understand why we were spending so much time and effort learning about something that I could not see how it was relevant or useful to me outside of School. The teacher did not answer my question. In another incident I recall, during my undergraduate years undertaking a European Studies degree, there was a particularly terrible lecture which incited such deep feelings of boredom that I promised myself I would never return to that particular lecture. However, there were moments in my educational experience which I did find enjoyable and engaging. There was a teacher who was really creative in his methods delivering a teacher training course at Manchester College. Despite the sessions taking place for three hours, 6pm-9pm, after I had done a full day’s work, the session was inspiring providing useful knowledge and skills for my future professional life. He employed a variety of learning activities: presentations, group discussions, and individual reading tasks. However, the time that was invested in my whole educational experience, in the main, did not live up to the potential of that opportunity. Far too much time was spent on sitting down in classrooms or lecture halls, being inactive, with facts and knowledge that I would never use being transmitted to me, and the curriculum being de-contextualised from my current and future life.

Another major influence that underpinned my ideological position were the literary works of three philosophers: Makiguchi (1930), Dewey (1924; 1938), and Ikeda (2002), these philosophers advocate student-centred learning, with confluences with the educational principles and ethos of EBL as an experiential, real-world educational experience where the needs of the students have precedence. I concur with these views, that education is a unique opportunity for personal growth, to learn valuable knowledge and skills which would enable every individual to contribute to creating value in society and in their own lives. Education could be a democratic, active, and enjoyable and challenging experience
where students are empowered through learning. Whether EBL can provide this is debatable, I acknowledge there are critics of EBL (Mayer, 2004; Tuovinen, 1999) and evidence which points to failings in its effectiveness (Kirschner, et al., 2006).

1.2 Professional context

I was the Manager of the Centre for Excellence in Enquiry-based Learning (CEEBL), an educational development unit, within the University of Manchester from 2008-2010. CEEBL was one of seventy-four Centres for Excellence in Teaching and Learning funded between 2005-2010 to promote excellence and innovation in education by the Higher Education Funding Council for England.

One of the main objectives of CEEBL was to promote scholarship of EBL and to embed EBL methods across the University of Manchester at both undergraduate and postgraduate levels. In order to achieve this, my role was that of an educational developer, a multifaceted role, which Roche (2001) claims involves the successful initiation, implementation and negotiation of transformative change, which necessitates having an effective ideology which is: futuristic, pro-active, client-centred, with social and political awareness. Kirby and McKenna (1989), suggest that it is important to ‘remember that who you are has a central place in the research process because you bring your own thoughts, aspirations and feelings’ (p. 46). My personal ideological position is influenced by Makiguchi (1930), and Ikeda (2001) who have a Buddhist perspective on the purpose of education, which promotes a student-centred experience. Makiguchi (1930) advocates the pedagogy of value-creation education, underpinned by the belief that the purpose of education should be aligned to the goal of life itself perceived as the achievement of individual happiness through the creation of value in an individual’s life, and in their social and physical environment. Makiguchi’s vision is for students to use their creative capabilities in order to create optimum value and benefit for their communities. Makiguchi calls for educators to intensify their efforts to revitalise education into something that will foster active involvement of students in the creation of value.
These student-centred educational values aligned with my professional objectives. As the Manager for CEEBL, I was investigating ways to provide an educational development opportunity that engaged tutors in both learning about EBL, and to consider how to implement an EBL approach with their students. The differing definitions, varying ways of implementing and determining the extent that teaching was enquiry-based, meant that EBL had an advantage in being:

an open and flexible approach to learning, which allows learners to take ownership of their own learning. Hence, there is inherent flexibility in their learning, allowing them to pursue their own interests and respond to their own needs. (CEEBL, 2010, p. 17)

However, this broad definition made EBL’s application more problematic as there was no one method or model that constituted EBL (Section 2.1, p.23). EBL encompasses a spectrum of student-centred approaches, characteristics and conceptions of teaching and learning. In essence, an EBL approach enables more active responsibility, choice and ownership in the process of learning through engaging students in real problems and authentic tasks. In the first three years of the Centre’s inception, there was a wide variety of projects supported both financially, and through knowledge transfer activities (i.e. consultancy, workshops, and publications).

1.1 Rationale for the study

The purpose of the research was to enhance my professional effectiveness in my role as Manager of CEEBL. This necessitated being both practitioner and researcher, reflecting on my role as an educational developer, whilst at the same time developing critical research skills. I was seeking to make a contribution to knowledge in both the practice of educational development and to the theory of EBL, through exploring how to facilitate changes in tutors’ practice, by designing workshops, and EBL models which tutors could utilise to reflect upon their teaching. This dual role McLeod (1999) defines as practitioner research where ‘research (is) carried out by practitioners for the purpose of advancing
their own practice’ (p. 8). However, a tension existed between these dual roles which are discussed in Section 4.1 (p. 76).

The intention of the research was to develop a better understanding of EBL, through exploring dimensions of EBL, and the underlying philosophical traditions and consonant pedagogic approaches. Viewing EBL as dimensions is not entirely new, as some educational developers, associated with other Centres of Excellence, had already proposed EBL models (Review of Literature, Section 2.2.2, p. 35). These models were predominantly theoretically grounded. None of these authors in the literature review documented or published research on how the EBL models were derived. Consequently, the EBL models and constituent EBL dimensions developed during my practitioner research journey became less theoretical and more empirically grounded, through the process of engaging tutors and students in the development of the EBL models.

Also the research study sought to develop a better understanding of the process of how to convey what EBL is to tutors. None of the authors in the literature review fully documented the process or outcomes of introducing the models to tutors. Conole et al (2004) were the only authors who provided instructions on how to use their octahedron model (Figure 7, p. 42). However, Conole et al (2004) themselves identify a potential shortcoming of their toolkit in that, ‘it could be used as a post hoc rationalisation for a particular approach rather than a catalyst for fundamental redesign’ (p. 32), and ‘further work is needed to explore the potential power and limitations of the model’ (p. 32). There is a gap in the literature on documenting the process and outcomes of introducing EBL models to tutors as a reflective instrument to elicit change in conceptions of practice. These are areas where I make a unique contribution to knowledge.

1.2 Aims and research design

The overarching goal of the Strategic Plan of the Centre (CEEBL, 2006) was to support ‘international excellence in higher learning, research and professional education’ (2006, p.
To achieve this, it was important to be able to articulate what is excellence in EBL. From the perspective of practitioner research (McLeod, 1999), the aim was to discover how I could effectively employ EBL models to encourage the incorporation of enquiry-based teaching approaches.

Within this context the research aims were to:

- **Analyse pedagogic perspectives:** To understand how tutors and students experience the teaching and learning process. To analyse the educational discourse in relation to the nature of the tutor and student interactions. To introduce a more critical perspective to the question of what EBL is - by examining my own philosophical assumptions that influenced the development of the EBL models. To question these I employed a dialectical process (Lather, 1986) where I scrutinised these assumptions by interrogating the literature (Section 2.2.2, p.35), and participant data (Section 5, p.101). Also I investigated what excellence in EBL might mean, what pedagogical perspectives could be incorporated or are consonant with EBL, and whether these philosophical perspectives could enable EBL to enhance the student experience?

- **Develop my own practice:** To understand and develop my own practice through practitioner research (McLeod, 1999; Campbell, et al., 2004). To advance my own knowledge of how I could engage tutors in critically evaluating their own practice, with a view to encouraging them to embed an EBL approach. Predominantly this centred on the delivery, evaluation and enhancement of EBL workshops. The workshops were where tutors were provided with an opportunity to reflect on dimensions of their teaching and learning practice.

The research questions were in three categories. That oriented the literature review:

A. What is EBL?

B. How have pedagogical devices been used to facilitate tutors’ reflections on EBL?
Guided the empirical focus:

1. How do students experience the teaching and learning process?

2. How do tutors experience the teaching and learning process?

3. What is the nature of the dynamic between tutors and students during the teaching and learning process?

And guided the practitioner research journey:

i. ...... How can I use the pedagogic devices most effectively to facilitate tutors’ reflections on EBL?

How these questions related to the data sources, methods and analysis, are outlined in Table 1 (p.49).

The research project was situated as a critical action research approach (Skelton, 2005; Kemmis, 2001; Manfra, 2009). The research was conducted in a series of action research phases (Figure 1, p.19), each exploring different themes and enquiries. The participants consisted of 31 tutors who completed the EBL worksheets (Appendix 4, p.239) during workshops or semi-structured interviews, and 5 students. The student voice was represented through interviewing Student Interns employed by CEEBL and students of tutors involved in implementing EBL within the University of Manchester. The tutors who did attend the workshops were self-selecting and represented tutors who were keen to reflect on and potentially change their practice and understand EBL more. The primary methods of data collection consisted of: 1) student photo-elicited interviews; 2) tutor semi-structured interviews; 3) qualitative and quantitative data obtained from tutors’ EBL worksheets explored during interview sessions, and workshops. Different analytical methods were employed to analyse these three data sets. These are outlined in Table 2 (p.63). Additional to these main data sets there were audio recordings of group
discussions obtained during the series of workshops, and case studies. Participant feedback during the action research phases also contributed to the reflexive process during the practitioner research journey (Chapter 4, p. 76).

1.2.1 Action research phases

The project is structured as four action research phases (see Figure 1 p.19), which represent a dialectical process (Carson, 1990) incorporating educational theory from the literature and peers, findings from empirical data including participant feedback, which often challenged my own pedagogical assumptions during the development of the EBL models and dimensions. The EBL models were refined and adjusted and new models were created during the action research phases. Also, reflections on the delivery of the EBL models resulted in transformations in my practice of facilitating tutor reflections on EBL models, and in my role as a practitioner-researcher (McLeod, 1999).
Figure 1: An overview of the action research phases, and associated pedagogic models developed.

Phase One describes the creation of the initial Three-dimensional EBL Model from the Two-dimensional EBL Model (Figure 2, p.36), how these dimensions were translated into worksheets (Appendix 4, p.239), and designed as reflective pedagogic instruments. And how these worksheets were introduced to tutors from the University of Manchester during the first workshop.
Phase Two explores the parallels between the philosophical foundations and pedagogic perspectives of education for sustainable development and EBL. I describe how data and findings from Phase One combined with my personal beliefs and the pedagogical principles of education for sustainable development outlined in its literature created a Values-based EBL Model. This phase sought to capitalise on the congruence of these two visions of education.

Phase Three consulted students as stakeholders in the development of a new conceptual framework for thinking about EBL within the context of broader teaching and learning practice. A Student Involvement in Learning and Teaching Model was created from the empirical data abducted from the photo-elicited interviews (Section 3.3.1, p.55). I argue that this Model is important as students should be included in the development of theories that relate to, and may affect, their education.

Phase Four addressed assessment within teaching and learning practice because the students had referred to assessment, and it had not been specifically explored previously. A new EBL model, informed by the literature exploring dimensions of assessment practices in relation to EBL, was created, and it was later introduced to tutors during a workshop.

1.3 Parameters of the research study

I did not evaluate whether the EBL worksheets which were introduced to tutors as a pedagogic device to facilitate reflection on EBL dimensions had any impact on the participants’ actual practice; this would have entailed assessment of the participants’ actual practice prior to, and after the introduction of the EBL models. As there were some limitations requisite of my professional role namely: timescales as CEEBL closed in July 2010; also I was employed as the Manager, to facilitate change in tutors’ practice and to embed more EBL, not to observe or monitor practice. It may not have been considered ethical that I would monitor staff and check that their actual practice was as reported
particularly as there was as tension between the dual objectives as practitioner and researcher, both promoting EBL whilst also ensuring researcher objectivity. I discuss this in Section 4.1 (p.76).

Kane et al (2002) contend the teaching beliefs and practices of university academics that 'examine only the tutors' espoused theories of action’ (p. 177) only tell half the story. Thomson (1992) also stresses that:

> Any serious attempt to characterise a teacher’s conception of the discipline he or she teaches should not be limited to an analysis of the teacher’s professed views. It should also include an examination of the instruction setting, the practices characteristic of that teacher, and the relationship between the teacher’s professed views and actual practice.

(p. 134)

However, the research does not seek to measure the changes in actual practice, as this would involve a separate longitudinal research study, in combination with verification from the students who were experiencing the actual practice, or observation of the tutors’ practice from the researcher. The research study evaluated the effectiveness of the EBL models, via EBL worksheets, as pedagogic devices to facilitate tutors’ individual and group reflections on their practice to encourage the inclusion of more EBL approaches and to elicit the factors which affect tutors’ decisions concerning their practice. The research also sought to deepen the understanding of the notion of what excellence means in relation to EBL, and enhance the EBL models’ and workshops’ effectiveness and my own professional practice.

### 1.4 Structure of the thesis

In Chapter Two (Review of literature, p.23), I ascertain perspectives on what EBL is, and extend the review to incorporate a more values-based perspective of EBL, and to examine assessment practices consonant with student-centred pedagogies. Including thinking critically about what is excellence in relation to teaching and learning, and in particular in
relation to EBL. I also investigate how pedagogical devices have been used to facilitate tutors’ reflections on EBL.

In Chapter Three (Methodology, p.48), I outline the critical action research approach, the research design underpinned with a Buddhist ontological and epistemological perspective, and methods of data analysis. In Chapter Four (Practitioner research journey, p.76 ), I outline the reflexive process of the development of the EBL models, and detail my observations and reflections during the action research phases, and the refinement of processes involving tutors in workshops and interviews, and the factors which influenced the development of the emergent EBL and learning and teaching models.

In Chapter Five (Presentation of participant data, p.101) I present the student and tutor perspectives on their experiences of teaching and learning. The data presented during this Chapter informed the action research cycles of the research journey, specifically my reflections on the development and process of delivery of the models as pedagogic instruments to facilitate tutors reflections. And presented the empirical findings derived from the students and tutors which are discussed further in the following Chapters. I present the empirically developed student perspective Student Involvement Learning and Teaching Model. Also I make more explicit the dilemmas that tutors face in making choices about how they teach, and the findings from the process of introducing the EBL models via worksheets to tutors.

In Chapter Six (Discussion of participant data, p.161), I discuss the empirical findings of the action research project, and address the three research questions which relate to the aim of understanding the pedagogic perspectives and experiences of students and tutors. And finally in Chapter Seven (Conclusions, p.184) I synthesise findings from my practitioner research journey, and from the participants, and make recommendations for further research.
2 Review of literature

In this chapter, I explore the questions that oriented the literature review:

A. What is EBL?

B. How have pedagogical devices been used to facilitate tutors’ reflections on EBL?

Firstly, I locate the question what is EBL from within the context of CEEBL, and describe CEEBL’s ethos. Then I outline theories of EBL including: locating the historical and philosophical origins; describing the various pedagogic theories that are encompassed within EBL, including my own ideological position and understanding; outline assessment practices which are consonant with EBL, and criticisms of EBL.

Secondly, I locate the theoretical origins of reflective educational practice, and discuss what constitutes effective reflective educational practice. I introduce seven EBL pedagogic devices which exist to assist tutors’ reflections, describe how these devices are implemented as reflective devices, and evaluate how effective they are.

The search strategy for the literature review outlining the main literature sources, scope of the search, the search tools used, and a summary of the key words can be found in Appendix 1 (p.232).

2.1 What is EBL?

Before answering ‘what is EBL?’ it is essential to put this question into context, as it emanated from CEEBL’s (2006) strategic mission to actively disseminate EBL, and to create associated educational resources. This section of the literature review re-examines this question from a broader perspective encompassing the context and ethos of CEEBL.
It is of key importance that CEEBL was a centre of excellence, part of a government funded initiative intended to enhance the status of learning and teaching in higher education (HEFCE, 2011). Consequently some time needs to be directed to thinking critically about what is excellence in relation to teaching and learning, and in particular in relation to EBL. Skelton (2007) identifies that, 'teaching excellence’ has taken on particular meanings and become part of the everyday language and practice of higher education’ (p. 1), and that institutional rhetoric, and individual self-promotion mechanisms around this concept have proliferated. Skelton proposes that teaching excellence is a highly contested concept, and that it can be categorised into: traditional, performative, psychologized and critical categories, and that performative and psychologized understandings currently dominate the way that teaching excellence is conceived. Performative teaching excellence emphasises relevance to economy, commerce and industry, which seeks to maximise individual and institutional performance, and educational efficiency. Psychologized teaching excellence concentrates on the transaction between the tutor and student, seeking to establish universal procedures for effective teaching and learning to predict and control the achievement of specific outcomes. Traditional teaching excellence focusses on disciplinary knowledge and the pursuit of truth. Skelton (2009) advocates a critical approach to teaching excellence which seeks to encourage a debate about whether current performative and psychologized understandings ‘represent a sufficient goal for our teaching, and indeed, a sufficient epistemological and ontological project for the contemporary university’ (p. 108).

Skelton (2005) proposes that, ‘A critical approach recognizes that teaching excellence is a contested concept which is historically and situationally contingent’ (p. 11). This means that: 'Students, teachers, politicians and employers may all have different understandings of teaching excellence at any given moment in time’ (p. 11). An aspect of this aligns with Bernstein’s (1977) view who sees pedagogic approaches as an expression of political and social control, ‘How a society selects, classifies, distributes, transmits, and evaluates the
educational knowledge it considers to be public, reflects both the distribution of power and the principles of social control’ (p. 55).

Skelton (2012) advocates:

[A] deliberative approach involving the exploration of values and value-related conflicts in higher education teaching has much to offer. Such an approach provides an opportunity for a deep engagement with fundamental questions, namely: What educational values should underpin my practice? How might these values be translated into action within the classroom? (p. 267)

At the heart of the ethos of CEEBL (2006) was student engagement in both classroom practices and curricular development aiming ‘to involve students as partners in all its functions’ (p. 2). Student engagement is congruent with many of the principles of student-centred learning. To achieve excellence in EBL it may also be necessary to ensure that students are positively engaged in their learning experience. Graham et al. (2007) link the historic central idea of improving learning through student engagement:

The idea that students must be actively engaged in the learning process in order for it to be effective is not new. The roots for active learning reach back in the literature to John Dewey... A diverse body of educational research has shown that academic achievement is positively influenced by the amount of active participation in the learning process (p. 233).

Similarly, Tinto (2006) claims that ‘the more students are academically and socially involved, the more likely they are to persist and graduate’ (p. 7). He classifies collaborative learning and problem-based learning as ‘pedagogies of engagement’ (p. 15), which require students to be actively engaged in learning with other students in the classroom, but states that there is a great deal of work to be done to tell us how we can enhance engagement within institutions. Tinto suggests ‘A model of institutional action, whatever its final dimensions, must therefore treat student learning as part and parcel of the process of student success, and that success, however it is defined and measured,
must have at its core success in individual classes’ (p. 8). More specifically Astin (1984) argues that ‘the effectiveness of any attempt to increase student involvement is highly contingent on the student’s perceived locus of control’ (p. 528).

Trowler & Trowler (2010) distil the diversity of various understandings of the term ‘student engagement’ regarding individual student learning, institutional structure and process and identity. Where individual student learning is concerned with:

- student attention in learning;
- student interest in learning;
- student involvement in learning;
- student (active) participation in learning;
- ‘student-centredness’ – student involvement in the design, delivery and assessment of their learning (p. 19).

Coates (2005) views the essence of student engagement as aligned to excellence in learning and based on a:

Constructivist assumption that learning is influenced by how an individual participates in educationally purposeful activities ... In essence, therefore, student engagement is concerned with the extent to which students are engaging in a range of educational activities that research has shown as likely to lead to high quality learning. (p. 26)

Coates (2007) later proposed a typology of ‘transient states’ of student engagement styles, ranging from collaborative socially orientated to independent, and passive to intense highly involved.

‘Whilst inquiry has arguably been the mainstay of academic endeavour for centuries, the rise of inquiry-based learning as a pedagogy has been more recent’ (Spronken-Smith & Walker, 2010, p. 724). EBL is susceptible to misinterpretation. For example, EBL has been defined synonymously with problem-based learning (Deignan, 2009). And
Spronken-Smith (2008) concludes that it is no easy matter to pin-point or clearly define exactly what EBL is:

> Despite a lengthy history, the literature base for IBL [inquiry-based learning] is at best patchy and diffuse, and although there are several recent volumes that describe the teaching approach and provide readers with a range of examples ..., most literature appears in pockets amidst educational and disciplinary journals, usually due to enthusiasts attempting to encourage others to try the approach. (p. 1)

The problem with definition is reiterated by Tose & McDonnell (2006) who state: ‘Not only is this an emergent concept, but also its usage varies from place to place’ (p. 1). Indeed, there is no consensus even on the spelling with both inquiry and enquiry used in the literature. However, these can be viewed as entirely interchangeable as the Oxford English Dictionary (2000) now has the same entry for both. I use enquiry for consistency.

In UK higher education, a document published by the Higher Education Academy (Kahn & O’Rourke, 2004) is often cited, and refers to EBL as ‘a broad umbrella term to describe approaches to learning that are driven by a process of enquiry’ (p. 2). Tose & McDonnell (2006) criticise Kahn & O’Rourke’s definition as being ‘self-referential (what is the `process of enquiry’ that drives learning?)’ (p. 2), and offer an alternative definition:

> EBL is a process of learning in which the learner has a significant influence on or choice about the aim, scope, or topic of their learning; AND attends intentionally to, learns about, and is guided or supported in, the process of learning. This process of learning draws upon research skills and study skills, but enquiry is not reducible to either research or study. (p. 2)

EBL is analogous with student-centred educational philosophies and traditions. Dewey (1938) is often cited as promoting ‘situations which involve learning by doing’ (p. 162), and ‘learning through experience’ (p. 19) and recognised the divide between traditional static learning, and progressive learning. Dewey (1938) calls for a ‘philosophy of
experience’ (p. 53), an education that respects all sources of experience, a learning situation that is both historical and social that looks ahead linking the present work to the future. Dewey states that, ‘the only freedom of enduring importance is freedom of intelligence, freedom of observation and judgement exercised on behalf of purposes that are intrinsically worth-while, the power to frame purposes and to execute the purposes framed’ (p. 69).

Rogers (1969) is often cited as contributing to student-centred learning arguing that, ‘significant learning takes place when the subject matter is perceived by the student as having relevance for his own purposes’ (p. 158), and ‘learning is facilitated when the student participates responsibly in the learning process’ (p. 162). Rogers was strongly influenced by Dewey’s emphasis on experience as the basis for learning (Zimring, 1994).

My ideological position and understanding of EBL echoes the student-centred educational philosophies expressed by Dewey, Freire (1967), and Makiguchi (1930) a Japanese Buddhist educator, who believed that the purpose of education is to enable students to create value in their lives and to achieve happiness. He stated that:

The aim of education is not to transfer knowledge; it is to guide the learning process, to equip the learner with the methods of research. It is not the piecemeal merchandizing of information; it is to enable the acquisition of the methods for learning on one’s own; it is the provision of keys to unlock the vault of knowledge. (p. 196)

This view also aligns with Freire (1967), who criticised the overly narrative nature of education, where students are turned into ‘banking containers’, to be filled by the teacher. He called instead for a co-intentional education which liberates and frees students to re-create knowledge, echoing Makiguchi’s goal of setting students free on their own path of invention and discovery. These perspectives which underly EBL articulate its ethos, not just as a student-centred teaching methodology, but as a philosophical tradition. All the
pedagogic theories below are predicated on these student-centred philosophies and are consonant with EBL.

Mantzoukas (2007) comment that EBL and problem-based learning ‘share the same philosophical orientations and educational intentions’ (p. 245). Barrett (2001) argues that problem-based learning is best understood as a total education strategy underpinned by philosophical principles, and that Freire’s concepts of problematisation and dialogue (Freire, 1967; 1985) provide these philosophical principles.

One aspect that is considered a universal feature of EBL is group work. As Kahn & O’Rourke (2005) state, ‘EBL is usually organised around collaborative work in small groups or with structured support from others, thus promoting the social interaction and cohesion’ (p. 2). This aligns to social constructivism where students expand their knowledge within a social context (Vygotsky, 1978).

Levy & Petrulis (2012) suggest that there is value in moving conceptions of EBL from ‘active learning’ to a more inclusive conceptualisation that also encompasses ‘real’ research’ (p. 85). The recent trend in the research-teaching nexus is to expand the possibility of enabling students to have more responsibility to contribute to the research activities in a university, and therefore give learning more status. This concept has been around for some time but recently re-emerged. Elton (2001) relays Humboldt’s (1810) central idea that in institutions of higher learning both teachers and students serve scholarship and remain at all times in a research mode. Spronken-Smith & Walker (2010) define EBL, ‘as a student-centred pedagogy which can both enhance student learning outcomes, particularly the development of higher order skills, and strengthen the teaching–research nexus’ (p. 723).

Newmann et al (1996b) refer to Dewey stating that an authentic pedagogy ‘extends beyond transmission of isolated facts and skills to in-depth understanding and complex problem-solving and that is useful to students and society outside the classroom’ (p. 18),
and seeks to deliver high quality authentic and intellectual achievement incorporating: construction of knowledge, disciplined enquiry, and value of learning beyond the classroom. Although authentic education can incorporate tutor-centred approaches; Newmann et al (1996b) state that ‘teachers can be highly directive or structured or less prescriptive in the way they organize classroom activities and still meet the standards for authentic instruction and assessment’ (p. 45).

Assessment is an aspect of EBL which requires attention, as it is intrinsically linked to teaching and learning practices. Gipps (1999) reviews teaching and learning assessment from a socio-cultural and historical perspective, looking at the power and control inherent in assessment practices ‘both at the system and classroom level’ (p. 384). Gipps (1999; 1994) articulates the various student and tutor-centred aspects of assessment practice, and connects these to the underlying power relationships and the socio-historical context. Referring to Bernstein’s (1977) view, Gipps describes education as regulating, ‘the kind of worker produced and which individuals will reach positions of power and privilege’ (p. 362), conveying the political context of assessment with its function being to control access to higher education and the professions.

Gipps (1999) contrasts this ‘traditional’ approach with a newer ‘interpretive’ approach to assessment, ‘such as negotiated assessment and self-assessment, the student has a role in discussing and negotiating the terms and outcomes of the assessment’ (p. 378). Gipps (1999) suggests a way forward to facilitate

The student into some ownership of the assessment process (and hence into self-evaluation), teachers must share power with students rather than exerting power over them. We must help teachers to reconstruct their relationships, in both learning and assessment as they shift responsibility to the students. This does not mean the teacher giving up responsibility for student learning and progress; rather, it means involving the learner more as a partner. (p. 386)
Gipps (1999) contrasts external and formalised assessment with more collaborative approaches: ‘Assessment within the framework of sociocultural theory is seen as interactive, dynamic, and collaborative, rather than an external and formalized activity, assessment is integral to the teaching process and embedded in the social and cultural life of the classroom’ (p. 378).

Education for sustainable development can be viewed as consonant with EBL. Ikeda (2002) called for 2005-2015 to be declared the United Nations Decade of Education for Sustainable Development. He promoted the three educational goals: for education to provide the opportunity to deepen awareness of environmental issues and realities, to live more sustainably, and to empower people to take concrete action to resolve the challenges we face. The United Nations Commission on Sustainable Development (UNESCO) in their efforts to assist teachers worldwide to understand sustainable development concepts, interdisciplinary and values-laden curricula stated:

The development of thinking and problem solving skills is an important objective of Education for Sustainable Development, especially given the urgency of problems facing the world today. These skills can be taught and enhanced through enquiry learning. (Cox, et al., 2010)

This is echoed in Tilbury’s (2011) review of the processes and learning and evaluation of the United Nations Decade of Education for Sustainable Development which highlighted the importance of collaborative and participatory educational methods for sustainability education. Tilbury (2011) outlined an educational shift proposed by education for sustainable development from ‘passing on knowledge’, to one of ‘dialogue, negotiation and action’. Also Cotton & Winter (2010) concluded after asking colleagues in UK higher education that active learning processes, including PBL (problem-based learning), reflection, case-studies and group discussions were important pedagogical approaches associated with education for sustainable development.
Ikeda's (2002) vision of education for sustainable development is to build a ‘value-creating educational system where students are empowered to create value in their communities through, a contributive way of life [which] is based on an awareness of the interdependent nature of our lives--of the relationships that link us to others and our environment’. Brew (2006) argued that an EBL approach would assist students to deal with today’s super-complex world. Barnett (2000) describes this as ‘where participants are... prepared to cope with uncertainty and super-complexity in a pluralistic world’. Brew suggests a move towards ‘inclusive, collaborative, inquiry-based models of research, teaching and learning’ (p. 15).

A pedagogical framework originating from education for sustainable development literature which is consonant with the pedagogic perspectives and dimensions of the EBL is Sterling’s Ecological Model (Sterling, 2001, p. 11). He argued that in order to achieve sustainability (the reconciliation of environmental, social and economic demands), a move away from a transmissive mechanistic paradigm to an ecological paradigm is required. And that in the dominant teacher-centred educational paradigm there is disintegration between eidos (knowledge creation), ethos (learning culture) and praxis (authenticity of the action). He envisions whole systems thinking and integration of these dimensions as essential aspects to an ecological paradigm which would successfully deploy education for sustainable development.

Some literature outlines criticisms of EBL. Mayer (2004) contends that there is research evidence that points to an issue with experiential learning: ‘Pure discovery – even when it involves lots of hands-on activity and large amounts of group discussion – may fail to promote the first cognitive process, namely selecting relevant incoming information. In short, when students have too much freedom, they may fail to come into contact with the to-be-learned material’ (p. 17). Consequently, Mayer argues for instructional guidance and curricular focus. Tuovinen and Sweller (1999) report that students who had no previous domain familiarity, due to the extra cognitive load required during exploration,
benefited from worked examples. Similarly, Kirschner et al. (2006) argue that guided learning, namely scaffolded learning is more effective for learners, as it reduces cognitive load and therefore makes new topics more accessible (Sweller, 1988). Conversely, in a study of the relative effectiveness of discovery learning and direct instruction in over 100 children, Khlar & Nigam concluded that students performed as well in both approaches (2004). The EBL models that I have proposed do not preclude the use of guided, scaffolded or even tutor-centred approaches, rather the EBL models situate student-centred practices within the range of student-centred and tutor-centred teaching approaches.

2.2 How have pedagogical devices been used to facilitate tutors’ reflections on EBL?

2.2.1 Context of reflective educational practice

Dewey (1933) is most often cited as the origin of reflective thinking in education, defining it as ‘the active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it’ (p. 9). Skelton’s (2005) critical view of teaching excellence is of a value-laden concept which ‘involves recognizing that teaching excellence is a contested concept and that we each need to develop an informed personal perspective on what it means for practice’ (p. 12). Hence, tutors ought not to ‘comply in a passive manner with those understandings of teaching excellence given to them by politicians or experts; they have to develop for themselves a personally informed judgement and take responsibility for this’ (p. 4). Barnett (1997) similarly describes a ‘critical being’ including thinking, self-reflection and action, ‘Critical persons are more than just critical thinkers. They are able critically to engage with the world and with themselves as well as with knowledge’ (p. 1).

Kember and Gow (1994) propose that underlying conceptions and beliefs of teaching, influence the approach adopted by teachers, and ‘the task of promoting wider use of student-centred forms of teaching and learning a demanding one, because deep-seated
beliefs are hard to change’ (Kember, 2009, p. 2). This may explain why even though student-centred forms of learning have been advocated for over 50 years, and ‘an abundant body of evidence attesting to the effectiveness of student-centred or active forms of learning’. That, ‘In spite of this there is undoubtedly a great deal of teaching in higher education which is didactic or teacher-centred in nature’ (Kember, 2009, p. 1).

Argyris & Schön (1978) have made contributions to the theories of effective reflective practice, distinguishing between ‘single-loop learning’ and ‘double-loop learning’. Argyris (1994) illustrates this:

Single-loop learning asks a one-dimensional question to elicit a one-dimensional answer. My favourite example is a thermostat, which measures ambient temperature against a standard setting and turns the heat source on or off accordingly... double-loop learning would wonder whether the current setting was actually the most effective temperature at which to keep the room and if so, whether the present heat source was the most effective means of achieving it. A double-loop process might also ask why the current setting was chosen in the first place. In other words, double-loop learning asks questions not only about objective facts but also about the reasons and motives behind those facts. (p. 78)

Argyris & Schön (1974) also differentiate between ‘theory-in-use’ and the ‘espoused theory’:

‘Theory-in-use’ is the mental maps that guide the implementation of their actions, whilst ‘espoused practice’, this is the theory of action to which he gives allegiance, and which, upon request, he communicates to others. However, the theory that actually governs his actions is his theory-in-use. (p. 6)

In the following section I review existing pedagogical devices which were created to facilitate tutors’ reflections to conceptualise aspects of EBL.
2.2.2 Existing enquiry-based pedagogical models

Eight enquiry-based pedagogical models are reviewed below. Four pedagogic models are from scholars from the Centres for Excellence in Teaching and Learning from within the Learning Through Enquiry Alliance, a UK partnership of EBL centres, whose goals were to support teaching innovation and to facilitate enquiry-based practice. These included: 1) McMorrow’s functional Two-Dimensional Model of EBL (Figure 2, p.36). 2) Healey’s (2005) curriculum design for the research-teaching nexus, and associated dimensions of curriculum design; 3) Levy's (2009) model of EBL; 4) Jenkins’ (2007) EBL planner; and 5) Levy’s (2010) EBL planner. In addition, three EBL models from the literature are reviewed: 6) Spronken-Smith & Walker’s (2010) conceptual model of EBL; 7) Conole et al (2004) octahedron representation model; and 8) Boud & Prosser’s (2002) framework for the review and development of learning designs. All the devices were predominantly theoretical models to conceptualise EBL and practice, or an instrument to develop EBL designs. The devices are reviewed in sequence below.

1) Julia McMorrow, a Senior Lecturer at the School of Environment and Development within the University had an academic role as an EBL Fellow to support the Centre in promoting EBL across the University. To make sense of the variety of EBL projects across the University McMorrow developed a functional Two-Dimensional Model of EBL (Figure 2, p.36). This represented her practitioner perspective and allowed a variety of different types of EBL (Aubrey & McMorrow, 2010). The two dimensions represented the Content (x-axis) which encompasses the spectrum of teaching approaches between the two end-points of being tutor-centred to student-centred in the material that students learn, and the Process (y-axis) which encompasses the spectrum of teaching approaches between the two end-points of being tutor-centred to student-centred in the extent to which the learning process is structured by the tutor, from a highly structured (scaffolded or directed), to a less structured facilitated learning process (Aubrey & McMorrow, 2010).
I considered this EBL Model to have potential as an instrument to facilitate tutors’ reflections on their practice, and was employed as a starting point during Phase One of my practitioner research journey (Section 4.2.1, p.79).

2) Healey (2005) did not provide an explanation on how the much cited curriculum design for the Research-teaching Nexus Model (Figure 4, p.37) or associated three dimensions of curriculum design were intended to be implemented in practice. The three dimensions consist of whether the emphasis is on research content or processes, the students as the audience or participants, and the teaching is teacher or student-focused.
Healey (2005) suggests that, ‘Inquiry-based learning, which benefits student learning through direct involvement in research, is towards the right hand end of these three dimensions of curriculum design [Figure 3, p.37]’. The dimensions were generic, lacking specific explanation. For example, ‘teaching is teacher-focused or student-focused’ (p. 72), the only explanation provided was that it, ‘illustrates how curriculum design can be linked to the research-teaching nexus’ (p. 3).

3) In Levy’s (2009) model of EBL modes (Figure 5, p.38) the emphasis is on being a theoretical model to conceptualise EBL. However, in a more recent paper the intention moved toward it becoming a theoretical model to conceptualise EBL practice. Levy & Petrulis (2012) suggest that Levy’s (2009) EBL model, ‘offers a broad framework for planning progression of IBL [inquiry-based learning] through successive levels of study. All four IBL modes [producing, authoring, identifying/engaging, and
pursuing disciplinary knowledge] are taken to be valuable, depending on pedagogical purposes and context’ (p. 97). Levy (2009) concludes that the framework of EBL ‘has been found useful for researching and mapping conceptions and practices in inquiry-based learning, and for supporting design for inquiry-based learning’ (p. 2). And Levy & Petrulis (2012) refer to papers which have utilised Levy’s (2009) conceptual framework for EBL and which suggest it ‘has been found useful for pedagogical design and research/evaluation’ (p. 85). Webber (2010) after using Levy’s (2009) model to reflect on aspects of course design reported, ‘The author has been provoked into reflecting further on pedagogy’ (p. 65). Spronken-Smith & Walker (2010) state that they believe that Levy’s (2009) model , ‘makes a very useful contribution to developing the theoretical base for inquiry-based learning’ (p. 735).

<table>
<thead>
<tr>
<th>STAFF-LED</th>
<th>STUDENT-LED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Producing (discovery-responsive)</strong></td>
<td><strong>Authoring (discovery-active)</strong></td>
</tr>
<tr>
<td>Students pursue new questions, problems, scenarios or lines of inquiry, as formulated by tutors, in interaction with the knowledge-base of the discipline (‘How can I answer this question?’).</td>
<td>Students pursue their own new questions, problems, scenarios or lines of inquiry, in interaction with the knowledge-base of the discipline (‘How can I answer my question?’).</td>
</tr>
<tr>
<td><strong>Identifying/Engaging (information-responsive)</strong></td>
<td><strong>Pursuing (information-active)</strong></td>
</tr>
<tr>
<td>Students explore the knowledge-base of the discipline in response to questions, problems, scenarios or lines of inquiry formulated by staff (‘What is the existing answer to this question?’).</td>
<td>Students explore the knowledge-base of the discipline by pursuing questions, problems, scenarios or lines of inquiry they have formulated (‘What is the existing answer to my question?’).</td>
</tr>
</tbody>
</table>

**EXPLORING AND ACQUIRING EXISTING DISCIPLINARY KNOWLEDGE**

Figure 5: Levy’s (2009) model of modes of inquiry-based learning.
Jenkin’s (2007) EBL planner is an instrument intended to review and develop learning designs towards more student-centred teaching. Jenkins (2007) EBL planner was created, ‘to provide a focus for discussion in the design and development of new courses and individual modules/learning activities’ (p. 1). This list was theoretically informed by Boud & Prosser (2002), Kahn & O’Rourke (2004), and Reeves & Reeves (1997). At the heart of the EBL planner is a check list of dimensions of degrees of ‘active engagement’ (p. 2) in course design and context. Tutors are asked to use the check list to ‘reflect on your course, module, or a learning activity’ (p. 2). Presented here are two examples from the ten items on the checklist:

1 Learner empowerment. To what extent are students encouraged to take greater responsibility for their learning as they progress through their learning (Scaffolding)?

Not at all ------ to some extent ------ To a great extent

Comment:

2 Peer collaboration. To what extent are students provided with opportunities for working within learning communities through collaborative learning and peer interaction?

Not at all ------ to some extent ------ To a great extent

Comment:

The other items on the checklist include peer and tutor feedback, and flexibility in delivery, inclusion and diversity, reflection, authenticity, complexity, exploration, and articulation.

Levy (2010) provides a limited explanation of implementation of her EBL Planner, ‘This Planner offers a point of departure for designing IBL (inquiry-based learning), and
discussing and sharing IBL designs, in any academic discipline. Already produced designs for example, in the form of case studies or activity sequences can be used in conjunction with the planner for inspiration and adaptation’ (p. 1). Levy’s (2010) EBL planner, is in the form of a sequence of questions. The tutor would attempt to address these questions. However, some of these questions are very difficult for the tutor themselves to answer, e.g. ‘What relevant subject and process knowledge and skills will students bring to the inquiry?’, and ‘How do they understand inquiry and research, and their own roles as student researchers?’ (p. 1) A consultation exercise with the students would be required prior to tutors engaging with the EBL planner, in order to answer these particular questions.

6) Spronken-Smith & Walker’s (2010) model (Figure 6, p.41) is a theoretical model to conceptualise EBL. They identify it as ‘conceptual model showing the relation between different modes and framing of inquiry-based learning and the teaching–research nexus’ (p. 736). Spronken-Smith & Walker (2010) suggest that, ‘If teachers are planning to use inquiry-based learning as a means to strengthen teaching–research links, they must be cognisant of the different manifestations of inquiry, and how these may influence the nexus’ (p. 737), and propose that ‘One interpretation of the model is that structured and guided forms of inquiry should precede open inquiry’ (p. 737).
41

Figure 6: Conceptual model showing the relation between different modes of inquiry-based learning (Spronken-Smith & Walker, 2010, p. 727).

7) Conole et al (2004) provide a detailed theoretical run-through of how their toolkit is intended to be used, ‘By mapping particular learning activities and mediating approaches, the practitioner can develop a profile for individual learning activities and the ways in which they map to the underpinning pedagogical perspectives’ (p. 28). Conole et al provide a step by step process of achieving this in conjunction with their octahedron model, which they named the ‘learning design toolkit’ (p. 18). There is no evidence as to how successfully it could be used in practice; it is a seemingly complex and time-consuming process. Conole et al’s (2004) Model is intended to provide, ‘a mechanism for selecting learning activities, associated mediating tools and resources against whichever components of the Model a particular pedagogical approach wishes to adopt, which can help make the link between pedagogy and activities/mediating tools and resources explicit’ (p. 27). This idea, however, is provided as a theoretical example, as opposed to evidence of how it would work in practice with teachers. The toolkit and methodology are both shrouded in theoretical terminology, and to introduce this in practice to teachers may prove problematic. Also Conole et al’s toolkit is intended to focus ‘on eliciting actual practice and drawing inferences which can be used to support professional judgement, rather than on prescribing correct
solutions’ (p. 27), so may be in danger of being an exercise of over-theorising, with little information or evidence on how this may result in a change teaching activities. Conole et al themselves identify a potential shortcoming of the toolkit in that, ‘it could be used as a post hoc rationalisation for a particular approach rather than a catalyst for fundamental redesign’, and ‘further work is needed to explore the potential power and limitations of the model’ (p. 32). However, they see strength in the process as ‘enabling practitioners to evaluate their own practice and make more explicit their underlying pedagogical approaches and how this informs their learning and curriculum design’ (p. 22). Conole et al’s toolkit is most useful as a framework for tutors being introduced to learning theories.

Figure 7: Octahedron representation of the Conole et al’s (2004) model.

8) Boud & Prosser (2002) set out to pilot the framework of ‘Influences on high quality learning’. However, in their paper, the pilot process was only mentioned in a cursory fashion and no detail at all was given as to how the framework was utilised in practice. The framework and associated questions were developed from and informed by the student-focused perspective literature. But Boud & Prosser (2002) recognised
that it was important that the framework was ‘situated in a language and context that was comprehensible and usable by instructional designers’ (p. 244). However, the only detail given to the refinement of the framework and the pilot was, ‘we believe that through the pilot studies and the subsequent discussions and revisions we have made a good start on this process’ (p. 244). A key feature of the use of the guidelines is in addressing one of the final questions, which is ‘What features would need to be changed or added to the activity to make it more effective in enhancing learning?’ (p. 243); indicating that a change in practice was a desired outcome.

Boud & Prosser’s (2002) framework for the review of EBL designs consisted of a ‘set of guidelines to operationalize it, it was developed by the authors in the form of a set of [twenty-eight] questions’ (p. 240). Boud & Prosser (2002) suggest that the framework is ‘presented as a question followed by a list of sub-questions on a single page. Users are invited to take a particular example of a learning activity in the context in which it is used’ (p. 243), and tutors then spend an extended period of time writing rich descriptions of the features of the product they are examining. Boud & Prosser’s (2002) framework and the associated questions ‘was piloted by the wider project team on a selection of learning designs’ (p. 240), revisions were made, a second trial conducted, and guidelines further revised, and peer reviewed. However, this was all the information given concerning the pilot and trial, there was no elaboration. It was reported that the trials were conducted with the ‘project team’, so I conclude that the trials were not extended to external teachers who were not already familiar with the theoretical rationale for the framework. Therefore how well the framework would be received, or how effective it would be in practice is not yet understood, as the outcomes of the trial were not published.

2.3 Summary

EBL is presented in the literature from a variety of perspectives. There are many different conceptions and pedagogic theories which can be encompassed within EBL. Authors refer
to the breadth of potential meanings for the term EBL (Spronken-Smith, 2008; Tose & McDonnell, 2006; Kahn & O’Rourke, 2005). It is an umbrella term for a multitude of different pedagogic theories and approaches such as: problem-based learning (Mantzoukas, 2007; Barrett, 2001; Deignan, 2009), students as researchers (Levy & Petrulis, 2012; Jenkins & Healey, 2009; Griffiths, 2004), experiential/discovery learning (Boud, et al., 1993; Mayer, 2004; Khlar & Nigam, 2004), collaborative learning (Vygotsky, 1978; Johnson, et al., 2007), authentic learning (Kreber, et al., 2007; Newmann, et al., 1996a; Herrington, et al., 2003), inquiry-guided learning (Jenkins & Healey, 2012), and active learning (Jenkins, 2007). And there are lesser known pedagogic approaches, which are consonant with EBL, namely: value-creation pedagogy (Makiguchi, 1930; Ikeda, 2001), and education for sustainable development (Ikeda, 2002; Tilbury, 2011; Sterling, et al., 2010). All of these are framed within student-centred philosophies of Dewey (1938), Friere (1967), and Rodgers (1969). Many elements of these pedagogies overlap with authentic, real-world, collaborative, socially situated, problem-based, experiential and student-centred learning being common themes across most of the pedagogic perspectives studied above.

The literature shows that what constitutes EBL is contested. Spronken-Smith & Walker (2010), after asking both students and teachers about their understanding of EBL, concluded, ‘we now suspect that much of the confusion around the definition of inquiry-based learning may be related to differing conceptions of knowledge and research, and the disciplinary context cannot be underestimated’ (p. 737).

After synthesis and analysis of the literature review, a working definition of EBL is proposed: EBL encompasses many dimensions of teaching and learning that are predicated on student-centred educational philosophical traditions; its pedagogy is ideological seeking to empower students in an inductive, experiential, problem-solving, and active learning journey that facilitates student engagement in learning, and contribution in a complex world. These EBL dimensions although expressing aspects of
practice also have inherent pedagogic implications. Zukas and Malcom (2007) differentiate between: pedagogy and didactics, seeing pedagogy as encompassing ‘the overall purposes of education, the scope and categorisation of knowledge, curricular design and methods of instruction [and]... conceives educational practice as a situated, multifaceted, and complex process, involving multiple relationships, and crucially [is] driven by specific and often conflicted purposes, power relations and interests; and whilst ‘didactics [which] can be seen as a specific element or branch of pedagogy concerned with questions of method and technique’, the ‘how’? of teaching. Each EBL dimension contains both didactics and pedagogy; a choice about method and technique which is underpinned by a philosophical or pedagogic implication.

The existing EBL pedagogic models are predominantly theoretically derived. Levy’s (2009), Spronken-Smith & Walker’s (2010) and Boud & Prosser’s (2002) undertook some empirical work to revise and refine their models but this was limited in scope, and the process undertaken to achieve this empirical refinement was not articulated. Conole et al’s (2004) Model (Figure 7, p.42) was ‘a representation of the generic, non-contextualised models from the literature. As with any representation of this kind, the description of theories and models presented reflect the subjective understanding and biases of the authors’ (p. 27). Of the devices reviewed, only Levy (2009), Spronken-Smith & Walker (2010), and Boud & Prosser (2002) reported that they had made a very limited attempt to empirically refine their models/instruments so that they would be more comprehensible to the users. Therefore, there is a requirement for an empirically derived EBL Model where the process of how the model was derived is fully outlined. Sharpe (2004) (as cited in De Freitas, et al. (2008)) concurs and recommends the empirical creation of instruments:

using the audience’s own language. Such tools need to reify users’ terminology, not designers, if they are to be easily adopted; either the designer or the learner must take on the work of making the terminology of the other community meaningful, and if a model is
intended to be usable, it would be prudent to spare practitioners the extra work involved in learning to relate these terms to their own practices. (p. 37)

Spronken-Smith & Walker (2010) conclude after a cross-case analysis of three courses, ‘there still remains a need for research on both student and teacher conceptions of inquiry-based learning that encompasses perceptions of knowledge, research, teaching and learning’ (p. 738). Boud & Prosser (2002) believe it to be important that models and instruments are ‘situated in a language and context that was comprehensible and usable by instructional designers’ (p. 244).

At the heart of Jenkins’ (2007) and Levy’s (2010) EBL planners, and Boud & Prosser’s (2002) framework for the review and development of EBL designs, are a series of questions. Whilst potentially being practical instruments for tutors to use to examine their practice, Jenkins’ (2007) and Levy’s (2010) EBL planners have not published any information on how the instrument was deployed, so there is no evidence concerning how effective the EBL planners are in practice. Also the EBL planners themselves have not been formally published in peer reviewed journals, but were made available only as professional reports via their Centre’s websites.

Additionally, it is not known whether the pedagogical devices introduced (Section 2.2, p.33) are effective as reflective devices as I have found no instances in the literature where the authors have evaluated the devices, methods and processes of deployment, or outcomes of using pedagogic devices directly with participants. There is some limited, anecdotal evidence concerning the devices (Levy & Petrulis, 2012; Webber, 2010). Likewise Russell (2005) also identifies a lack of explicit strategies and instruction to support and develop reflective practitioners: ‘There seems to be more rhetoric about the value of reflective practice than there is detail about how professional educators can help beginning professionals develop the skills of reflective practice and acquire initial experiences’ (p. 199). There is a requirement for research on how EBL pedagogical models can be introduced as reflective devices, how these are received by tutors, and
explications of how to introduce pedagogical devices to academics who are considering changing their teaching to more student-centred, and utilise more enquiry-based methods. Jay & Johnson (2002) recommend, ‘further study into the practices that are the pedagogy of teaching reflective practice’ (p. 85). These are areas where I can make a unique contribution to knowledge, to document the process and outcomes of directly using EBL, and learning and teaching models as pedagogic instruments to facilitate reflections on student-centred approaches, to trigger a desire for tutors to change practice, and how these changes can be measured.
3 Methodology

3.1 Research aims and questions

The aims of the research were to make a contribution both to knowledge of the practice of educational development and to the theory of EBL through exploring how to facilitate changes in tutors’ practice, by designing workshops, and EBL models which tutors could utilise to reflect upon their teaching, and to evaluate these.

The gaps identified in the literature review (Section 2, p.23) oriented the empirical research questions. Spronken-Smith & Walker (2010) recognise there is ‘a need for research on both student and teacher conceptions of inquiry-based learning’ (p. 738) which was instrumental in directing the first two questions:

1. How do students experience the teaching and learning process?
2. How do tutors experience the teaching and learning process?

Augmenting the student and tutor conceptions of the teaching and learning processes was a third question which arose from Dewey’s (1938) principle that ‘education is essentially a social process’, and therefore the ‘development of experience comes about through interaction’ (p. 65).

3. What is the nature of the dynamic between tutors and students during the teaching and learning process?

Additional questions oriented the literature review, and guided the practitioner research journey. Table 1 (p.49) maps all the questions, against the data sources and rationale and methods of analysis. The research encompassed a multi-phase design (Figure 1, p.19) in which each phase developed different facets and enquiries in the construction and deployment of EBL models. I go into more detail about the action research phases in Chapter 4 (p.76) as it is more appropriate to outline these in the practitioner research journey. The phases were an integral part of the action research process of the practitioner research journey: sequential and evolved during cycle of planning, action, fact-finding and reflection (Lewin, 1948).
<table>
<thead>
<tr>
<th>Categories of questions</th>
<th>Questions</th>
<th>Data sources</th>
<th>Rationale and methods of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Questions that oriented the literature review.</strong></td>
<td>A. What is EBL?</td>
<td>Literature</td>
<td>Literature review provided pedagogical perspectives for the foundation of the theoretically derived EBL models.</td>
</tr>
<tr>
<td></td>
<td>B. How have pedagogical devices been used to facilitate tutors’ reflections on EBL?</td>
<td>Literature and professional reports</td>
<td>Analysis of existing literature and professional reports provided an existing explanation of how EBL was described, and how EBL models have been introduced as tools for reflection.</td>
</tr>
<tr>
<td><strong>Empirical research questions</strong></td>
<td>1. How do students experience the teaching and learning process?</td>
<td>Individual photo-elicited interviews (Collier, 1957).</td>
<td>Content analysis of the narrative accounts of the students. The student data was subjected to abductive content analysis strategy (Blakie, 2007) to inform the development of a new Student Involvement in Learning and Teaching Model. A hybrid inductive and deductive coding theme approach was employed (Fereday &amp; Muir-Cochrane, 2006).</td>
</tr>
<tr>
<td></td>
<td>2. How do tutors experience the teaching and learning process?</td>
<td>Individual interviews and worksheets completed during one-to-one sessions and workshops.</td>
<td>Content analysis of the narrative accounts of the tutors. The written statements of the tutors on the EBL worksheets were subjected to dilemma analysis (Winter, 1982).</td>
</tr>
<tr>
<td></td>
<td>3. What is the nature of the dynamic between tutors and students during the teaching and learning process?</td>
<td>Individual interviews with students and tutors. Worksheets completed by tutors during one-to-one sessions and workshops.</td>
<td>Content analysis using an inductive coding theme development approach.</td>
</tr>
<tr>
<td><strong>Questions that guided the practitioner research journey</strong></td>
<td>i. How can I use the pedagogic devices most effectively to facilitate tutors’ reflections on EBL?</td>
<td>My observations and reflections on the process of deploying the EBL worksheets. Quantitative and qualitative data from worksheets completed by tutors, and feedback on how EBL models were received.</td>
<td>Analysis and reflections on effectiveness on the EBL dimensions influenced the iterative action research phases, design and presentation of the EBL workshops and worksheets.</td>
</tr>
</tbody>
</table>

Table 1: Chart for linking research questions, data sources, rationale and methods of analysis.
The methodology adopted for this practitioner research study was critical action research situated in the context of my professional role at CEEBL, which evolved over a three-year period (McLeod, 1999; Campbell, et al., 2004). The research undertaken is ‘for education’ rather than about education. It encourages ‘A form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their practices’ (Carr & Kemmis, 1986). The process of action research which was undertaken by the researcher, is summarised in the action research phases described in the practitioner research journey (Section 4 p.76). However, critical action research encompasses both ‘subjectivity and objectivity in a dialectical fashion’ (Carson, 1990, p. 168). Thus the aim of the research was to develop my own critical insights into previously held views and assumptions, and to facilitate tutors to do the same.

I sought to provide an opportunity for tutors to become empowered, providing them with a model/instrument that would enable them to become more reflective and informed about the choices they have in relation to teaching and their tutor-student relationships. The underlying precepts of action research and the principles of EBL are in harmony, both stressing participatory group work and real-world enquiry. It is therefore considered quite appropriate to utilise the method of action research to promote scholarship of EBL. I aspired to facilitate a change in tutors’ conceptions of their practice in order to give students more power and equality within the tutor-student dynamics and situated teaching and learning relationships. Also, at the same time, I reflected on and developed my professional practice, theories and models on which this was based.

I critically investigated the prevailing tutor-centred practice, and challenged the prevailing functionalist paradigm (Burrell & Morgan, 1979) in the study of higher education which approaches subject matter from an objectivist mind-independent point of view, which is characterised by providing explanations of the status quo and regulation. Milam (1991) observed that the functionalist paradigm dominated 98% of the journal literature in
higher education, and warned as a consequence that the theoretical foundation of higher education is limited. More recently, Kezar & Dee (2011) concur, 'Although the functionalist paradigm remains most prevalent, we have seen significant growth in the use of the interpretive paradigm, [and] increasing use of the critical paradigm’ (p. 266).

My research aligned with Denzin & Lincoln’s (2000) critical paradigm which attempts to highlight the importance of power dynamics. This thesis is concerned with comprehending the power implications and value-related conflicts of practices, and the pedagogic perspectives in the situated processes between tutors and students. It also has an aspiration to change tutors’ conceptions of their practice in order to become more student-centred.

Despite the complex history that action research has, I attempt to summarise the recent origins of the approach in relation to the British and American historical traditions of action research (Smith, 2007). Action research has emerged from a broad range of fields, continents and authors, with different perspectives and emphases. Kurt Lewin (1948) is often credited as the person who coined the term action research. He promoted a type of social research that resulted in action rather than just the publication of theories:

> The research needed for social practice can best be characterized as research for social management or social engineering. It is a type of action-research, a comparative research on the conditions and effects of various forms of social action, and research leading to social action. Research that produces nothing but books will not suffice. (p. 203)

However, McKernan (1987) states that prior to 1946, Dewey (1910; 1924; 1929) elaborated a reflective, scientific method of learning from experience. And that Lewin derived his action research cycle from Dewey’s ideas of the interplay of experience, interaction and reflection. Lewin (1948) expressed this interplay as a cycle that consists of a series of action cycles, ‘each of which is composed of a circle of planning, action and fact-finding about the result of the action’ (p. 206).
Hopkins (2002) identified the origins of the British tradition. He traced the teacher-as-researcher movement in Britain, to the Schools Council’s Project 1967–72, which emphasised the research and re-conceptualisation of curriculum (Stenhouse, 1981). Soon after, Elliott and Adelman in the Ford Teaching Project, examined their secondary school classroom practices (Carr & Kemmis, 1986). Elliott (1981) defines action research as ‘the study of social situations with a view to improving the quality of action within it’ (p. 69), and argued that action research was a distinct form of research, which was concerned with the transformation of practice, to change pedagogy to include discussion-based and interactive approaches. He summarises action research: ‘It is directed towards the realization of an educational ideal (e.g. as represented by a pedagogical aim); it focuses on changing practice to make it more consistent with the ideal’ (p. 25). My research was consonant with Elliot’s view, where I sought to encourage tutors to consider what their ideal practice would be, and if there was dissonance from their actual practice to consider and discuss strategies to achieve this ideal practice.

Carr & Kemmis (1986) continue this British tradition. They are classified by McKernan (1987) as being from the critical-interpretive school of action research. Carr & Kemmis’s (1986) view of critical action research describes the research that I have undertaken where research is for education rather than about education:

A form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their practices, their understanding of these practices, and the settings in which practices are carried out, placing a special emphasis placed on the emancipatory interest. (p. 162)

Melrose (1996) criticises action research suggesting that critical research is value laden, and therefore is not neutral, having an explicit social agenda. However I do not claim neutrality, and, by taking a facilitator role, I seek to enable a more democratic process which can encompass a variety of tutor perspectives.
A focus of the project became refining and re-creating the EBL models with a dialogic approach so that I could co-construct the best representation of the dimensions of teaching, learning and assessment (Bakhtin, 1981). What I was primarily concerned with creating EBL models, so that they were not just representations from the literature, or my own preferences, but also resonant more with tutors and students, by representing their input and perspectives. Whilst also ensuring that the critical connection to the philosophical and pedagogical underpinnings of EBL was not lost, I hoped to achieve EBL models which were more relevant and meaningful to tutors and reflected more inclusively the discourse of all the stakeholders, but also contributed to a critical view of what excellence in EBL would be.

Guba and Lincoln categorize qualitative research paradigms according to their stance on: ontological questions ‘What is the form and nature of reality, and therefore what is there that can be known about it?’; epistemological questions ‘What is the nature of the relationship between the knower or would-be knower and what can be known?’; and methodological questions ‘How can the inquirer go about finding out whatever he or she believes can be known?’ (1994, p. 108). The openly ideological stance underlying this research was influenced by a Buddhist perspective which ‘advocates a paradigm shift, from the idea of education as serving the needs of society, to that of a society that serves the essential needs of education’ (Araúz, 2012, p. 160). This is a value-creating Buddhist pedagogy, where, it is argued, the purpose of education should be aligned to the goal of life itself and centred around the achievement of students’ happiness through the creation of value in an individual’s life (Makiguchi, 1930). This ethos is consonant a critical action research approach which involves ‘a pedagogy of personal transformation’ (Creswell, 1998, p. 82) and accords to a Buddhist aim to ‘restructure education as transformative learning’ (Araúz, 2012, p. 163). In order to achieve transformation in education it is necessary to transform an individual tutors’ practices.
Tutors’ practices are contextual, this is the Buddhist ontological assumptions of Ichinen Sanzen which ‘reveal[s] the nature of self and reality as a microcosm of the macrocosm’ (Odin, 2001, p. 371) consisting of the ‘unity of the macrocosm of the universe and the microcosm of the individual mind’ (p. 377). Ichinen Sanzen conceives the reality of the individual experience of tutors and students as implicitly interconnected to their external environments, where the phenomenon of the microcosm of an individual and macrocosm of the environment are mutually influenced through cause and effect. This ontological assumption concerning human nature implies that to understand the individual it is also necessary to understand the relationship of an individual to their social and physical environment, because it is assumed that it is true that individuals are both causal over their environment and that the environment affects them.

Bronfenbrenner and Ceci’s (1994) Bioecological Model (Figure 8, p.68) embodies the principles of Ichinen Sanzen, and hence was used to frame tutors’ individual experiences within the University environment and social context. This concurs with the critical action research perspective that appreciates participants ‘understandings are constrained by objective limits that are changeable because they are socially constructed’, but ‘that participants can alter these limits creating new understandings’ (Carson, 1990, p. 168).

In terms of appropriate methodological approaches the life experience of the participants at a specific moment is key in this research. Dunne (2005, p. 753) states that ‘Buddhist epistemologists examine knowledge in terms of a knowledge-event or act of knowing... the mind consists of a series of causally related, instantaneous mental moments, each of which is ontologically irreducible’, where there is subjectivity in the act of knowing which ‘occurs when the mind comes into a direct or indirect causal relation with an object’. These epistemological and ontological assumptions directly influenced the methodological choices that were employed in this research study which elicited tutors’ experiences through interviews and engagement in workshops, and students through photo-elicited interview. These methods sought to illustrate participants’ subjective experiences of
specific moments in teaching and learning situations within the context of the University environment and social systems.

3.3 Research design

In the following section firstly the data collection methods are outlined: photo-elicited interviews with students; EBL worksheets completed by tutors during workshops; and semi-structured interview with tutors. Secondly how these primary data sets were analysed is described, including the conceptual frameworks that were employed to frame the empirical data. 31 tutors participated in completing the worksheets during workshops and semi-structured interviews, five students were interviewed, and an additional two tutors contributed to case studies in the practitioner research journey. Aspects of the research design are also covered in the Practitioner Research Journey Chapter (p.76), where I describe my professional learning, outlined as four action research phases which details the process of development of new EBL models. Also, how I refined the delivery of the reflective EBL worksheets and changed my pedagogic perspective, whilst reflecting on my dual role of ‘practitioner-researcher’ is described (McLeod, 1999, p. 8).

3.3.1 Data collection methods

There were three primary methods of data collection. These are outlined below and summarised in Table 2 (p.63).

Photo-elicited interviews (students)

In Phase Three (p.87) five students were invited to participate consisting of three Student Interns and two students of academics who were existing participants in the research project. The Student Interns were recruited to CEEBL and represented the Centre’s aspirations for students to contribute as partners and stakeholders in their own education, and to be involved actively in the process of curriculum change. The second set of students, were volunteers from particular modules, who were recruited via an
announcement from their tutors during a class. Photo-elicited semi-structured interviews with a limited number of five students were undertaken, representing undergraduate, postgraduate taught and research programmes, and across all the University Faculty categories. The low sample size of students represented a limitation of the study, however a level of theoretical saturation of the student experience was achieved.

Photo-elicitation is a methodological tool for data gathering. It is a combination of photography, and semi-structured interviews. It is a technique which is in accord with the Buddhist ontology and epistemic perspective where knowledge in perceived in ‘terms of a knowledge-event or act of knowing... the mind consists of a series of causally related, instantaneous mental moments, each of which is ontologically irreducible’ (Dunne, 2005, p. 753). Each photograph was auto-elicited and represented a subjective report from the students of a specific life moment within a situated teaching and learning situation; where the ‘microcosm of the individual mind’ (Odin, 2001, p. 377) revealed the nature of the macrocosm of the University context.

Photo-elicitation was first described by Collier (1957) where he used the methodology to examine mental health in Canada. Harper (2002) claims that images evoke deeper elements of human consciousness than do words, as images are different from words in the way we process the symbolic representation, therefore photo-elicitation can jolt subjects into a new awareness of their social existence. In 2002, Harper conducted a literature analysis attempting to locate all previous examples of photo-elicitation research. He identified four areas where photo-elicitation has been used in social, community, identity and culture. However, none of those identified before 2002 were research in the field of teaching and learning in higher education. There are few examples in higher education, Harrington & Schibik (2003) used ‘reflexive photography’ in the study of the freshman year experience which resulted in freshman interpretations of campus and inner reflections, not on their learning experience in a class room. Taylor (2002) used photography to make meaning of adult educators’ teaching beliefs. A small number of
researchers also used it who wanted rich and open descriptions from children at school age (Rasmussen, 2004; Clark-Ibáñez, 2004). However, photography as a research tool has been under-appreciated and marginally used in higher education research in teaching and learning. Therefore, there was an opportunity to explore generating narratives from university students’ reporting their experiences of teaching and learning situations.

Auto photo-elicitation fostered the opportunity for students to take their own photograph, select their own teaching and learning moment that they wished to describe, and that enabled students to elaborate in their own words what was significant to them in that specific moment. Each student selected any teaching session they wished, this could have been an EBL session, seminar, laboratory class or lecture. And then, the students selected specific moments of time during this teaching session that they wished to photograph. During each teaching session the students would select approximately three to five specific moments to take photographs that were significant to them.

I met each student twice. Firstly, to outline the process and gain their written consent. Secondly, to conduct the interview which took place around the photographs. Each photograph was discussed in turn and questions (Appendix 8, p.245) were asked to encourage the student to talk about each image and recollect their experiences. The questions were devised after considering Gestalt theory, in order to interrogate the description of the image of the photograph fully. The questions were broken down into the four key properties as elaborated by Lehar (2004) of Gestalt systems that of: emergence, reification, multistability and invariance. The questions were designed to elicit descriptions of these aspects of what was taking place in the photographs, what was happening and felt at that specific time. These elements of the ‘subjective experience of visual consciousness’ (Lehar, 2004, p. 375) were applied to elicit the students’ interpretation of the components of the visual photographic representation of their social experience.
After the first photo-elicitation exercise it became apparent that it assisted the students greatly if the rationale of the research project and purpose of the photo-elicitation was explained in detail, aiding their decision process concerning photographs they judged to be significant, and therefore wished to capture. Technically excellent photographs were not required; rather the emphasis of the auto photo-elicitation was photographs representative of significant moments from their experience of teaching and learning.

In three instances the students were unable to take photographs of their significant moments. A PhD student (Sharon) was in write-up phase, and did not have a teaching session to photograph as it had already occurred in the past, and two undergraduate students found that they could not obtain consent from the tutor for particular sessions (Liz & Phil). In these cases, I created a variation of the photo-elicitation method and entitled this ‘time-space elicitation’ which entailed the student selecting a particular significant moment in time and place in a teaching and learning session, as an alternative to taking photographs. The students made a note of the specific time and reported what activity was occurring in that moment. This was then used as the trigger to stimulate narrative describing that significant moment. The data from this method was not as rich and descriptive as it was from the photo-elicitation interviews. It proved much more difficult for the students to stay focused on the specific details and aspects of their learning experience. In the case of the one undergraduate student, the data was not used as it was not sufficiently descriptive of the activities in the teaching session. The student veered to reporting generalities of the experiences of higher education.

**EBL worksheets from workshops (tutors)**

How to use the EBL dimensions most effectively, was a central question to my practitioner research journey. I sought to engage tutors with a reflective pedagogic instrument exploring dimensions of student and tutor-centred teaching. Within the educational development repertoire at CEEBL, workshops were an established and accepted form in which to engage tutors in academic development. The workshop form had advantages,
whilst also embodying and modelling many of the aspects of the theory and ethos of EBL, as it contains group work; is socially situated; can enable group work and discussion; facilitates active involvement; and recognises and validates the unique contribution of all participants. In addition to this, I attempted to adopt the role of facilitator, and sought to create a creative and supportive environment in which participants were able to express their views and reflect freely, to question, critique and contribute to the process of reflecting on the different EBL models presented during the action research phases.

The workshop was specifically designed and intended to achieve what Schön (1983) calls ‘reflection on action’, i.e. reflection and transformation in the participants’ conceptions of their own practice. The workshop could be described as an action research workshop as the tutors were supported in undertaking a social developmental action inquiry to conceptualise their own practice (Rosas, 1997). The workshop sought to serve two purposes. Firstly, to engage the tutors with their peers in reflecting upon their practice and to examine the extent to which their intended projects were student-led and, by inference, enquiry-based. Secondly, to consider what their espoused ideal practice would be, and if there was a dissonance with their reported actual practice, whether this could be overcome (Festinger, 1957).

The workshop programme (Appendix 5, p.240) sought to facilitate a change in conceptions of practice, and to enable tutors to have the opportunity to consider using more EBL approaches. The purpose of the worksheets was to engage tutors in individual reflection, followed by small group discussions, which were intended to make more explicit to them the variety of choices that are available in how they teach, and to reveal the ideology and values inherent in the choices that they have made about their practice (Figure 18, p.200).

The engagement of the tutors to reflect upon their practice, took place in two parts: firstly, by tutors individually completing EBL worksheets and secondly, through discussing their positioning with their peers in groups. The workshops were intended to facilitate
reflection upon their own practice, and examination of the extent to which their intended projects were or could become enquiry-based. Worksheets (Appendix 4, p.239) were provided where tutors were asked to quantitatively (1-5) place their reported actual, and espoused ideal practice on specific positions on a dimension relating to the extent their practice was tutor or student-centred. Questions were asked for tutors to justify their positions. These questions were intended to evoke double-loop (Argyris & Schön, 1978) reflections on reasons and motives behind their practice. The workshop was two and a half hours in length. The room layout was cabaret style to encourage group discussions, and the chairs were placed around the table so that none of the participants’ backs were to the facilitator.

The selection of the participants for the initial workshop in Phase One was opportunistic, taking advantage of an existing CEEBL event which required re-designing. Each year CEEBL placed a call for staff to bid for financial support up to £3,000 per project to innovate their practice. Fourteen projects (Appendix 2, p.235) were selected from across the University. In previous years these project holders were invited to attend an induction event which had served to enable project holders to network with each other and to provide possible connections for peer-support. However, informal verbal feedback from past project holders indicated that they did not find the format of the event particularly useful. I took this opportunity to re-design the format of the workshop for this new cohort. All the workshop participants were already interested in applying or promoting EBL as part of their professional or student roles. 19 participants attended composed of: 13 project holders, 5 CEEBL staff (who were all past or present project holders, and some were EBL Fellows who had honorary roles affiliated to the Centre with a remit to champion EBL across their respective faculties, having experience of transforming their own or colleagues teaching to include more EBL into their practice), and Student Interns - students who were recruited to work within the Centre to increase student engagement in curricular change to contribute to discussions. The participants were from across all the Faculties within the University and represented different
disciplines. The groups were formed to ensure heterogeneity; the participants in the
groups were from mixed Faculties, levels of experience, stakeholder origins, and gender.

During the subsequent series of three workshops, the participants were self-selecting, as
they responded to an invitation, which was sent via an email (p.238), to all teaching staff
at the University of Manchester. The workshop was described as an opportunity for
academics to explore how they teach, and aspects of EBL. A specific date and time was
not advertised, but a time convenient to the participants was to be arranged. This was
done to maximise the number of potential respondents being able to attend a workshop.

A total of 23 participants attended: Workshop Two on the 06/05/2010 had 3 participants.
Workshop Three on 19/05/2010 had 12 participants. Workshop Four on 2/6/2010 had 8
participants. The participants were mixed from a wide variety of disciplines from across
the University. All the participants, who attended the workshops, did so voluntarily. The
people attending the workshops could be categorised as potential innovators or early
adopters (Rogers, 1995), as by inference they were attending a workshop, and therefore
open to the idea of changing their usual practice and exploring new ways of doing things.

**Semi-structured interviews (tutors)**

I also explored introducing tutors to EBL worksheets via one-to-one interviews.

Greenbaum (1998) states that a researcher may consider a one-to-one interview a
preferable research technique for reasons including:

- The product category is highly complex, and additional time is needed to ensure that the
  participant understands the question.
- A one-on-one may provide significantly more in-depth information than is possible with
  other forms of qualitative research because concentrated time is spent on the topic with
  each participant. (p. 5)

Four tutors were selected as participants for trialling one-to-one interviews as they were
existing colleagues of mine, and had already developed some trust within a professional
context having undertaken some work together on previous projects or they had wanted to attend a workshop but were unable to attend on the particular date. The length of the session was usually 60 minutes. Prior to the interview, the participants were provided a brief overview of the research project (Appendix 9, p.246) and emailed the EBL worksheets (Appendix 4, p.239) in advance which were requested to be completed in advance and return to me prior to the one-to-one session. The interviews also included semi-structured interview questions (Appendix 7, p.244).

3.3.2 Data analysis

In the analysis of the student and tutor data, a hybrid process of inductive and deductive thematic analysis (Fereday & Muir-Cochrane, 2006) was employed. Different conceptual frameworks were employed to analyse the three primary data sets, due to a combination of factors: the intended purpose of the data analysis and the character of the emergent data, these methods are summarised in Table 2 (p.63), and outlined in the sections below.
The Values-based EBL Model (Figure 10, p.85) was used as an analytical framework to map how students’ experienced teaching and learning. An abductive strategy (Blaikie, 2007) was employed to inform the development of a new empirically derived student perspective Student Involvement in Learning and Teaching Model.

Dilemma analysis (Gough & Stephen, 2000; Winter, 1982) was employed to gain insights into tutors’ decisions about their practice.

‘bioecological model’ (Figure 8, p.68) was used, in order to understand the University context of the tutors’ narratives.

The Spearman’s Rank Correlation Coefficient provides detailed information indicating the strength of correlation across each Faculty, and EBL dimensions (Wessa, 2012). Four radar graphs, display the tutors’ reported actual practice in relation to their espoused ideal practice (Appendix 20, p.272).

Table 2: Chart outlining three main data sets and associated analytical frameworks.

**Student perspectives**

The student narrative accounts were subject to content analysis, specifically, an ‘abductive research strategy’ was used to inform the development of a new Student Involvement in Learning and Teaching Model where theory, data analysis and data
A hybrid process of inductive and deductive thematic analysis (Fereday & Muir-Cochrane, 2006) was used to interpret the student data, by integrating data-driven codes derived from the student narratives with a theory-driven framework i.e. the existing functional EBL Three-dimensional Model (Figure 16, p.159) dimension descriptors (Content, Process, and Context). The EBL Model provided a loosely structured thematic framework. The coding process was abductive as it remained true to the raw data, the exact words or phrases used in the student narratives created the codes, categories and the subsequent title and end-point descriptors on the new EBL dimensions. The stages comprised:

1) Stage One: Developed the code manual
   a. Identified phrases relating to the student teaching, learning and assessment process. The student photo-elicited interviews (Section 5.1, p.101) were analysed to identify active words that described the situated actions and teaching and learning processes.
   b. Grouped the phrases under the theory-driven themes, framed using the functional EBL Three-dimensional Model (Figure 16, p.159) dimension descriptors.
      i. Content: How active the students were in constructing knowledge?
      ii. Process: Whether the learning culture is collaborative?
      iii. and Context: How authentic and real-world the learning experience is?
      iv. Miscellaneous

2) Stage Two: Tested the reliability of the code
   a. A procedural check to ensure the validity of the themes in the Code Manual as a framework for categorisation.

3) Stage Three: Abducted the data and identified initial data-driven themes.
a. It is noteworthy that the data was not summarised. The codes were abducted from the phrases in the raw data i.e. kept intact.

b. Categorised the phrases (group of words, or a single word which represent a fixed expression) into either: tutor-centred end-point, midpoint, or student-centred end-point descriptors.

c. Locating them as per the Code Manual.

4) Stage Four: Connected the codes and identified data-driven themes

a. The codes were grouped into sub-topics, and themes emerged from the data-driven sub-topics.

5) Stage Five: Corroborated and legitimatated the coded themes

a. Re-interrogated the codes, themes and sub-topics to ensure that the sub-topics and themes emerging represented the emphasis of the participant data.

b. No words or phrases were summarised or edited until the final step of deriving the student perspective EBL model. By taking this structured content analysis approach, the student voice took predominance, and a procedural check was established that maximised the inclusion of students’ words and phrases which reported the situated processes during the teaching and learning sessions.

A worked example of this is provided in Appendix 13 (p.254). Blaikie (2007) describing the abductive strategy, explains that:

The basic access to any social world is the accounts that people can give of their own actions and actions of others. These accounts contain the concepts that participants use to structure their world and the ‘theories’ they use to account for what goes on. However, much of the activity of social life is routine and is conducted in a taken-for-granted, unreflective manner. (p. 90)
The intention was to enrich the EBL models by incorporating the discourse or the theories from the students as the significant education participants to make them more meaningful, easier to fathom, and therefore more relevant to tutors as a pedagogic instrument for reflection.

**Tutor perspectives**

The written statements of the thirty-one tutors on the participant worksheets were subjected to content analysis. During the content analysis of the tutors' worksheets it became apparent that dilemmas played a significant part in the decisions and practice of tutors. The dilemma statements emerged from the participants as a consequence of their reflections on the various EBL dimensions.

Gough & Scott (2000) identified dilemma analysis as a technique ‘which sets out to provide a procedural check on the ways in which themes emerge from qualitative data’ (p. 348). It seemed an appropriate data analysis method to code, categorise, and present the tutors’ perspectives, particularly as there were numerous dilemmas and tensions appearing from the data. The act of reflecting on the dimensions of the EBL models, and answering the worksheet questions brought out the tensions and complexity of the decisions involved in practice. Each external influence and internal factor creating the dilemmas and tensions, between tutor-centred and student-centred approaches were identified, and categorised. The categorises were then sorted into themes based on an adapted version of Winter's (1982) dilemma analysis.

Dilemmas in this study were used in their widest sense and meaning. A dilemma statement could consist of an expression of dilemma, tension or contradiction, a quandary, decision, judgement, ambiguity, or problem. Winter (1982) suggests that a procedural sequence for dilemma analysis be followed. However, after I attempted to use Winter's methodology as a basis of dilemma analysis, I found that the exact procedure and method stipulated were unworkable. Attempting to categorise the dilemmas as
‘ambiguities, judgements and problems’ (p. 168) proved to be impossible, the dilemma categories did not neatly fit into these divisions. Winter’s definitions included:

‘Ambiguities’ defined as different interpretations, expressing ‘deep-seated complexities of the situation, which are tolerable because they are not directly linked with any required courses of action’ (p. 169); ‘judgements’ and ‘problems’ refer to courses of action.

‘Judgements’ are opinions, choices, or biases when making a decision about ‘courses of action which are rendered complex, but as it were, interesting by the tensions and ambiguities of the situation’ (p. 169). ‘Problems’ refer to the incapability between motives, beliefs, wishes and practice ‘where the tensions and ambiguities actually seem to undermine the validity, the rationality of the action required’ (p. 169). However, the dilemmas and tensions was not categorised typologically in this way as the distinction between these categories were not always clear, and this was an artificial way in which to give meaning to the dilemmas. The categorisation was derived from the semantic expressions of the written responses of the participants from the EBL worksheets. A detailed example of the process of dilemma analysis for one participant worksheet can be found in Appendix 12 (p.249).

Finally, a structural analysis of the themes which emerged from the biographical tutor narratives and dilemmas emerging from the tutors’ worksheets was undertaken using Bronfenbrenner and Ceci’s (1994) Bioecological Model (Figure 8, p.19).
Bronfenbrenner (1979) created a theoretical model called the ecological systems theory which sought to identify the social context and interrelationships of human development. Bronfenbrenner (1979) outlined four ecological systems. The microsystem is ‘an immediate setting containing the learner’ where a ‘setting is defined as a place in which the occupants engage in particular activities ’ (p. 5). Mesosystem is defined as ‘comprising the relationships existing between two or more settings; in short, it is a system of two or more microsystems’ (Bronfenbrenner & Morris, 2006, p. 817). Exosystem embraces the ‘concrete social structures, both formal and informal, that impinge upon or encompass the immediate settings containing the learner, and thereby influence and even determine or delimit what goes on there’ (1979, p. 6). The macrosystem are the ‘overarching institutional patterns of the culture or subculture... [the] carriers of information and ideology that, both explicitly and implicitly, endow
meaning and motivation to particular agencies’ (Bronfenbrenner, 1977, p. 515).

Bronfenbrenner contends that individuals are constantly interacting with all these external social systems.

Later, Bronfenbrenner and Ceci (1994) developed a bioecological Model in order to give the individual more significance in the theory of human development, conceiving ‘the human organism as an active agent in, and on, its environment’ (Bronfenbrenner, 1995, p. 634). The four micro, meso, exo and macro-systems are classified under the Context element bioecological model. The elements of Person and Process are also developed. The resource characteristics of a Person include the ‘bioecological resources of ability, experience, knowledge, and skill’ (2006, p. 796). The dynamic or force characteristics of a Person describe ‘dispositions which can set proximal processes in motion in a particular developmental domain and continue to sustain their operation’ (Bronfenbrenner & Morris, 2006, p. 795). The Process describe the proximal processes between persons encompass ‘different forms of interaction’ (2006, p. 795).

**Quantitative data from tutors’ worksheets**

In order to examine whether the EBL worksheets exposed a dissonance between the tutors’ reported actual practice, and espoused ideal practice, the worksheets from the one-to-one interviews and four workshops were analysed (a total of 31 participants and 99 worksheets) (Festinger, 1957). The numerical data was placed in four tables with columns: unique participant code; Faculty code; actual practice position; ideal practice position, and dissonance between actual and ideal practice (Appendix 14, p. 261). The worksheets were divided into four super categories of dimensions of teaching and learning: Content; Process; Culture and Context that were explored during the workshops.

Four radar graphs (Appendix 20, p.272) were created one for each dimension. Radar graphs were selected to visually represent the dissonance between the ideal and actual practice clearly.
In order to extend the quantitative analysis Pearson’s, Spearman’s and Kendall’s correlation coefficients for statistical data analysis were considered (Wessa, 2012). Spearman's Rank Correlation Coefficient was selected for the relative simplicity of the calculations, its purpose was to analyse the correlations in the quantitative data of the tutors’ espoused ideal and reported actual practice positioning, and to evaluate whether the EBL worksheets exposed a dissonance between these. Spearman's Rank Correlation Coefficient was calculated for each of the four EBL dimensions. A worked example can be found in Appendix 15 (p.266).

3.4 Trustworthiness and validity

Aspects of the trustworthiness and validity of the research depended on the methodological approach and underlying ontological and epistemological perspectives. Lincoln & Guba (1985) propose that trustworthiness involves establishing concepts such as ‘credibility’, ‘transferability’, ‘dependability’, and ‘confirmability’ in the paradigm of ‘postpositivism’. However, in this research issues of trustworthiness and validity are not just administered, but interpreted from the critical action research approach underpinned with a Buddhist ontology and epistemic perspective (Section 3.2, p.50). Winter (1987) discusses validity in action research from a critical perspective, which rests in the interpretive process being both reflexive and dialectic. The study applied a dialectic approach seeking to increase validity by combining multiple perspectives, incorporating theory from within the literature, tutors’ and students’ perspectives and the researcher’s own reflections (Winter, 2002). This reflexive account consisted of a ‘construction of a truthful narrative that accurately represents the action research and its outcomes’ (Feldman, 2007, p. 30). The account was developed in a series of action research phases the scope of which provided prolonged engagement where the researcher was open to ‘multiple influences - the mutual shapers and contextual factors’ (Lincoln & Guba, 1985, p. 304).
The portrayal of participant and researcher narrative reports of situations and life moments is justified through a Buddhist epistemology which respects the reality and ‘credibility’ (Lincoln & Guba, 1985) of the individual experience, and aligns with Blumenfeld-Jones’ (1995) validity claim of ‘fidelity’, where ‘truth treats a situation as an object while fidelity is subjective’ (p. 26). The criteria of ‘verisimilitude’ (Connelly & Clandinin, 1990) and ‘believability’ (Blumenfeld-Jones, 1995) can also be applied suggesting that narrative accounts have the appearance of being true or resembling the reality of other contexts. The aim of the research was the transferability of the findings to other contexts; to make a contribution to knowledge that could be used in practice in other post compulsory educational institutions.

Issues of ‘confirmability’ (Lincoln & Guba, 1985) are addressed in part by providing what Halpern (1983) describes as an ‘audit trail’, a clear description of the action research phases and design including: data collection, portrayal and analysis enabling the processes and findings to be repeated. In this research, detailed explanations were provided of the research design outlining the action research phases during the practitioner research journey, augmented with Appendices outlining the genuineness of data collection and analysis to increase its ‘believability’ (Blumenfeld-Jones 1995, p.31). These detailed accounts of ‘thick descriptions’ (Geertz, 1973) make explicit the researcher’s processes and context. However, neutrality was not claimed, it was an action research process where I was explicit in aspiring to facilitate a change in tutors’ conceptions of their practice which was ‘directed towards the realization of an educational ideal’ (Elliott, 1991, p. 25). As Malterud (2001) explains: ‘Preconceptions are not the same as bias, unless the researcher fails to mention them’ (p. 484).

There was a potential limitation during the student photo-elicitation interviews, that students would keep their reports of their learning experiences neutral and safe so as not to be critical of their tutors. Additionally, the student narratives were limited by the situatedness (Rohlfing, et al., 2003), the interplay between the actions of the individual
agents, situation, and global socio-cultural and smaller local contexts. Actions of students are constrained by the conventions of a university, and the guidelines or instructions set by a tutor within a particular teaching and learning situation. Rohlfing reasons that, ‘a student at a seminar has to act according to her role as a student, i.e. she has to be attentive, ask smart questions, and discuss the topic of the seminar’ (p. 134). The student narratives may have been limited by their preconceptions and expectations of their situatedness in a teaching and learning session within a university. Another potential issue was that the Student Interns had been inducted into CEEBL through a training course, and may have already acquired some of the linguistic rhetoric and repertoire from academic discourse. However, this was not particularly apparent in the data, as the narratives of the students were, in the main, very distinct and differed from the discourse that teaching staff used to describe their practice. Similarly, tutors are constrained by the socio-cultural situatedness.

Brewer & Lambert (2001) give an account of theory-ladenness of interpretation, which suggests that theories impact on data gathering, interpretation, and evaluation. Based on Kuhn (1962) and Hanson’s (1958) positions that theory influences the way that the data is observed, that there is a theory of observation, where researchers’ theories affect how they observe data. Certainly, I had a particular set of philosophical beliefs, and assumptions that influenced the initial construction of the EBL models and the selection of the educational theories which were chosen to explain and contextualise the EBL dimensions. Also my research approach was influenced by my preference for subjective qualitative, dialogical, and critical action research approaches, which have directed the methodological decisions. However, I did not claim to be neutral in my stance, but instead I was explicit about my personal values and perspectives. I also sought to ensure that the research participant voices were included and portrayed; I drew upon the literature, research participant’s accounts, and my own perspectives, in order to make critical interpretations, of the dimensions of the EBL models.
3.5 Ethical issues

An application form for the approval of the research project was submitted in April 2010 to the University Of Manchester Committee On The Ethics Of Research On Human Beings, and was approved. The ethical issues concerning the participants were scrutinised against Robson’s (2002, p. 69) ten questionable practices in social research. The participants were fully informed, and copies of the opt-in consent forms for the tutors, student commentators are included in Appendix 9 (p.246), and Appendix 10 (p.247). Measures were put in place to ensure confidentiality of the personal data, by abiding to the provisions of the Data Protection Act and the University Data Protection Policy. The data was kept secure on password protected University computers; and the anonymity was preserved by the removal of identifiers, and the use of participant codes or pseudonyms. The research related to academic practice, the participants outlined their own positions; the research process was non-judgemental and sought to encourage reflection. One difficulty was that by assuring the anonymity any insights contributed by the participants in the enhancement of the EBL Model become credited to me as the author. However the author has put much more labour into the construction of a research paper so it may be fair on balance, that the collective insights are attributed to the author.

The ethical approval in relation to the use of photographs in this thesis is the most contentious; issues such as confidentiality, anonymity and copyright are problematic. The copyright of the photographs essentially belongs with the students participants, however they are anonymised, and it is the responsibility of the researcher to depict the photographs candidly. Consent was acquired from the tutors and students represented in the photographs. However, to anonymise the images would mean defacing the photographs and disrespecting the work that the participants contributed by not accurately representing their portrayals and the portrayed. Wiles, et al (2012) conclude that ‘ethical review does not necessarily create a supportive and stimulating environment
for the genuine articulation of, and innovative responses to, ethical research practice.
Further it may have the unintended consequence of curtailing innovative (visual) research practice’ (p. 1). A balance between visual integrity and pragmatic ethic sensitivity was struck, only the photographs of the tutors were edited and anonymised, as there were references in the narratives to the tutors, and if identified these may have been found uncomfortable, as it was their practice which was under scrutiny. However, students were fully depicted as they were all informed of the photo-elicitation research and had the option of opting out by not having their photograph taken (Appendix 11, p.248). The photographs could be used to identify the students in the teaching session, and the research was not particularly contentious, conflictual, or emotionally contentious to the student participants, being a visual representation of what happened in a teaching session. Also the thesis was completed after students graduated so the issue of them being identifiable was not problematic.

Within the University there were five overarching divisions of staff and students: academic, academic-related and professional support staff, and undergraduate and postgraduate students. Each staff division had specific roles and responsibilities and were homogenous communities. My staff role was academic-related whilst the tutors involved in the study were academics. I was an outsider as I was not an academic within the University, and so did not have direct experience of delivering a higher education curriculum within the organisation, or of teaching students directly, therefore I sought to change tutors’ practice as an outsider. However I had legitimacy. I could potentially be regarded as an insider by the participants as I was an employee within the University. Humphery (2007) in her article ‘Insider-outsider, activating the hyphen’ would regard my position as both an insider and an outsider in relation to the University, with acknowledgment of the insider-outsider hyphen being indispensable to action researchers’ reflexivity when operating in complex territories. Insider-outsider issues existed which also related to my dual role of ‘practitioner-researcher’ (McLeod, 1999, p. 8) where a tension existed between the dual roles of practitioner and researcher which are discussed
in Section 3.2 (p.76). There were insider loyalties where I felt an obligation to portray the participants in a positive light and not be too critical of the University institution, juxtaposed with a desire to be objective as researcher and expose contradictions, the conservative University structures, and the individual and organisational barriers to change. My pedagogical preconceptions affected the data collection as I was seeking methods to promote a change in tutor conceptions towards student-centred approaches. However, I was explicit about the objective of the workshops to assist tutors in developing a greater understanding of EBL and in innovating their practice; it would have been expected that as the Manager of CEEBL that this would have been my role. To counterpoise this workshop data were interpreted from a perspective of seeking evidence that would both prove or disprove the achievement of the objective of promoting EBL.
4 Practitioner research journey

The following sections outline the action research phases, reflecting on my dual role as ‘practitioner-researcher’, while discussing observations from the action research project (McLeod, 1999, p. 8). Firstly, I outline the reflexive approach employed during the practitioner research journey and describe how this relates to issues of validity. Secondly, I describe the development of the reflexive action research process: the phases that took place over three years, from September 2008 until June 2010. These phases (Figure 1, p.19) summarise the reflexive action research process which was a rather traditional rigid view of action research cycles involving: ‘reflection, planning, acting, observing, reflection and replanning’ (Carson, 1990, p. 168). The process in practice developed more flexibly where the researcher alternated ‘between reflecting and performing within open, experimenting, collaborative, research processes’ (Eikeland, 2012, p. 35). The emphasis was reflections on the participant data which caused changes in the design of the EBL models, the conceptualisation of the EBL dimensions, and in the delivery of the EBL models and the conceptualisation of my pedagogic practice. Data, observations and feedback from participants fed into a process of pedagogic change in my conceptions of educational development, and in the practice of how I delivered the EBL pedagogic instrument. Finally, I summarise answers to the question which guided my practitioner research journey:

i. How can I use the EBL dimensions most effectively?

This chapter conveys an authorial depiction of the practitioner research journey, a structural description of events, the loci of which was situated my own ideological beliefs (Section 1.1, p.11) and practitioner role in promoting EBL.

4.1 Practitioner/researcher interface

A tension existed between the dual roles of practitioner and researcher. Concurrently, there was an expectation that to fulfil the role of researcher there was a requirement to
critically examine assumptions and construct a ‘transgressive self—that is decentred, situated and multiply positioned’ (Lenzo, 1995, p. 17). In order to achieve legitimacy and validity through incorporating criticality, the researcher scrutinised the beliefs and assumptions. Where there was once confidence and clarity, uncertainty was created. Achieving this was problematic as there was a tension between the practitioner role, as Manager of CEEBL, the aim being to promote EBL throughout the University, necessitating a commitment to the rhetoric of EBL, and the researcher role which required safeguarding scholarship against ‘theoretical enthusiasms which are likely to overshadow the logic of evidence’ (Lenzo, 1995, p. 18). Lather (1986) describes this tension as a choice between producing valid knowledge and doing what would be best in pursuing other goals. The problem of how an educational developer could fulfil the requirements of a practitioner which necessitates being a confident advocate of a pedagogical approach, whilst also being critical of it were oppositional objectives.

The validity of self-reflexivity was achieved through the triangulation of ‘multiple data sources, methods, and theoretical schemes... [to] seek counter patterns as well as convergences of data’ (Lather, 1986, p. 267). I sought to develop ‘reciprocity between researcher and researched’ (Lather, 1986, p. 262) and between data and theory via a dialectical interplay between the participant data, the literature and the researcher’s own subjective experience and observations, specifically through ‘construct validity’ ensuring that the data provided the researcher with ‘confrontation with the experiences of people in their daily lives in order to stymie the tendency to theoretical imposition which is inherent in theoretically guided empirical work’ (p. 67). The practitioner research journey conveys a reflexive strategy or ‘way of knowing’ that involves respecting the voices and analysing the experiences of participants. Belenkey, et al (1986) state that, ‘In order for reflection to occur, the oral and written forms of language must pass back and forth between persons who both speak and listen or read and write—sharing, expanding, and reflecting on each other’s experiences.’ However, Lather (1986) recognises that ‘there are serious limits to our abilities to self-critique’ (1986, p. 647), to overcome this, the
researcher considered participant and peer conceptions that were contradictory to existing beliefs, and with this technique consciously challenged previously held views. Throughout the practitioner research journey I modestly sought an interruption of my consciousness to explore new possibilities of belief and action, including critical reflexivity into my journey by ensuring that I listened to, and represented other contradictory voices and unanticipated findings into my authorial representation.

Eikeland (2012) suggests ‘understanding action research as a form of practitioner or native research, praxis research, based on practically acquired experience of the knowers involved, is necessary in order to overcome the deep split between ‘theory and practice” (p. 18). Bilen (2002) sees Habermas’s critical theory as an attempt to transcend the so-called false consciousness of tradition and ideology. I have been transparent about my own ideology and associated methodological and teaching traditions, and recognising my own bias and assumptions concerning EBL. Heikkinen, et al. (2012) propose reflexivity and dialectic validation principles for action research. Strategies for reflexivity validation included: subjective adequacy – being transparent about the nature of the researcher’s relationship with the research participants in this context as insider-outsider (Section 3.5 p.73); being explicit about my ontologic and epistemologic presumptions (Section 3.2, p. 50); and the methods and material in the research design (Section 3.3, p.55). Intrinsically related to the strategies for reflexive validation is Heikkinen, et al.’s (2012) principle of dialectical validation, how the researcher’s insight was developed in dialogue with others, a way of knowing constructed via reflexive action research, an iterative dialectical approach combining the multiple experiences of tutors, students and peers.

4.2 Action Research Phases

The project is structured as four action research phases (see Figure 1 p.19) and are outlined in the sections below:
### 4.2.1 Phase One: Initial Three-dimensional EBL Model

What do tutors at the University understand EBL to be? Twelve CEEBL case-study abstracts (Appendix 2, p.235) written by CEEBL project holders who attended Workshop One during Phase One reflect what is considered to constitute EBL by tutors. These accounts provide evidence of the variety of understandings tutors had interpreted from the literature; their descriptions encompassed various EBL approaches, processes, outcomes, and functions of EBL:

**Approaches:** experiential, student-centred, PBL [problem-based learning] activity, collaborative and project-driven, reflections and discovery.

**Processes:** independent learning, team research project, independent research, collaboration and discussion, and less prescriptive problem statements.

**Outcomes:** project-based skills, relevant learning, and key skills development.

**Functions:** real projects, and analysis of real world examples.

These differing definitions, varying ways of implementing, and determining the extent that teaching was enquiry-based means that EBL has an advantage in being a flexible pedagogic approach, which encompasses a variety of processes, outcomes, and functions that can be adapted to different circumstances. But also demonstrates the issue with clarity of definition of EBL, and the issue of how to ascertain the extent teaching is enquiry-based.

The initial workshop was where the first Three-dimensional EBL Model (Figure 9, p.81) was introduced, in the form of three worksheets (Appendix 4, p.239) designed as reflective pedagogic instruments for tutors to evaluate the extent their teaching was enquiry-based. McMorrow’s Two Dimensional EBL Model (Figure 2, p.36) was used as a starting point in relation to my research journey. After appraising the Model I decided to include an additional Authenticity Dimension, which created a three-dimensional view of EBL. The inspiration for this additional dimension came from a perspective on education that I acquired during a literature review of an investigative educational research project.
which examined the current status of engineering academics’ awareness and commitment to embedding education for sustainable development in their teaching (Aubrey, 2006). I was involved in a project team which developed an innovative interdisciplinary module (Tomkinson, 2008), where the educational design was based on the principles of problem based learning, ‘within a curriculum structured to foster active, contextual, cumulative, integrated, collaborative and reflective learning’ (p. 3). This work consolidated my belief that the education for sustainable development context provided an opportunity to enhance students’ learning experience by providing relevant and authentic real-world contextual challenges. Hence, an additional Authenticity Dimension (z-axis) which encompassed the spectrum of teaching approaches between the two end-points of theoretical/abstract and relevant/real-world was added, creating a Three-dimensional EBL Model (Figure 9, p. 81). The addition of the Authenticity Dimension was significant, as it introduced to the EBL Model the question of relevance, purpose and value of education. The meaning of authenticity in the context of education is to question the purpose of the enquiry. The Authenticity Dimension refers to how relevant and real-world the learning is to the student or the extent to which the learning will empower the student to create value as opposed to the learning being abstract or theoretical.
Habermas (1974) states, that consciousness can be transformed, through exposing ideology. As Carr & Kemmis (2005) argue ‘Ideology is the means by which a society reproduces the social relations that characterize it’ (p. 193). From this theoretical basis, emphasising the ideological foundation of EBL was essential to support critical reflections. However, the evidence from Workshop One, was that very few participants were aware of any ideological connection with their teaching practice. In Task Four, on the EBL worksheets tutors were asked to state why their ideal practice was placed in that position e.g. by describing their personal ideological or pedagogic beliefs, only a very few participants could answer this question. Therefore, a more explicit strategy of revealing underpinning ideology and values was required.
The new Authenticity Dimension proved to be the most contentious during the initial workshop. The introduction of the Authenticity Dimension incited a ‘catalytic’ response from the participants where the conceptions of the participants were challenged and altered (Lather, 1986). The Authenticity Dimension effected an emotional response from the participants and heated discussion, whilst the Process and Content Dimensions did not. One participant (Hum_ph3) from the Humanities Faculty had a strong negative reaction to the Authenticity Dimension: ‘Calling it an authenticity axis makes me feel a bit judged ... my project is more to the theoretical side of things ... therefore inauthentic, and is what we are doing a useless thing to be doing?’ Some discussions occurred in the workshop groups where the participants’ hostility resulted in them attempting to rename this dimension title. One participant suggested ‘usefulness’ (Hum_ph6) as an alternative dimension title and another participant agreed: ‘I do like usefulness more than authenticity’ (Hum_ph3). And a Student Intern suggested ‘applicability of skills maybe’ (Julie). Some participants suggested personal relevance as an alternative dimension title, for example:

I would be much more comfortable with the idea of personal relevance than authentic... I don’t particularly like the term, but the way that I have interpreted that, is that it was actually solving, attempting to produce a set of solutions... it was authentic, it wasn’t an invented problem. (Inter_ph2)

However, one tutor summarised clearly an interpretation of the Authenticity Dimension:

If it is a subject that is of particular interest to the student that they have had control in perhaps electing, then it becomes authentic research. As opposed to I am doing this because I am interested. As opposed to I am doing this because my tutor told me to research that. (EPS_ph1)

These observations on reflection suggested that presenting the EBL as values-based dimensions underpinned with an ideological rather than a functional model would more successfully facilitate critical reflections by setting the social actions of an individual within
a broader social context to reveal ‘how ideology may conceal contradictions and inadequacies inherent in ideas and beliefs’ (Carr & Kemmis, 2005, p. 139). This is regarded as essential from a critical action research perspective (Carr & Kemmis, 2005). The workshops sought to engage tutors in both critical, individual reflections and conversations about their practice: ‘to think themselves out of the presuppositions, taken-for-granted assumptions, habits of mind and existing expectations’ (Carr & Kemmis, 2005, p. 354), and to examine what conceptions may underpin their existing practice. However, Gadamer (1975) argues that critical conversations and reflection are difficult to achieve as we cannot escape the current epoch, our historical and political context. The vast majority of tutors did not perceive teaching as ideological or in terms of political power, but predominantly in terms of situation, context, and function. On the worksheets participants were asked to state why they would place their ideal practice in a particular position, and to describe their personal ideological and pedagogic beliefs. However, only a few participants gave explicit pedagogic standpoints. One tutor (Hum5) reported that she tries to teach with the values and principles of Friere to all her classes. However, most tutors did not see their practice as ideological, or describe it as so. One tutor summarised this view that ideology is too grand a word to describe their professional activities ‘oh it’s a big word [with laughter]’ (EPS1_I). This accords with Giroux’s view (1981) of the structural and ideological constraints in education, and argues that ‘positivist educational practice excludes the role of values, feelings, and subjectively defined meanings in its paradigm’ (p. 50), and has resulted in a form of curricular design and implementation that substitutes technological control for democratic processes and goals’ (p. 52), and this is reproduced ‘through ‘facts’ and common-sense assumptions that structure our view and experience of the world. The logic of positivist thought suppresses the critical function’ (p. 45).

A corollary of reflections after the initial workshop, was that two areas were identified that would benefit from further investigation. Firstly, the development of a more Values-based EBL Model, and exploration of parallels with the inherent educational values in Education
for Sustainable Development (Phase Two), Secondly the inclusion of the student perspective via the student voice into the development of the EBL models (Phase Four).

4.2.2 Phase Two: Values-based EBL Model

In the first three months as CEEBL Manager I created a strategy document endorsed by the strategic management group, which outlined the Centre’s focus for the forthcoming years. This included the contextual theme of EBL for sustainable development. It was envisaged this theme could provide case studies in real-world, project-based and inter-disciplinary student enquiry. During Phase Two I explored the consonances between the Values-based EBL Model I was developing, and what constituted the student-centred dimensions of education for sustainable development, through interrogation of the literature. The literature demonstrates that there are distinct parallels in the underlying values and ethos of EBL and the principles underlying education for sustainable development, from which I created a Three-dimensional Values-based EBL Model below (Sterling, 2001; Selby, 2008; Ikeda, 2002; Sterling, et al., 2010):
Two case studies were explored with two academic staff who were selected as they were known to teach within this theme, to investigate whether tutors involved in teaching about sustainable development would be more receptive to EBL models, and reflecting on their practice, and to employing more student-centred pedagogical approaches. Specifically, to observe whether there was a dissonance between the values and principles of sustainable development and their actual practice. A well respected academic (ESD1) in the field of sustainable development came to CEEBL and gave a presentation suggesting participatory learning approaches, active learning, experiential learning, reflective learning, action research, and collective (social) learning. However, the mode of delivery of the presentation did not incorporate any of these pedagogic characteristics which were espoused. The academic gave a one hour presentation with a question and answer session at the end. After the presentation we discussed the dissonance between
the espoused values that were being proposed and the reported actual teaching approach. The academic acknowledged this observation, and that it had been made previously by other colleagues. Subsequently, we agreed to collaborate in transforming the presentational style to an EBL approach. The presentation content was adapted to a workshop design, and later delivered with an EBL approach at an education for sustainable development conference which was attended by tutors with an interest in education. The workshop included teaching resources that enabled academics to learn about sustainable development in a more interactive and less directive way. The academic gave positive feedback stating:

\[I \text{ thought it went well, and you will be pleased to hear that I feel I have learnt something from you... what I learnt from you is to be more open to process and emergence and trust it, to be careful with use of frameworks and to think of alternative ways of using frameworks where they are useful. So I think some of that has stayed with me when I do workshops, not least, leaving more space and time in the process. (ESD1)}\]

Also a participant at the workshop after looking intently at an EBL worksheet for some time turned to me and acknowledged, ‘my teaching really needs to be much further over towards this end’ (ESD2), as he pointed at the student-centred end-point of the worksheet.

After the relative success of this first case study, where sustainability academics were more receptive to adopting student-centred EBL approaches, a further investigation within the University of Manchester was undertaken. An academic (EPS3_I) who had a research portfolio and taught undergraduate students in sustainable development was contacted to explore the notion that if an academic had expertise in sustainable development they would also either already employ the values of sustainable development in their practice, or be open to incorporating them into practice. An interview with an academic who fitted this criterion was undertaken (Section 5.2, p.123). However the results were not as anticipated, the academic did not express any additional interest in the underlying
philosophical or educational pedagogic principles of education for sustainable development, and was no more or less receptive to a change in practice towards more student-centred approaches because of this, compared to other participants teaching other subjects. However, the method employed of a one-to-one interview enabled a more complete contextual understanding of the tutors’ conceptions of their practice, and a more detailed explication of how the worksheets were being received. This prompted Phase Three of the project where the introduction of worksheets during one-to-one interviews was explored.

**4.2.3 Phase Three: Student Involvement in Learning and Teaching Model**

During this phase, a new conceptual framework for thinking about teaching and learning practice, and situating EBL from the student perspective was developed. I wanted to ensure that the students were included in and contributing to the research project, so that there was no discord between the values of student-centred education, my espoused pedagogic and philosophical preferences, and the research project’s methodological design. In order to achieve this, it was vital that the students’ voices were included in the data collection. During the initial workshop Student Interns (University students who volunteered to work at CEEBL) were invited to attend, and the questions on the individual worksheets and group discussions were adapted to also include the student learner perspectives. However, this was not an ideal way of including the student voice.

In order to enable the student voice to be better included into the project photo-elicitation was employed to elicit student conceptualisations of teaching and learning. The student photo-elicited interview data was utilised to empirically develop a new Student Involvement in Learning and Teaching Model (Figure 12, p.89). A justification for this was that the models sought to influence how tutors’ practice consequently. In the future, the models may affect how the student experience of learning will be framed, so it was
vital that students should be involved in contributing to a theory that affects their education.

As a result of reflections on Workshop Two, changes were made to both the dimensions and the workshop structure. The dimensions became four dimensions, and were renamed, and the end-points were elaborated to provide richer descriptors of the dimensions. I piloted integrating student descriptors into the worksheets derived from the student photo-elicited interviews (Figure 11, p.88). And my role changed, becoming more tutor-centred. This is discussed in Section 4.3 (p.94).

<table>
<thead>
<tr>
<th>CONTENT /KNOWLEDGE DIMENSION</th>
<th>Tutor-centred end-point descriptor</th>
<th>Student-centred end-point descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Learning materials set by tutor</td>
<td>Learning materials set by student</td>
</tr>
<tr>
<td></td>
<td>Tutor as researcher or expert</td>
<td>Student as researcher</td>
</tr>
<tr>
<td>INTERACTION /INVOLVMENT DIMENSION</td>
<td>Less interaction</td>
<td>More interaction</td>
</tr>
<tr>
<td></td>
<td>Being talked at by teacher</td>
<td>Student talks can ask questions</td>
</tr>
<tr>
<td></td>
<td>Formal</td>
<td>Informal</td>
</tr>
<tr>
<td></td>
<td>Students passive</td>
<td>Students active</td>
</tr>
<tr>
<td>CULTURE/ TOGETHERNESS DIMENSION</td>
<td>Individual work</td>
<td>Collaborative group work</td>
</tr>
<tr>
<td></td>
<td>Students on their own</td>
<td>Working as a team</td>
</tr>
<tr>
<td></td>
<td>Learning from lecturer</td>
<td>Learning from each other</td>
</tr>
<tr>
<td>CONTEXT /AUTHENTICITY DIMENSION</td>
<td>Perceived as theoretical and</td>
<td>Perceived as relevant and real-world</td>
</tr>
<tr>
<td></td>
<td>abstract</td>
<td>Practical</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lived</td>
</tr>
</tbody>
</table>

*Italicised text indicates titles and descriptors derived from student photo-elicited interviews

![Figure 11: Four dimensions explored during Workshop Three.](image)

The student descriptors were well received, the participants more easily comprehended the dimensions, and the theoretical derivation of the dimensions was justifiable, as they were articulated from the student voice. Consequently, a new Student Involvement in Learning and Teaching Model (Figure 12, p.89) was derived from the abductive content analysis of the student photo-elicited interviews portrayed in in Section 5.1 (p.101) (Blaikie, 2007). The method of content analysis is outlined in the Methodology Chapter (p.63). The research findings of how students experienced the teaching and learning
process is discussed Section 6.1 (p. 161). The table showing the links between the Model used as a framework for analysis and the student data is outlined in Appendix 13, (p.254).

The Student Involvement in Learning and Teaching Model expressed three dimensions of teaching and learning i.e. Student Activity (x-axis), Student Interaction (y-axis), and Application of Learning (z-axis). A summary of the tutor and student end-points and midpoints of the three EBL dimensions abducted from the student photo-elicited interview data are outlined in Figure 13 (p.90) below, and the effects experienced by students on their involvement in teaching and learning process are outlined.

A corollary of reflections after the student interviews was that students often focussed on assessment and examination results and employed learning strategies which affected
their actions. Hence, an investigation into assessment practices and how they relate to the construction of EBL models was identified as requiring further investigation.

<table>
<thead>
<tr>
<th>STUDENT ACTIVITY (X-DIMENSION)</th>
<th>Tutor-centred end-point descriptor</th>
<th>Midpoint</th>
<th>Student-centred end-point descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor is in charge and learning is directed</td>
<td>Topic/project negotiated by student and tutor</td>
<td>Students responsible for determining the agenda and direction</td>
<td></td>
</tr>
<tr>
<td>Topic/project compulsory</td>
<td>Students fairly active</td>
<td>Topic/project not compulsory</td>
<td></td>
</tr>
<tr>
<td>Students passive participants</td>
<td></td>
<td>Students active, involved in doing</td>
<td></td>
</tr>
<tr>
<td>Tutor gives all the information</td>
<td></td>
<td>Students use multiple resources</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STUDENT INTERACTION (Y-DIMENSION)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor does most of the talking.</td>
<td>Some interaction</td>
<td>Students involved in group conversations</td>
</tr>
<tr>
<td>The tutor puts forward questions</td>
<td>A little bit of discussion</td>
<td>Students can ask questions</td>
</tr>
<tr>
<td>Students involved in individual study</td>
<td></td>
<td>Students collaborate and work together in teams</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>APPLICATION OF LEARNING (Z-DIMENSION)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Students cannot directly use what they learn</td>
<td>Students find what they learn useful</td>
<td>Students are prepared for the real world</td>
</tr>
<tr>
<td>Students don’t know the application of what they learn</td>
<td></td>
<td>Learning is good experience for real-life situations and practical</td>
</tr>
<tr>
<td>Learning is abstract and theoretical</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STUDENT INVOLVEMENT (Effects)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching session not well attended</td>
<td>Turn-out is quite good</td>
<td>Teaching session well attended</td>
</tr>
<tr>
<td>Content being taught is not very interesting to students</td>
<td>Students try to stay awake</td>
<td>The topic, the material is very interesting to the students</td>
</tr>
<tr>
<td>Students restless, sleepy and not listening</td>
<td></td>
<td>The students are enjoying the session</td>
</tr>
<tr>
<td>The students are bored</td>
<td></td>
<td>Students focused and paying good attention</td>
</tr>
<tr>
<td>Students don’t understand anything</td>
<td></td>
<td>Students understand everything</td>
</tr>
</tbody>
</table>

Figure 13: Student perspective of dimensions of teaching and learning
4.2.4 Phase Four: Assessment EBL Model

In Phase Three during the content analysis of the student photo-elicited interviews, there were several instances where the students’ experience of teaching and learning was affected by the assessment practices of the tutors’ e.g. Lee reported, ‘Once you finish the coursework you get a much deeper understanding to help you to tackle the exam questions’, and Liz, ‘we have to get 60% in the exam, so the turn-out is quite good’. This sparked researcher recognition that in order to investigate EBL it is important to also investigate assessment practices within EBL. Learning, teaching and assessment are often expressed at the same time when referring to education (Gibbs, 1999). Consequently, a review of EBL assessment literature was conducted, the aim being to abduct a new assessment model of EBL (Figure 14, p.92) This model utilised the same overarching dimensions as the initial EBL model (Figure 9, p.81), becoming assessment content, assessment process, and authenticity assessment dimensions the end-point descriptors are outlined in Figure 14 (p.92). These new student and tutor-centred end-point descriptors were derived from the academic literature (Section 2.1, p.23). The assessment EBL model was introduced to tutors during Workshop Four.
<table>
<thead>
<tr>
<th>Assessment Content Dimension</th>
<th>Tutor-centred end-point descriptor</th>
<th>Student-centred end-point descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor defines and sets assessment content</td>
<td>Student has role in negotiating terms and form of assessment</td>
<td></td>
</tr>
<tr>
<td>Tutor determines evaluation</td>
<td>Student self-evaluates (reflects on own performance or self-regulating)</td>
<td></td>
</tr>
<tr>
<td>Standardised (Direct comparisons can be made)</td>
<td>Diffuse (Direct comparisons of students difficult)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment Process Dimension</th>
<th>Assessment external and formalised (controls teaching)</th>
<th>Assessment integral to teaching process (supports learning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual comparative assessment</td>
<td>Socially situated collaborative assessment</td>
<td></td>
</tr>
<tr>
<td>Tutor regulates</td>
<td>Students self-regulates</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment Authenticity Dimension</th>
<th>Perceived as relevant by tutor</th>
<th>Perceived as relevant by student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical and abstract</td>
<td>Real-world, practical, lived</td>
<td></td>
</tr>
<tr>
<td>Assessment normalising</td>
<td>Individual students’ unique values, needs and constructs are assessed</td>
<td></td>
</tr>
</tbody>
</table>

Figure 14: Assessment EBL Model, and associated dimension descriptors.

### 4.3 Professional Learning

In this section I reflect on the specific aspects of the process of delivery and the findings from participants taking part in the workshops, guided by the practitioner question of how I could use the EBL dimensions most effectively. The action research enquiry into the most effective method of facilitating tutor reflections on EBL shaped my professional learning and transformed my pedagogic assumptions and associated practice.

**Participant motivations for attending a workshop**

The type of people who would voluntarily come to educational workshops tended to be more open and receptive to new ideas, change and reflecting on their own practice. It is this profile of tutor who is intended to be the main future audience of the EBL model. One tutor (Hum5) elucidates why he had attended a workshop:

*We do not really do much enquiry-based learning that I am aware of. But myself, I am quite interested philosophically... I do try and make it as practical, and as enquiry-based*
as possible, and I suppose I am interested in learning how I take that forward and possibly you know integrating it into the curriculum.

Similarly, another tutor (Hum4) typifies a motivation for attending the workshop as: ‘I think it [the course] could probably be improved. It has been running for some years, and I am going to be teaching it to a much bigger group next year’.

Another less common reason why tutors may attend a workshop is for planning new courses, as reported:

I am interested in looking at how this [EBL] might either work for a core module that we have already run once, where students have an opportunity to see how they might work in teams. But I was just thinking about a new course that I am running this year.

(Hum8/W3)

**Tutor interpretation of EBL dimensions**

The dimensions titles and descriptors were open to different ways of interpretation by the participants. For example, after I had explained my view of the Culture/Ethos Dimension during Workshop Two, a participant responded ‘I think it is interesting how you pose it that way...this title...it makes no sense to me at all relative to what you describe, and what you described is also very different to the way I read this’ (EPS1/W2). Another participant also acknowledged during the group discussion that the Process Dimension proved difficult to confidently understand, ‘I don’t know whether I’ve interpreted this right or not’ (MHS5). The Culture/Ethos Dimension was incorrectly interpreted by one tutor, ‘I seek advice and support from colleagues as to the content’ (MHS2/W2), she assumed that the dimension referred to whether collaboration took place with other staff within the university. My intention was for the dimension to reveal the extent to which the students had an opportunity to collaborate, and have social interactions with other students and the tutor. It was not intended to ask whether the participants collaborated with or had advice and support from colleagues.
Transforming my pedagogic assumptions

In order to demonstrate to the participants what EBL was, I modelled my practice on what I assumed the principles of EBL to represent. At the start of the project I was student-centred by assuming a predominantly facilitation role, minimising the time I spent lecturing and maximising participant reflections and discussions with minimally guided EBL worksheets. However, feedback from the tutors demonstrated that I had misinterpreted the expectations of the participants. A few tutors expected and wanted to be given information about what EBL was, despite being informed in the email invitation (Appendix 3, 238) that the intention of the workshop was to enable participants, to reflect on and examine their own practice. For example, one tutor, (Hum2) prior to Workshop Two commencing, indicated that he was expecting a lecture on EBL, and not to be involved in an interactive workshop, and subsequently he made the decision to opt-out, and left the workshop.

Two tutors placed all their actual and ideal positions in exactly the same place for all the dimensions. One due to not understanding that the intended purpose of the workshop was to consider ways to become more student-centred, when this was explained during a workshop, a tutor reported with uncertainty `is that the purpose of this exercise? (MHS2/W2). Another tutor was unclear about the meaning of the dimensions `I'm not too sure about that distinction so I put myself in the middle' (EPS_ph3). Therefore I revised my role emphasising becoming a presenter of knowledge, providing what Kirschner et al. (2006) would call guided learning, creating a set of PowerPoint slides (Appendix 22, p.277) to introduce the EBL model. I provided more explanation of the purpose of the EBL Worksheets and theoretical underpinning and context of the EBL dimensions, in order for the tutors to fully understand the rationale of the workshop, and the relevance of each to their own practice.

I concluded from these observations that student-centred and tutor-centred approaches are best viewed not as separate dichotomous approaches but rather as complementary
practices which once combined enhanced teaching and learning, providing a multi-faceted pedagogic approach. Elen, et al (2007) identify studies in the literature where student-centred and teacher-centred learning environments are sharply contrasted. However, they advocate a ‘balanced view’ and provide evidence that in the minds of higher education students ‘student-centredness and teacher-centredness are not opposite poles of one continuum’ (p. 115). Similarly, Mascolo (2009) promotes an integrative conception of teaching and learning where ‘guided participation proceeds from the idea that learning is neither a teacher-centered nor a student-centered process’ (p. 11).

**Tutor suggestions for alternative dimensions**

Explicitly asking the tutors the question - Can you propose alternative or additional dimensions? - did not prove fruitful. The majority of the tutors could not to respond to this question, apart from a few tutors who proposed alternative names for the Authenticity Dimension during a discussion in Workshop One e.g. ‘usefulness’ (Hum_ph6), and ‘personal relevance’ (Inter_ph2/ EPS_ph1). Only once a tutor (EPS2_I) on a worksheet suggested alternative dimensions: small versus large class size; and undergraduate versus postgraduate. However, these suggestions related to structural factors imposed and external to the tutor, which the tutor had little direct effect over, as opposed to the pedagogic choices that tutors have. Consequently, I iteratively developed the EBL models and dimensions through a process of abduction after content analysis of literature, participant discourse, and observations of tutors’ responses to EBL models and worksheets, and individual reflections. Finally, giving precedence to the student voice, I created an EBL model empirically derived from the student photo-elicited interviews (Figure 13, p.90).

**One-to-one sessions versus group workshops**

Four one-to-one interviews (Section 5.2, p.122) were conducted with tutors at the University to explore if it would be more effective if I introduced the EBL worksheets on a
one-to-one basis. However, these proved to be much more time-consuming than a
workshop which could engage more efficiently with a number of people. This concurs
with Greenbaum (1998) who states that there are certain advantages of running a group
session as opposed to an interview, as the ‘cost per interview is significantly more than
with a focus group’ (p. 6). There was another disadvantage of the one-to-one session.
As the worksheets were emailed in advance to the participants, they struggled to
understand the context of the dimensions alone. One tutor summarised this view, ‘I
found it difficult to understand the context of the axes, but maybe if I’d been able to
attend the session I would have understood more’ (MHS3_I). Additionally, not all the
participants actually completed the EBL worksheets fully prior to the interview. A
workshop provides a forum to more thoroughly explain the purpose of the EBL
worksheets, dedicated time for participant reflection, and opportunities for peer discussion
to co-construct meaning.

Conversely, one advantage of the one-to-one session was that it was easier to present
and make sense of the individual interviews, as it was specific to one person, and there
was a greater coherence to their narratives. This did not correspond to Greenbaum
(1998) who states that ‘One-on-one interviews are much more difficult to interpret than
focus groups due to the sequential (as opposed to simultaneous) receipt of information’
(p. 6). Perhaps it was because the workshop related to each participants’ individual
practice, and the participants were attempting to explore and reflect on the EBL
dimensions and make it directly relevant to their own practice, as opposed to attempting
to represent participant ‘views on a particular topic’ (p. 6).

A feature of the workshops was the incorporation of peer group discussions. Freire
(1967) sees dialogue as an essential, and indispensable to the act of cognition. Similarly
Wenger (1998) sees opportunities for shared discourse as key for the negotiation of
meaning, and for the development of ‘shared repertoires, routines, ways of doing things,
stories, actions and concepts’ (p. 83). The tutor conversations with their peers was an
essential and effective aspect of the workshop to encourage intersubjectivity. Seale (2012) defines this as ‘the common-sense, shared meanings constructed by people in their interactions with each other and used as an everyday resource to interpret the meaning of elements of social and cultural life’ (p. 574).

I observed during the workshops that when a group of tutors with similar goals of examining their practice interact, they support and learn from each other by discussing how teaching and learning practice is conceptualised. This provided an inherent momentum for peers to encourage each other in reflecting on their practice. This is exemplified by informal statements made by participants during the group discussions: ‘I was pinching your idea there - as it was very good’ (Hum_ph4); ‘that’s interesting, so do you mean that they are familiar with receiving and giving lectures’ (EPS_ph1). Tutors were often encouraging and affirmative, acknowledging ideas and other tutor’s practice: ‘It seems like we all very much are looking for ways, to make the approaches to our projects as student-led as possible, with regard to the content, so it seems like we’re doing pretty good’ (MHS_ph1); and affirmative single words and statements were expressed commonly: ‘definitely’, ‘yeah’, ‘it’s really interesting’, ‘that’s interesting’ and ‘right’. In a relaxed discursive environment the participants were able to explore concepts and elaborate their own thinking. However, there were limitations to group discussions which included: the discussions were not always completely on-topic; participants often did not focus on analysing a specific teaching situation; and there was never any disagreement expressed during the group discussions, so viewpoints were never critically challenged.

**Refinements in the delivery of workshops**

It was important to take time at the start of the workshop for participants to introduce themselves to other members of in their group, as a form of ice-breaker. It was vital to identify a particular teaching session (at a specific time, and which teaching method was employed) within a module that they were going to be exploring during the workshop.
This same teaching session would be examined and discussed throughout the workshop. Failing to do this resulted in participants talking in generalities, taking different examples to elaborate points, or talk about what colleagues did as opposed to focussing on their own practice and how they rationalised their own practice.

Three is the optimum number of dimensions of EBL which should be explored during a workshop, in terms of maintaining participants’ focus and attention. One tutor’s (Hum6) worksheets (Appendix 23, p.283) were an example of where four dimensions were attempted in Workshop Three. However, the final fourth worksheet was skimmed through and the answers given were not as detailed, considered, or as descriptive as the previous three worksheets. As each worksheet was completed, the tendency was for less and less detail for each. Also when a fourth dimension is introduced the amount of overlap of definition between the dimensions increases. Many of the EBL models in the literature are two or three-dimensional e.g. Healey’s (2005) curriculum design for the research-teaching nexus, Levy’s (2009) model of EBL, Spronken-Smith & Walker’s (2010) conceptual model of EBL, and Conole et al (2004) octahedron representation model.

**Spectrums of teaching approaches**

A few tutors recognised that the dimensions can express a spectrum of approaches, and that practice can integrate different positions across a dimension. For instance, reflecting on the Culture/Ethos Dimension, one tutor explains ‘both [individual and collaborative approaches] are needed for effective learning in my class’ (EPS1). A few participants did not place their practice at a specific point on a dimension, for example a tutor (Hum4/W4) used arrows which spanned across the dimensions, from 1 to 5, for her actual practice on the Content Dimension; and for the Culture Dimension her actual position was indicated by a line spanning positions from 2 to 4, which indicated a range and variety of individualised and collaborative group work employed during a teaching session. This exemplifies one of the issues with asking tutors to place their practice in a specific point on the dimensions, as in reality often a mixture of approaches are used in any one
particular teaching and learning session. But more importantly, tutors identified that tutor and student-centred approaches are not mutually exclusive.

The mutuality of the end-points of the dimensions was also articulated during discussions between tutors in the workshops, exploring the nature of the Authenticity Dimension, one tutor explained:

They are not two ends necessarily. Sometimes they are kind of the same thing. I mean we deal with the real world not in terms of every single complexity. It is I guess impossible for us as people to do that. It’s just the way we deal with the real-world. As we come up with our artificial constructs and then we say this is how the real-world works.

(EPS_ph3)

Similarly, there was agreement during a peer conversation at Workshop One: 'the abstract level and the real-world level they feed off each other... theories can be applied to the real world.... they do feed off each other its less of an axis than .....’(Hum_ph4), 'a circle’(EPS_ph3), 'a circle yeh’(MHS_ph3) // overlapping speech// 'a circle’(Hum_ph4).

Recommendations for the delivery of EBL dimensions

Finally, I present a synthesis of recommendations based on the findings and reflections of the observations from the workshops. I detail the emphasis, methods of delivery of the EBL dimensions, features of EBL models and worksheets, and workshop programme design (Appendix 6, p.242):

- It was vital for tutors at the outset to identify a specific time within a particular teaching session that they were going to be exploring during the workshop.
- Each EBL dimension separately required detailed theoretical explanation.
- Through emphasising the ideology and values implicit in EBL, critical reflections are assisted.
• EBL is best explained and presented to tutors in higher education as dimensions of teaching and learning.

• Three is the optimum number of dimensions of EBL which should be explored during a workshop.

• Include tutor reflections on both their actual and ideal practices, to reveal if there is a dissonance between them (Festinger, 1957).

• Employ an appreciative enquiry approach asking - Are you able to change your practice to be in your ideal position (Cooperrider & Whitney, 2005)?

• It is more effective to deliver EBL worksheets in group workshops, rather than one-to-one interviews, both in terms of time efficiency, and providing opportunities for peer dialogue.

• Opportunities to be provided for both inner and external dialogue; individual reflection, and group discussion (between five and six in a group is the optimum number for group discussions, and tables best arranged in cabaret style) is required for participants’ to contemplate practice at length with continued attention.

• The dimensions are best presented in the stakeholders’ own language.

• The EBL dimensions are presented as spectrums of approaches as opposed to separate dichotomies.
5  Presentation of participant data

This chapter is composed of two main sections, the first represents the student perspective, and the second the tutor perspective. Both sections begin with presenting individual biographical narrative accounts, which elucidate the situatedness of the students’ and tutors’ experiences of teaching and learning, within the context of a university. The narratives are expressed through the ‘study of singularities’ i.e. ‘what is under study is one set of circumstances and the events, people, places and things, which constitute a set of circumstances, are treated in the study as an entity’ (Bassey, 1983, p. 112). In addition to the students’ narrative accounts a new alternative EBL model empirically abducted from the student perspective is suggested. The process of content analysis to abduct this model is described in Section 3.3.1 (p.55). In addition to the tutors’ narrative accounts, data from the 99 worksheets derived from 31 participants at the one-to-one interviews and workshops is presented. Firstly, the tutors’ written statements from the worksheets are subjected to dilemma analysis: this process is outlined in Section 3.3.2 (p.63). Secondly, the quantitative analysis of tutors’ positioning of ideal and actual practice is outlined in Section 3.3.2 (p.69).

5.1 Student narratives

The interviews with the students were undertaken via photo-elicitation (Collier, 1957), or if this was not possible (e.g. because students were unable to obtain consent) via a time-space elicitation interview, where students were asked to identify a couple of specific time-space moments in their learning experience. I represented the strategies that the students employed to deal with the education situations that were presented to them as naturalistic portrayals, accompanied by the students’ own auto-elicited photographs. MacLure & Stronach (1993) describe an ‘inductive’ and ‘naturalistic portrayal’ as:

- A grounded, collaborative, and ethically justifiable construction of portrait from person.
- ‘Portrait’, then, means something like a self-encapsulation, a theorizing in which the
research facilitates the self-expression of the other, leaving control in the hands of the subject in so far as it is possible. The researcher’s task is to ‘represent’ the subject in a double sense: first, in the artistic meaning of the word, to make a realistic likeness; second, to act as a kind of agent for the subject - to ‘represent’ his or her interests and to ensure that his or her ‘voice’ is heard. (p. 354)

I achieve this firstly by briefly introducing each student and the student’s context, and then allowing each student to speak for themselves in their own words. Representing the students’ words directly is especially valid as I wish to empirically abduct (Blaikie, 2007) their words, and illustrative descriptions, or derivatives of these to re-present a new version of the EBL model from a student perspective. The students’ narratives present their experiences, views, reactions, comments and suggestions, about how teaching methods impacted on them, and their strategies for dealing with the teaching and learning situations, and practices employed by tutors.

**Phil (A final year undergraduate Humanities student)**

Phil was in his final year of a three-year Bachelor of Arts in Politics and Modern History degree in the School of Arts, Histories and Cultures. He was unable to arrange photo-elicitation, due to being unable to acquire student consent. He chose to discuss a seminar, and a lecture in the Elections and Voters Module.

Phil initially elected to describe what was happening in a specific time at a seminar where five students attended out of the fourteen students who were supposed to attend:

*We were involved in a group discussion even though the seminar size was greatly reduced. The seminar leader would put forward a question, and then we could discuss it amongst ourselves so it was fairly interactive, compared to other seminars the participants were fairly active as well. I found the group discussion quite interesting we went off topic quite a lot - that is inevitable in a module like that. There wasn’t enough people there to have a proper seminar discussion. It was a bit more liberal in terms of the topic areas covered. They are more interactive than lectures. I find seminars far more interesting than lectures.*
Phil identifies that some students are ‘more active than others’. As, ‘some people are speaking more than others, and the seminar leader tends to ask the questions, which gets the debate going, it tends to me that talks quite a lot’.

Phil has positive view about what he experienced in the seminar:

I am quite enjoying it. I enjoy having my say. I enjoy having a good argument. I quite like the seminar leader I like the guy, he is open and very active, so he’s quite interesting to talk to, and hear his opinions as well. Also because it is a politics seminar most people are quite engaged anyway, so it is good to hear what they have to say, yes I enjoy it, I enjoy those kind of learning environments.

Phil describes two different lecture situations:

It’s your standard passive lecture, I guess it depends on the lecturer because there are two different lecturers: one of them is quite off the cuff, he’ll start a lecture with a video, or break it up with a video or a cartoon or something that is related to the subject just to wake people up a bit; and the other lecturer doesn’t do that so much. I find myself nodding off a bit more in her lectures as well, especially, because her slides are more descriptive than his, but in practice that just means she just repeats everything that is just on the slides. So I find myself getting a bit more apathetic towards the lecture, but it’s the kind of thing I can just do at home basically. Whereas, with the other lecturer: because the slides aren’t quite so descriptive, I find myself having to pay attention a bit more.

Phil described the feelings that the lecture situation evoked:

I don’t really feel like I am using my time productively. I feel like if I spend my time in the library, even if I did half an hour reading, and half an hour’s procrastination rather than that lecture; I feel like I might just be getting more out of it. The only reason I come to those lectures really is out of guilt, because I only have two contact hours a week: the lecture and the seminar... So yes it does raise the questions of, you know, is it really value for money, is it really efficient?
Phil detailed the elements in a seminar situation:

*I take in a lot more because it’s broken up by debate and discussion. I do like hearing what other people like to say, I do like arguing with other people, and I do take their comments on board quite a lot. Whilst in a lecture it’s one hour of being talked to, there is no room for debate or argument so it does get a bit monotone after a while.*

Phil summarised his predominant feelings during a lecture:

*I find the topic, the material very interesting it’s just difficult to stay attentive... I think basically the whole lecture is a battle between boredom and attentiveness, and that doesn’t seem to matter if I’ve had nine hours sleep or two hours sleep.*

**Lee (A final year Engineering student)**

Lee was in his final year of a four year, Master of Engineering programme, and an international student in his early twenties. He talked about his experience on a module in Earthquake Engineering, which was archetypical of the assessment practice within the University consisting of 20% coursework, and 80% written examinations.

Lee selected this particular module as it was one of his favourites, and reported that one of the key reasons why he particularly liked it was because of his perception that the course was useful to him:

*It is one of my favourite modules to be honest; because what I think I learn is quite useful. You can kind of directly use what you learn. So after learning a few lessons, you can go out and look at a building and see its features; you can usually tell the good aspects of design in terms of earthquake resistance. After learning this you pay attention to different buildings, when you go to different countries. It is quite interesting to be honest.*
Lee took two photographs from two different angles, as he wanted to capture the students’ attention (Photograph 1, p.105), and at the same time what the lecturer was doing (Photograph 2, p.105). Lee reported the changeable extent to which students were able to concentrate, and give the lecturer their full attention. Lee explained that prior to the moment in Photograph 1 (p.105), that some students were not paying attention: ‘He was going through the last bit of his lecture notes, and I think he told us that wasn’t going to be in the exam, some people were not listening’. Lee suggested that students were distracted by daydreaming about things other than what was being taught, partly due the timing of the lecture, ‘perhaps because it was the last lecture Friday afternoon 4 o’clock. It was quite probable that some people were thinking about catching a train, or going home, and things like that’.

Photograph 1: Students’ attention

Photograph 2: The lecturer showing a demonstration
In Photograph 2 (p.105) the lecturer was showing a physical model, simulating an earthquake, Lee reported how this prompted him to assert how he would like lecturers to develop better presentations to assist students in learning:

_In every module the lecturer should pay some time and effort to investigate better presentations to convey their ideas toward the students instead of you know, taking the old routine of giving out lecture notes and showing PowerPoints._

Lee reported what he liked about his coursework, and how he perceived the extent to which lectures and coursework together helped him to attain understanding:

_[The coursework] helped me a lot in understanding what the lecturer has been saying in the lectures. I discover usually I don't get much from the lectures if I attend the lecture and pay good attention to it; maybe I can just get 30-50% of the things that he wanted to teach but if I go back and do some revision, I may get 60%, but if I do the coursework I pretty much get 80% of it, it helps me to understand much better._

Lee thought that: '_I think the marks you get from an exam don’t really reflect how much you understand_'. Lee's strategy was focused on achieving successful assessment results:

_What I like about the exam is, to be honest it is quite a bit easier than other modules. To be honest many students pick this one because they thought it would get them good marks._

Lee described his awareness of his visual style of learning that he prefers: '_I am a visual learner I remember things by remembering what is drawn on Blackboards, and what has been jotted down on my notes, I don't just write, I draw pictures and diagrams_'.

106
When referring to Photograph 3 (p.107) Lee reported aspects of disengagement:

When he talked about the stuff which was bit more boring than the demonstrations, some students started to get a bit restless, and started to text, and checking the time, and stopped taking notes. This guy sat next to me, he was texting. It is quite a typical reaction when the content being taught is not very interesting.

The student was hiding the phone from behind a piece of paper, Lee proposed because, ‘from the lecturer’s point of view he looks like he is reading the notes he has taken’; he interpreted from Photograph 3 (p.107) that the student, ‘is bored. Maybe he doesn’t understand what the lecturer has been talking about, or it could be that he understands so well that he doesn’t have to listen anymore, so it could be either I don’t know’.

There was an option to undertake just a three-year undergraduate bachelor’s degree [BEng], Lee said that quite a few students had left having obtained a BEng. Lee saw the
real value in the course being in the Master of Engineering fourth year, and considered that the students leaving after year three forewent a vital aspect of the course: as it was 'preparation’ for the 'real-world'.

I think the stuff I learnt this year was much more useful, and the types of things I can use directly instead of wondering why I am learning this? In the second year we’re doing a lot of maths stuff, but we didn’t really know the application, but in year four it comes clear, just get oh this is what I learnt in second year is to be applied here, so I can use it here. It’s the sudden realisation that what you have been learning for the past three was preparation for year four, and even year four is preparation for what you are going to do in the real world.

Liz (An undergraduate Life Science student)

Liz was undertaking a four-year Master in Pharmacy degree; she was half way through her third year. Liz selected to talk about two types of contrasting teaching and learning sessions within a module: a lecture and an EBL practical session. The module consists of, ‘two lectures a week, for the full twelve weeks, and that is learning your theory, but we also have four practicals over the 12 weeks in smaller groups’. Liz was able to gain student consent to conduct photo-elicitation within the EBL ‘practical session’, but was unable to gain student consent for a lecture that she had attended.

Photograph 4: A tutor interacting with students
Liz described an EBL session which she categorises as, ‘more personalised one-on-one teaching, you get the opportunity to ask more questions than in a 200 people lecture theatre’. Liz did not receive one-on-one teaching very often but valued this time, ‘it is very much appreciated when we do get it’. She took Photograph 4 (p.108) when the module leader was:

Answering questions from the students. This was the case study part where we get a written case study, and you sit in benches with four or five people and you have to think about how you ask the questions... It’s very personalised you put your hand up, and the module leader comes over.

Liz contrasted the process of gaining information from a lecture versus an EBL session when students use multiple resources ‘you can use any resources that you want, so we all got given a free guide of medicines, like over the counter medications. And that is what we are using there [Photograph 4 (p.108)]’. When preparing a formulary (in this instance the formulary consisted of a student created resource, which referred to a particular case study, that contained a list of pharmaceutical prescriptions, associated formulas, additional clinical information, such as side effects, contraindications, and doses):

You pull different aspects together, you pull the information that you use from the book, and the information you gain from the lecturer and the information you gain from the classmates together. While in a lecture, you pull the information straight from the lecturer, and write it down.
Discussion and collaboration was encouraged in Liz’s EBL session, she captured this in Photograph 5 (p. 110). Liz explained how the session was facilitated:

The whole ethos of the module is about working as a team. We are taught in pharmacy that plagiarism is a massive deal, and collusion is terrible, and all that sort of thing. And you will get thrown off [the course] and you will never work if you do any of those things. But this module brings in, ‘oh of course you can help each other with your formularies’, like ‘please work together, it’s good to get different opinions on things’.

Liz explains that the assessment was aligned with the practical and theory sessions, and ‘are examined accordingly so you could get an exam questions on something that you have done in the practical’.
Liz represented another ‘style of learning’, shown in Photograph 6 (p.111), i.e. ‘role play’, one student played a pharmacist, and the other the patient:

The patient is given a case study: I am a 30 year old woman, and I have a headache with all of these symptoms, so they get that... It’s like prep for the exam, and prep for real-life, and it is a very real-life situation.

Photograph 6 (p.111) evoked for Liz how she valued teaching sessions where she has an opportunity to rehearse practical skills, which were relevant to aspects of ‘professionalism’ and demonstrating a ‘professional’ appearance:

This kind of module, because it is very geared to what you would do in practice, as an actual pharmacist it is good to have actual practice as being a pharmacist, even if it is talking to your friend who is pretending to be a 90 year old man, it’s still really good experience.

When asked what Liz was experiencing in Photograph 6 (p.111) she replied: ‘I’d say a fun method of teaching, and I think they [the students] are being quite receptive towards it, and they are being quite involved’.

Liz had a positive judgement about her pharmacology lectures which, 'are always really interesting, the lecturers are really funny and they care about the subject so the students
get drawn in’. Liz depicted these lectures as typical, ‘although they are very good they are just traditional lectures, as in the lecturer tells you what you need to know, and you just write it down and learn it’. Conversely, Liz also negatively judged a law lecture she attended as part of her course, ‘they are pretty dreadful… But we have to get 60% in the exam, so the turn-out is quite good’:

Liz reported that attendance was low at a lecture: ’It was really empty. We should have 180 and there were 100 it was really sparse’. Liz went onto describe the experience in more detail:

The poor woman, had such a monotone voice, and was quiet; she really didn’t want to be there at all. It was really uncomfortable to watch. I got she didn’t have any passion for her subject, seems really nervous… There were loads of people with heads on desks really sleepy. No one was engaging with her at all.

Liz revealed an instance where a student was regularly dis-engaged during a lecture:

There is a guy who sits in front of us, kind of in the same place, who is usually on Facebook, and every so often he will flick up in the page, and he looks really kind of into the lecture because he is typing away, but really he is like messaging someone.

Liz portrayed students’ passivity in a lecture: ’just sitting like that in a lecture theatre, they were being lectured at’. Liz explained some of the barriers to interactions during lectures, including the perception of empathy with other students. When a lecturer asked if there are any questions at the end of a lecture, students perceive that their peers wish to leave the lecture, and not be keep back longer whilst the questions are answered:

A lot of it is kind of mutual respect, say it has been a really boring lecture, and you put up your hand and you ask a question the students would be like, ‘great [sarcastically], don’t ask a question we can just go home now’.
Also Liz thinks that students are concerned about big group sizes, and what other students think about them:

*Students wouldn't want to speak up and ask a question in case people might think, 'I know the answer to that, don't be stupid', that kind of thing.*

Another situation identified which is a barrier is when lecturers discourage questions: *'you ask a question and the lecturers are like, 'I'm not going to answer that', or 'look it up in the directed reading'.*

![Photograph 7](image)

**Photograph 7: Student group work**

Photograph 7 (p.113) evoked for Liz the question of whether a session is well attended, which was an indication of the extent of student preparedness: *'If you look at it, your eyes are almost drawn to the empty chair, so you almost think somebody should have been there, and wasn't, so is it well attended?'* The most basic form or expression of students not engaging in a teaching session is through non-attendance at classes. Liz speculated why it might have been that some students did not attend, either because they haven’t done the necessary preparations for the class, or due to having been busy with examinations: *'sometimes I've known people who have said I've haven't done my formulary, there is no point in me going, because there isn't really any point'*. 
Liz suggested that students are more reluctant to miss EBL sessions than lectures:

*I know a few people who didn't go to lectures because they learn more from just reading and going to the library.... I know our practical classes are not compulsory in any more way than the lectures, but you feel like you really can't miss them because what you learn there, you will never be able to learn it by asking questions of people, or reading a book. More people miss lectures than a more EBL kind of a thing.*

Liz reported students were:

*Given all the information in lectures, people expected to be spoon-fed. Students are conditioned to listen rather than be pro-active [sic] and speak... you get a lot of information from your lecturers you get your full course break down, you get all the aims and objectives, and lecture slides, you have to do directed reading*.

Liz conjectured that a strategy employed by students is to focus on assessment and examination results, she thinks students don't want to be active, or show *'initiative'* they:

*Just want to be given answers to exam questions instead addressing a general hole in their understanding. People say, 'but what do I need to know for the exam', 'I can't do all that directed reading', 'what are the essentials'? They don't like using their initiative in that sense.*

Liz expressed a preference for communicative learning, *'I like the whole conversational thing. I think you learn a lot more when you talk things through'* . Liz contrasted how she perceived a conversational environment and a lecture environment, *'you can ask questions of the lecturers, as opposed to feeling like you are being talked at'.* Photograph 7 (p.113) for Liz also represented a *'relaxed'* learning environment:

*It was different as it would be in a lecture because you could sit there, and you are almost having a conversation with a lecturer as opposed to being talked at, because you can pipe up at any minute and say, 'I didn't understand that', or 'I've got a question on this'.*
Liz thought that she can retain more information in a session where there was more opportunity for interaction:

*In a focused lecture the way students are behaving is in a more formal manner, so they wouldn’t want to ask questions because they wouldn’t want to interrupt, and they would be taking notes. But they’d be more switched off because of the setting, because there is less interaction.*

Liz depicted that interacting engaged students more: *'In this situation [practical EBL session] you can’t fall asleep, and you can’t hide like in a lecture theatre'*. 

**Kwame (A postgraduate Engineering student)**

Kwame was an international postgraduate student in his early twenties, undertaking a one-year full time Master of Science Structural Engineering course. He talked about his experience on a module in Earthquake Engineering. Kwame selected a lecture to conduct the photo-elicitation, *'it was the last of the classes it was part of a revision for the exam, it was general, recapping all the themes from the course’*.  

Photograph 8: Students taking notes
Kwame reported what Photograph 8 (p.115) represented:

The first thing that came to my mind concentration, concentration, like taking notes, last minute notes... he was saying, something very important which we didn't cover last lecture, we wanted to know... It was a common thing in the class, whenever the Professor [sic] writes something on the board it's important, and everyone should copy it somewhere, so that was exactly the moment that was there.

Photograph 9: Students listening and taking notes

Kwame observed in Photograph 9 (p.116) that not all students take notes during a lecture, that students reacted differently to what the tutor was doing, whilst they were sitting in a lecture:

Some people usually take notes of everything, everything the Doctor [sic] says they take notes. But some people just try to get it. It’s different types of learning I think. I’m going to talk about myself I never take notes, I rarely take notes, I try to get whatever the Professor says, and then I try to put it somewhere in a small form. So this is what I try to convey, some people are just copying, and some people don’t and try to listen.

Kwame was prompted from Photograph 9 (p.116) to report how students took different strategies whilst listening during a lecture. Some students ‘try to copy whatever the Professor is going to say’ and ‘take whatever they can take... like a copy machine, and just copy whatever he is saying’. And ‘then maybe when they go back home they try to
read it again, in order 'to analyse this later maybe'. Whilst 'other people just get and memorise at the same time'; and 'analyse whatever they are getting exactly at the same time as the Professor is explaining, and then maybe they try to ask questions'. Personally Kwame took the following strategy during a lecture: 'I listen to whatever the Professor is saying, and then I write a small note I think that is some sort of learning and getting knowledge'.

'We had a full class of 60', Kwame thought that there was such high attendance, 'basically because sometimes the Professor would give hints, or because he was solving the previous year's exam, it was quite useful for them [the students] to attend'. And 'because it is one session a week, because it is like three hours lectures, and missing that would mean missing a large section of the course that’s the main reason'.

Photograph 10: Students relaxing during a break

Kwame took Photograph 10 (p.117) during a break after the first hour of a three hour lecture; the students were given a 'ten minute break for people to chill, and get drinks or something. People were chilling. I don't remember why they were laughing maybe they are happy they are relaxed'.

Kwame considered that students had, 'forgotten what had been taught from the beginning of the Semester, with the break and then going back again'. The lecture was necessary to enable, 'a recap of what people were going to expect during the exam'.

117 |
Kwame thought that students’ ability to retain information reduced as the lecture progressed: ‘After sometime the amount of information you get is limited it’s like the curve goes like this’ [indicating a downwards curve].

Photograph 11: Student daydreaming

Kwame thought that Photograph 11 (p.118) represented students’ daydreaming and inattention during a lecture and suggested reasons why:

*My friend was thinking about something out of the class. I think this is something very common in classrooms. Just after the first hour the mind tends to go away from the lecture especially because it was Friday, it was the last lecture for the year, people get bored and try to go somewhere [in their mind] not the class. I think they start daydreaming when something is not interesting. For example whenever the Professor is explaining, and they don’t understand anything, or once they reach this point that they understand everything.*
Kwame reported how, 'lots of students drink coffee to help try and stay awake'. Kwame took Photograph 12 (p.119) during the second break where:

*My friend was sleeping it was a long day. On Thursday we have a very big project submission, and I heard that a lot of people stayed up overnight, they had coursework submission in the morning. When the break came they lay on the table and tried to get some sleep. There is another thing, there is a coffee here, this coffee is trying to help him not to sleep.*
Kwame took Photograph 13 (p.119) to demonstrate that:

*The Professor tends to use the board and transparencies a lot, when he tries to explain stuff. Before this he was showing an experiment, he was explaining experimentally, he was doing a small experiment to show us how things work, which really helps to visualise stuff, especially for the subject he is teaching. It is mostly showing stuff, nobody was interacting during this scene.*

Kwame was asked to clarify the extent to which the course was lecture based, or contained interactive aspects, he replied:

*I don’t think there is interactive, like interactive doing stuff in the class, no never no I don’t think there is. The course consists of all lectures. We went to the lab once during the first semester, and that’s it.... I remember the Professor who was in charge that day was like encouraging us, ‘who’s going to do this, who’s going to do this’ everybody was like hesitant to do anything, one or two students just do it.*

Kwame deliberated on his expectations of a university education:

*I wasn’t expecting anything else [other than lectures], because I don’t know how it’s going to be I cannot see how it would be different than this, I was assuming it was going to be the same as lecture listening stuff that’s it.*

Kwame considered interactive teaching and learning to mean either *‘involving students in doing stuff’, or ‘question and answer stuff’.* He reported that, *‘I would like to participate more, not to the extent where it is too much, because I think allowing everyone to interact, some people ask, sorry, but stupid questions’.*

**Sharon (A PhD student)**

Sharon was a full-time PhD student in the School of Physics in her second year. She was in her mid-twenties, and employed as a Student Intern at CEEBL. Sharon was a research student the majority of her work tended to be *‘learning on my own’.* She was asked to
select instances, which she thought would encapsulate her experience of being a PhD student. She elected to discuss her experience of working on her own, going to a national facility to conduct experiments, attending lectures and when prompted by the interviewer, discussed time spent in a meeting with her supervisor.

Sharon works in ‘quite a small office there are five people if everyone is in, but everyone is not is always in. So generally it’s a fairly quiet space’. Sharon appreciated the interactions with other students that occasionally occurred in the office:

*When we are working in silence for a while more often than not someone will start a conversation, or ask for feedback on something they are doing. So it’s not uncommon for say the guy who’s sitting behind me maybe writing something up, or trying the best way to represent data, so if someone comes back in having just done an experiment or something they don’t quite get their results, and then quite often a discussion will take place around that. Which I think, it is a really good way of working, because although people are working on different projects so they can illuminate bits of your own work from those kinds of discussions or it might be that someone is looking at a different problem, but they have come up with a different solution to you, so those kinds of discussions are really quite helpful.*

As part of her PhD, Sharon in the previous year had conducted some experiments at a national facility; this was a social event which involved interacting with other students:

*We go away to do experiments as a group, we go to a national facility, and are allocated a certain number of days, two or three days of time to use the facility. And it’s really a question of using it 24 hours a day; we’ve got to make the most of it because it’s quite scarce. We usually go as team. But then it’s you doing the experiment, and you look at the data you’ve got and make sense of it, and think about what to do next. You know discuss with other members of the team, and bouncing off them so there is also a kind of negotiation as to who runs their experiment first, and whether it’s more sensible to do one persons in its entirety, in case something goes wrong with the facility, or does everyone get to do a bit. A lot of discussion and negotiation it is quite intense.*
Sharon also referred back to her first year, when she attended lectures:

*We have had more formal traditional learning in my first year, we had to attend some lectures, kind of on the topic, and some were given by my supervisor, and some by another lecturer. That was a fairly small group I would say about 50 students.*

Apart from her supervision meetings, Sharon identified that, ‘*there is relatively little direct contact with academics, or with lecturers*’. In terms of the responsibility for Sharon’s PhD project she discusses ownership, responsibility and negotiation of the project goals:

*He is obviously also responsible for the success of the project and he’s keen to sort of provide any assistance he can, so he is very happy basically for students to pop in, and have any questions, he would rather we came to see him than didn’t. If it was something that we were working through, he has an overview of the project, and where it should be going. He’s happy for me to get on with the day to day without checking in all the time, or always reporting back. He was totally receptive as far as the broad themes of the project, he has direction. For instance essentially I wanted to pursue a project it was in line with the overall themes of the project so he helped me to write an application for time to explore this. At the same time through collaboration with another group he’s given me an idea, made a suggestion of where I could go with another project which was slightly away from the track I was already on, and I will probably go down the direction that he has suggested so it really works in both directions.*

### 5.2 Tutor narratives

Biographical narratives portrayed the professional context of six tutors, and the decisions about their practice. These narratives emerged from individual interviews, and also group discussions during the workshops. I have used narratives to present the data as contextual stories describing tutors’ perspectives which included their reported beliefs about teaching and learning, University context, socio-historical influences, and their experiences of teaching students. Also some tutors report on their experience of completing the EBL worksheets located in Appendix 23, (p.281). The complexity of how
tutors perceived their practice within the University context is portrayed through these narratives.

**Lucy (A Research Fellow)**

Lucy taught on a Sustainable Development and Industry course, she was a Senior Professor with a prestigious research portfolio. Lucy describes her beliefs on the importance of research and teaching:

*I am a strong believer that the main purpose of university is to educate. Of course research is another important objective. But education is still the prime objective.*

250 students were taught by Lucy, on an undergraduate programme. Lucy sees her role as a tutor: 'is to help them [students] learn material that they ought to learn’. The course format consisted of her delivering a combination of lectures and tutorials:

*There are four or five different topics that we address there. So for each topic I introduce it via a lecture, or couple of lectures... Then they [the students] break out into groups, and they are asked to go and research the topic further, and sit around the table, and discuss the topic, and work as a group in delivering coursework.*

Lucy recounts her 'sheer inexperience’ when she first went into the classroom:

*Being scared when I first went in, as most young people are; you are thrown into the deep end... you walk in you've done one lecture and delivered it, with a hope that the next lecture would be better, which it is.*

At the start of the interview Lucy reported that 'I couldn't quite understand the difference between Content and Process [Dimensions]. I took the process to mean the process how you conduct or deliver the module?’ She asked for an explanation, so I tried to clarify the difference between tutor-centred and student-centred process. However, Lucy still did not comprehend the difference: *'Sure but how is that different from this [indicating the Content Dimension]’*. The Content and Process Dimension Lucy didn't differentiate:
I think you will find they are very similar. A mixture of what I tell them, and what they need to go out and find for themselves. So, it’s not purely student as a researcher and not purely tutor-centred, but it is sitting somewhere in the middle.

When asked whether she considered the dimensions valid as a framework for teaching and learning analysis Lucy responded:

I personally found them quite confusing but I am not a professional educationalist. I don’t understand the theories that perhaps in education people use. To me they do really sound very academic. And perhaps a little bit divorced from what we as people who teach and educate would want to see or discuss. I wouldn’t couch this into such an academic jargon. To me what is important is: how did I put the module together what is the content; what is the context; what are the learning outcomes how I am enabling students to achieve those learning outcomes; and what experience they going through; and whether that actually helps them to learn. I am sure this is encapsulated in this high level jargon but I don’t understand it.

Lucy reported that she would ideally like her practice to move more to the student-centred end of the Process Dimension:

I think that is much more rewarding for them, they can explore the agenda, and can probably enjoy it more, rather than being prescriptive. But of course the difficulty is at the practical level, because you have to be quite focussed. You have so much time to deliver a certain module, and the content. So you have to compromise between what might be an ideal situation from the pedagogical point of view, to what is actually achievable. Because there is also a danger that if you give too much of an open remit, that they [the students] go and do things forever and never come back with the goodies... Marrying practical with ideal you cannot let them go off and never produce coursework or an outcome.

Lucy was asked what factors influenced the way she taught:
I guess it was an evolutionary rather than a revolutionary approach. Obviously as a young lecturer you start teaching in a very prescriptive way because half of the time you are still learning yourself. And the other half you want to teach your students. As you become more confident with your topic, and with teaching you find out there are ways better ways to enhance the student experience. I have come to the point now where I believe now you really have to give students a more open book, as it were, to explore the field you want them to learn about.

Lucy explains that the changes to her teaching methods have been ‘a marginal change in the way I was doing things... we are all running like headless chickens half of the time, if anything happens it is usually because of some incident / circumstance that happened, so things simply evolved’.

Lucy gave her opinion on the effectiveness of giving lectures:

Throwing lectures at them I think is neither particularly effective in terms of learning, nor enjoyable in terms of students. You can tell often by their faces that they sit there because they have to sit there, but they are probably not learning as much as you ask them to go and research.

Lucy expands on the impact technology has had on the evolution of teaching and learning:

Over the years the media by which the students learn has changed, so going out and researching their own topic is now much easier than it was before. So that is why I am saying it has been an evolutionary process, that both: I learnt how to improve my teaching, and students informed that through the way that they learn.

Whilst she considered the Process Dimension Lucy concluded that assessment is:

Mainly collaborative group work, but [the students] also have one piece of coursework that is individual work. And this collaborative work is obviously to help them learn with other people, and work with other people. To test that they are doing work themselves rather
than piggy backing on other peoples work, maybe, I would want it to be a little bit more individual than I do now. Because I am still a little bit nervous about how much of the work is actually individual work, if you make it too much group work.

Lucy expanded on the importance of group work:

I believe it helps them [students] to learn better, and this is what they will be doing in real-life, they will be expected to work in teams. They can discuss ideas with team mates, help each other, perhaps generate new knowledge, and simply learn how to communicate with each other.

Lucy concluded with a final thought: 'I would like to have more guest lecturers from industry'.

Michael (A Lecturer)

Michael taught 1st and 4th year undergraduate students in the Faculty of Engineering and Physical Sciences. Michael constantly sought to improve his teaching; he tended to prefer to do this incrementally. There were usually not significant changes to his teaching; rather there are constant changes which he implemented year after year. He sought to improve the content of his courses in order to help his students to understand the course material better. Michael recognised his strengths and weaknesses:

I am not a native English so the pronunciation [is] sometimes not clear. I will mention this to [the] student[s]. I will slow down when I speak and try to make as clear as possible. In terms of pronunciation, this is my weakness. My strength is that before I take lectures, I have worked in industry for over ten years, so I have some engineering background, that this is a good point for teaching - using my strength, to compensate my weakness. I know many examples from practice, normally text books does not provide this. Students are keen to know this and appreciate that.

Michael already taught using some EBL principles but he wanted to launch more EBL activities for his 1st year students. Michael successfully applied for teaching funding from
CEEBL in order to set up some EBL components into his teaching. Even if he had not been successful in his application, he still had a personal commitment to incorporating some EBL into his teaching: 'even not given grant we will prepare to do something but having a grant allows us to do more’. He had identified a two-week block, where he wanted to introduce group work activities to enable group design, where he also introduced a real-world problem.

Michael felt that ‘**EBL can motivate students for an interest in learning**’. The reason why he wanted to introduce EBL was that: '**students have difficulty in understanding an abstract idea that cannot be seen**'; through introducing EBL he hoped that this particular problem would be cured, 'by linking [the abstract idea] to real-world'.

Michael judged the students’ preparedness for independent learning:

> They are fourth year, they have learnt a lot already, [and] are prepared for learning independently, we only meet them - say once every two weeks. If there is something urgent we can meet them but mainly they study themselves.

He acknowledged that the different modules he taught have '**different natures**', depending on the content of the material being taught, and also how prepared the students are for independent learning. He taught on a 4th year design project, using EBL where students mainly study themselves. He met with the students usually only once every two weeks, unless there was something urgent the students needed to discuss with him:

> My feeling is that teaching first year and teaching third and fourth year [students] is quite different, third and fourth year they have done something already, they have some knowledge. They are two years more mature compared to first year. Teaching third year fourth years is quite straightforward they don’t need reminding. First year is quite demanding they leave home they have a lot of freedom and also the content is sometimes demanding.

Michael tended to implement incremental changes to his practice:
All the time I try to improve, so there is not a significant change after a year you know where is good, where the content is not suitable. Each time there will be something new, something to help students to understand.

In the past Michael attempted to implement a PASS (Peer Assisted Study Scheme) scheme, where students supported each other in their learning. However, he found that this ‘has not been a great success’. The PASS leaders were required to study in advance of the session. ‘In the past PASS leaders have to study a lot of things for their own’. However this was not always achieved perhaps because, ‘they may not have sufficient time for preparing. Simply the students come to the session’. This was a contributing factor to the PASS sessions being unsuccessful: ‘Students would attend the PASS sessions, and ask a question if the PASS leader hadn’t prepared, they would not be able to answer the question instantly, and students may not attend the PASS session the next time’. Michael tried to help and improve the situation, ‘Now we try to help by being, you may say, by being more staff-led we do need to lead’. Michael did this by ‘providing the questions related to the contents’. And then:

Students would discuss the questions, we would give the hard copy to the PASS leader in advance, they needed to do some preparation, and otherwise the students when they ask the students they may not be able to answer instantly and students may not come next time. We found a way where we try to improve related to the content students would discuss, a hard copy is given to the PASS leader in advance, they still need to do some preparation but not as much as before.

Michael used an allegory to explain why he thought ‘traditional lectures’ worked best to teach understanding:

Teaching skill and knowledge are relatively straightforward. For teaching understanding, very demanding. I’ll give you an example: when you are driving skill easy to learn so you don’t have to know how engine works, most drivers don’t know, but a student can be a good driver. What’s understanding? To understand how engine works, how the
transmission system works in a car, now this takes time not just a couple of lessons. For
driving you don’t have university education you can drive. At university you have to learn
a lot background, a lot of theory, so this part is demanding. To lecture is easy to teach,
for students easy to learn. Currently we teach for understanding, not for skill, for
understanding we need to explain them in greater detail. Rather than task them to
understand for themselves. That is why we have to do it in a traditional way. The
weakness in that is that the way we teach students may not feel very exciting or
stimulating.

Michael explained why he gave lectures: ‘Currently most of the time is class teaching is
mainly the traditional lecture delivery students receive... because classes are large, it is a
reasonable way’. Although Michael justified teaching via lectures he still thought ‘I may
change’. And reported that, ‘If the [EBL component] is very good next year we can
increase the component’.

Michael elucidated on the pressure he felt to increase the amount of elearning in courses:
‘The main influence currently, in recent two years is Blackboard [the universities online
learning environment]’. There have been University guidelines promoted where tutors are
required, ‘not only to place content to Blackboard, also now receiving coursework from
Blackboard, and give marks through Blackboard’. Michael considered implementing
elearning, ‘certainly if I feel that there is a real benefit I will invest the time to do it’.

Michael told of dilemma of dedicating his time to two different aspects of his role: ‘I have
a limited time, and I need to do research and teaching. If I spend more time on one
aspect, it implies you spend less time on another aspect’. To try and address this conflict
Michael tried to optimise the use of his time, he asked himself, ‘can I do something that
serves both research and teaching, this way I become more effective, so research and
teaching are not conducted in parallel?’
Jane (A Teaching Fellow)

Jane was a new academic she has been working at the University in the Faculty of Engineering and Physical Sciences for two years. She was not a typical member of the academic staff as she does not have a PhD; she was recruited based on her professional expertise in industry. Jane’s role was that of teaching fellow, with no research component (apart from educational research). Jane typified some of the institutional dilemmas tutors face concerning the allocation of teaching space and increasing class sizes.

This biographical narrative has a particular facet: the provision of innovation of practice with technology as an attempt to overcome some of the institutional dilemmas. When allocated a particular module to teach Jane was told to expect 150 students, but at the start of the semester the number of students on the course was increased to 250: ‘I was expecting 150 students... actual student numbers were 250’. No extra resource was allocated despite the rise in actual student numbers. However, extra resource was promised to be allocated for the following cohort. If Jane had known in advance that the number of students was going to be 250 she said she would not have attempted to implement the new technology, the small group work, or innovate the module. Jane explained that:

*I want to make my teaching as good as it can be. The technology innovations are all driven by class size. When I do my small group teaching I use much less technology dominated, because I have a one-to-one relationship with them [the students]. When you have 250 you cannot have that relationship with them.*

Jane sought to use technology to attempt to compensate:

*I can’t give you one-to-one feedback, but I can produce a podcast that you can all listen to. I am not prepared to mark 250 boring essays. ‘Let’s do some wikis, and get you preparing some material on real-life case studies’. I can’t organise a poster presentation for 250 people so ‘let’s put them all on Facebook, and we can look at each other’s’. I can’t*
answer all your questions so 'let's have a virtual helpdesk, and at least you can see all the answers on a discussion board'. It is all about trying to improve that relationship between students and me.

Jane considered that she was constrained by the physical teaching space. The universities administration structure is set up so that a tutor with a large class is automatically allocated a lecture theatre. The layout and set-up is designed so that a tutor can conduct a traditional lecture. There are no other options for the physical rooms for teaching space provided by the University:

You are allocated a lecture theatre that seats the number of students assigned. Pretty much all lecture theatres here have a podium, a projector, and laptop. And many of them have internet access, but I never rely on that. I would love to be able to rely on that, to show movie clips, or documentary clips, all sorts of things like that. I am constrained by having one lecture theatre.

Jane attempted to overcome the constraint of the physical teaching space through the provision of the innovation of practice using technology. 'In my mind technology is not a perfect solution at all, but it is another tool I can grab'. Jane utilised the online tools available including the University’s Virtual Learning Environment and 'went down a collaborative learning approach using wikis¹ as a form of assessment'.

Jane was asked if she thought that the wiki enabled her to achieve something with a large number of students, which would perhaps not be achievable otherwise. She replied: 'Yes it does it allows you to achieve a level of collaboration that you can’t achieve any other way with those big groups... Yes given a wiki that works properly ignoring all the technology set up issues'.

¹ A wiki is a website that can be created collaboratively by multiple users. The wiki web pages can be edited via a web browser using a rich-text editor.
Jane held a belief that it was important to include collaborative group work in teaching, ‘I do want students to collaborate, and I do want them to learn collaborative skills, because that is what life is about, collaborating and project management’. And she also thought, albeit incorrectly, that by introducing small group assignments online via an online wiki as opposed to individual assignments, that she could work more efficiently by reducing the time spent on marking: ‘One of my motivations for doing this [introducing collaborative group work] was to reduce my marking load, it didn’t work out that way’. In reality the introduction of a wiki proved ‘quite technologically challenging’. So much so that ‘there is a question mark over wikis next year’. Because of the ‘technology set-up issues’, she is considering using a tool which she perceives as ‘simpler’ such as Google Docs (a free, web-based office suite, with document storage, which allows users to collaborate, create and edit documents online).

Jane used the ‘virtual help desk’ to give students support. If she had had more money or staff resource she would have preferred to offer tutorials and hands-on sessions, a real help desk, getting students together in groups in computer clusters to provide them with support in using the wiki. However this was not possible due to the human resource constraints, she was the only tutor, there were no teaching assistants allocated. And ‘to run it properly with the wikis, the course would require additional hours of tutorial time’.

Jane felt constrained by the amount of human resource allocated. ‘If you think 250 students, and you brought them in for an hour in sets of 20 students that is 12 hours’ worth of tutorial time’.

There were socio-cultural issues associated with Jane’s programme as it was dominated with international students; over 90% of students were from overseas:

I did a breakdown of the nationalities of the students on it [the course]. I had over 100 Chinese students alone and a huge number of students from overseas, from all continents of the world, often coming to the U.K. for the first time, and adapting to a very different educational system.
Jane elucidated that the 'language ability is a massive factor, students have to have an IELTS [International English Language Testing System] qualification score of six, in a bid to mitigate against the massive language problem’. Jane had students who 'cannot write good English', and that 'can’t understand the lectures, and they hold everybody else up'.

Jane found that with the increasing of class sizes, that it was more difficult to ensure that all students were able to keep up with the coursework. She discovered as the class size increased that the numbers of students who didn’t do well increased 'the tail got longer', 'we have a long tail of students that we just lose in week one and two you can see it in their coursework and you can see it in their exams'. She identified that the students understanding of English language is the main issue, and that it could be resolved if 'we increased the IELTS scores'.

Jane identified some other issues associated with overseas students: 'about cohesion within the cohorts it is difficult to generalise, isn't it, but people often stay in their language/nationality groupings’. Also:

*Getting them to embrace wikis for example or other approaches to assignments, they are not used to, or even their exams. I had comments like: 'our exams are not like that in China, we just learn the notes and do them and reproduce them’, and 'that is not what my exams are’ - they are the issues that arise.*

Jane was a champion of technology with her peers: 'My own colleagues have come up to me and want to know what is happening and what it was like using wikis’. Jane thinks, 'There is an element of competition I guess with colleagues who gets the best scores’.

Jane examined her own practice: 'I am quite reflective I definitely look at most things I have done and stand back and think is that the right way of doing it, and could it have been done better'? She explained: 'I am not prepared to turn up for work and stand up and deliver a lecture and walk off and think that is that done'.
Sarah (A Lecturer)

Sarah taught on an undergraduate programme with 250 students in the School of Nursing, Midwifery and Social, which is in the Faculty of Medical & Human Sciences.

Sarah’s cohort of students were ‘straight from school’ so she could not envisage them taking responsibility to conduct research. Sarah discussed the knowledge of first year students: ‘Because they are first years students so you wouldn’t expect them to have much knowledge about content or much experience about research, so I couldn’t really see them being expert in that situation’.

Sarah also found herself in a departmental context where the majority of teaching provision is lecture-based, where students have been talked to a lot of the time: ‘Historically nursing had followed the medical traditional model of teaching which has been very lecture-based’. She attributed this to nursing having followed the medical model of teaching which contained a lot of lectures. Jane explained the structure of the module:

There are 250 students that are split of into smaller groups (17) which you only see three times each, so that the groups gel and come up with ideas... Even with the numbers we had they are reluctant to talk. They are in a sub-group that lead on from a big lecture. They have a big lecture, then they go to a seminar to discuss in more detail what the lecture has been about.

The teaching and learning sessions tended to be directed by Sarah; ‘It’s difficult to do much else with them because I don’t think you have enough time. I think it is really directed’. Also she wished to ensure that all the students in the groups received the same information:

Because you only have an hour with them, and you have to do the same with all the groups, so it has to be quite prescriptive what you are doing, so you know that every
group has the same information, so when they come to submit their assignments you want to know it’s all equal and fair between the groups.

Sarah did not think that the groups’ only meeting three times during the course of the teaching sessions provided sufficient time for all the students in to gel and come up with ideas, and feel comfortable in the seminar environment. She found that ‘even with the numbers we had they are reluctant to talk’, because Sarah found that the students had not conducted the necessary preparation prior to the class; ‘The students often haven’t read the work that we have given them to do’. Sarah, ‘gave them as much information as she could’. Students were expected to prepare for the seminars. However, ‘Often they don’t even read the research paper that has been presented. They are given a worksheet only two out of seventeen will have done it’.

Problem–based learning and EBL had been introduced at the University in the Medical and Nursing Schools. However Sarah explained that ‘we have lost a lot of EBL from nursing, a lot of the courses because of resource matters’: Class sizes have increased but the number of teaching staff has not risen and tutors are expected to accommodate the larger class sizes.

Tom and Kathy: (Teaching Fellows)

Tom and Kathy were colleagues who had worked together on a new interdisciplinary module called the Green Cities Project which had been funded by CEEBL. The module was interdisciplinary and offered across different Faculties within the University, and was available to students as an optional module to second or third year undergraduates, or students on Masters Courses who could elect to undertake a project to form the basis of their dissertation. The course was unique in that it created partnerships with external organisations including Manchester City Council. The external organisations offered a series of broad topic areas in sustainable development for the local community, therefore the projects that students worked on were real-world. The students undertook individual
work for their dissertations at postgraduate level, whilst the undergraduate students worked in groups together on the projects.

There was a tension between whether the control of the project existed with the external client or the students. The students had a choice of which projects they would undertake from a series of broad topic areas, and also an opportunity to negotiate the outcomes and research focus of the projects.

Tom explored the idea of potentially asking students to offer their own ideas on how they might want to work with the City Council:

*The client said that the City Council wanted particular objectives met to justify their time... but at the same time students need to have some flexibility to explore their own questions, particularly if it's a dissertation project.*

Tom thought that this idea could perhaps work, but it was dependent on someone in the City Council being willing to work with the students.

Kathy explained *we are negotiating projects between either individual dissertation students or groups of project students*’ and the broad topic areas:

*Might be something like, for instance, a plan for parks in East Manchester. Now that is a really open topic so there is obviously room for negotiation. But we can't put it completely on 5 because they [the client] are actually suggesting the topics, and the student then has to negotiate within that to come up with something that the client is happy with.*

Also the tutor had to approve the student topic choice because there are groups of different students doing the same broad project area, and the tutor has to avoid overlap. Kathy considers that taking into account these factors that the responsibility to the students was devolved *'as much as we think we can at the moment'.*

Tom was often involved in co-ordinating student dissertation projects, so the students *are very much in charge of their schedule and their organisation of how they want to tackle it,*
but we’re trying to, at the same time, introduce a little bit more control over the process’.

Tom wanted to introduce more structure by asking students to agree to a student learning agreement. Essentially this agreement was where the students if they were willing, ‘would acknowledge that they have certain responsibilities in interacting with, and meeting the goals of the City Council Project Managers, so maintaining regular communication and things like that’. The reason why Tom wanted to introduce a little more structure, was because of the variation in students’ commitment, ‘with some students being really dedicated, and really have the ability to do a very great job, while others might need a lot more encouragement and oversight’.

There was minimal structure for the projects because in most cases it was a final year project or a Masters project. The students were encouraged to develop a work plan with the client, ‘but no one is going to stand over them if they haven’t done it so it is a little bit sort of sink or swim in that sense’. The tutor was available to provide facilitation and consultation. There are three points over a semester (or two semesters depending on the project) where the tutors wanted the students to hit deadlines. Kathy explained that after the project is set-up:

There is the interim; and then there is the final report back; [and] the plenary, where they share their experiences and are reporting back to the client, and with students from other disciplines, they will attend a mini symposium, but other than that it is pretty much up to them how they do it in between.

5.3 Tutor dilemmas

31 tutors completed worksheets during the workshops and one-to-one interviews. The worksheets elicited the diversity and complexity of the dilemmas and tensions that affected tutors’ decisions about their practice, and the extent to which tutors could be student-centred in their approach (Winter, 1982). The analytical process employed to elicit the dilemmas from the participant statements, and the subsequent process of categorisation is outlined in Section 3.3.2 (p.63).
Different types of dilemmas creating dissonances between tutors’ ideal and actual practices emerged from the data, after the content analysis. These included tutors’ perceptions of external influences e.g. large class sizes, varying student preparedness, departmental, university institutional socio-historical context. And tutors’ perception of internal influences e.g. tutors’ pedagogical skills and know-how, confidence to have causality over decisions of practice, and uncertainty of how to change practice. In the following sections I seek to present the totality of the variety of dilemmas, decisions and tensions expressed by all the tutors in the data-set. In presenting the data I have kept the statements largely intact to accurately portray the participants’ experiences and complexity of their dilemmas and decisions. Sometimes the statements made by the participants represented multiple dilemmas, tensions and influences, and therefore could have been categorised within multiple themes. Table 3 (p.139) below presents the categories and sub-categories identified, and the structure of the proceeding section.
<table>
<thead>
<tr>
<th>Category</th>
<th>Specific examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERNAL INFLUENCES ON PRACTICE</strong></td>
<td></td>
</tr>
<tr>
<td>Commitment to additional work</td>
<td>Additional work required to change practice.</td>
</tr>
<tr>
<td>Tutors’ skill and ability to change practice</td>
<td>Tutors’ pedagogical skills and know-how.</td>
</tr>
<tr>
<td></td>
<td>Confidence to have causality over decisions of practice.</td>
</tr>
<tr>
<td></td>
<td>Uncertainty how to change practice.</td>
</tr>
<tr>
<td><strong>EXTERNAL INFLUENCES ON PRACTICE</strong></td>
<td></td>
</tr>
<tr>
<td>Logistics of the student cohort</td>
<td>Large class sizes.</td>
</tr>
<tr>
<td>Diversity within student cohort</td>
<td>Varying: ability, confidence, expectations, and diversity of backgrounds.</td>
</tr>
<tr>
<td>Varying student preparedness</td>
<td>Varying: knowledge base, lack of experience with EBL, real world experience, degrees of completing the relevant work, and perception of first year students being less prepared.</td>
</tr>
<tr>
<td>Varying student willingness to engage</td>
<td>Varying un/willingness: to interact in lectures or online, contribute in group work, or commitment to undertake additional work.</td>
</tr>
<tr>
<td>University physical environment</td>
<td>Infrastructure issues i.e. lecture-style room allocation.</td>
</tr>
<tr>
<td>Time constraints</td>
<td>Additional time for non-standardised assessment.</td>
</tr>
<tr>
<td></td>
<td>Time limit in tutorials.</td>
</tr>
<tr>
<td></td>
<td>Students’ ability to evaluate in short space of time.</td>
</tr>
<tr>
<td></td>
<td>Covering the syllabus and content.</td>
</tr>
<tr>
<td>University institutional socio-historical influences</td>
<td>Tradition in University department.</td>
</tr>
<tr>
<td></td>
<td>Educational philosophy.</td>
</tr>
<tr>
<td></td>
<td>Educational development events.</td>
</tr>
<tr>
<td></td>
<td>Faculty course unit specifications.</td>
</tr>
<tr>
<td></td>
<td>Tutor expectations of how the School/University teaches.</td>
</tr>
</tbody>
</table>

Table 3: Summary of external and internal influences on practice reported by tutors.
5.3.1 Internal factors and external influences

Internal: Commitment to additional work

Some tutors recognised that additional work and time would be required to change their practice.

*I would like to be more collaborative, my own experiences as a student have been very positive when working in a group. I also like to give some flexibility on how collaborative / individual students want to be, there’s different learning styles and personality. [But], to strengthen the Collaborative Dimension would very likely result in more work for me as a tutor. It’s just a matter of time.* (Hum5)

One tutor reported:

*Ideally I would like students to come up with their own topics, but in a group of 60+ I’m not sure how this is logistically possible, given that each topic would have to be negotiated with me... But not without considerable extra work on my part.* (Hum18)

Internal: Tutors’ skill and ability to change practice

Most tutors at the workshops recognised, by inference of their voluntary attendance at a student-centred educational workshop, that lectures are not always the best method of teaching. One tutor summarised this:

*Lectures do not convey material best; I try to give students a break from lecture-based learning. [But], it is difficult for me to cover as much material that is wanted using EBL, and I am not sure how to get students opening up to talk more.* (EPS1)

The extent to which tutors felt that they had the knowledge and skills, and time to be innovative their practice varied. For example, one tutor wished:

*To facilitate learning more than I feel I do at the moment (i.e. be less prescriptive) and require them [the students] to be more proactive/ responsible for meeting own learning*
needs. [But], I don’t think I have the skills in terms of best practice to do much more than I am doing at present. (Hum8)

This tutor thought that it would be good:

If the students could be responsible/ direct their own learning at least half of the time.

[And had] tried a number of things to shift the onus onto the students – but need some more input/ideas about how to do this from a sound pedagogical standpoint. (Hum8)

Similarly a couple of tutors expressed uncertainty on how to change practice:

I feel I would like to see more involvement. I’m bored myself with the first part
[traditional lecturing]. I feel the need to deliver the knowledge I provide in that part, but I wonder whether there may be more efficient and interactive ways of doing it. (Hum5)

I would like to try more group/collaborative assessment with a degree of student creativity involved. [But in order to achieve that the tutor would like to see] practical examples of how other people have managed group work in their modules. (Hum18)

Another tutor who had implemented online learning reported how:

Technology can enable efficiency gains; [but that] technology requires time investment to learn and implement. (EPS2)

**External: The logistics of the student cohort**

Many tutors referred to the tension and constraint of being more student-centred in their teaching approach created by the allocation of large class sizes.

Ideally I would like students to come up with their own topics, but in a group of 60+ I’m not sure how this is logistically possible, given that each topic would have to be negotiated with me. (Hum18)
I would like students to be less dependent on didactic provisions, able to have intellectual tools to home in on questions and research them [but there is] a logistical issue in dealing with 190 students! (FLS9)

External: Diversity within student cohort

In addition to large class sizes a few tutors cited multiple constraints to being more student-centred in their practice. For example FLS9 reported, ‘ideally I would wish to deliver most of course in team based collaborative EBL’, but ‘class size, and infrastructure issues (rooms, staff, time)’ and the ‘varying ability, and knowledge levels’ of students’, were cited as barriers to implementing EBL.

Low confidence and students being new to a course was perceived as barriers to implementing student research projects.

I would like to ensure that students feel comfortable at ‘owning’ their own research studies, and that the students see it as an opportunity to explore research topics relevant to their own research and practice requirements, [but] this session is planned for earlier in the course so students may not feel prepared, or have had sufficient academic input to be confident in this, [as] ‘students come from diverse backgrounds, and may be nervous about setting their own learning content. (Hum6)

A few tutors identified perceptions of student expectations as an influencing factor.

It would be good if the students could be responsible/direct their own learning at least half the time. [But], students expect to be TAUGHT - seem to be aware that they are paying for their education, they expect to be ‘spoon-fed’. (Hum8)

I would like students to be less dependent on didactic provisions. [But], they come from a heavily ‘spoon-fed’ environment. (FLS9)

The expectations of students vary quite substantially and assessment needs to be modified to reflect the context and nature of the different student groups. (Hum16)
External: Varying student preparedness

Some tutors felt that the knowledge base and existing experience of students was a barrier to being more student-centred in their teaching approaches.

_Students undertaking an EBL/PBL [problem-based learning] approach would acquire better learning, study, research, and analytical skills. [But], the knowledge base of students is too low to gain advantage from an EBL/PBL approach._ (FLS9)

_I suppose I think you need to provide a framework of knowledge while giving them freedom to develop their learning in the ways they wish, [but] I guess in practice some students find it hard to deal with the way I structure this, primarily because of their lack of experience with EBL and expectations they have developed by this point of their course units and lectures, because it has a strong group work dimension which is unique to the curriculum._ (Hum5)

_Some boundaries are needed on the project, as the students lack experience and confidence and are required to write in a short time frame._ (EPS_ph1)

_I would like this session to be much more student-centred to enhance their understanding [because] students find it difficult to relate research to their work especially at this early stage in their training. [But] I think it would be difficult to introduce too much student-centred learning until certain concepts were understood and some real world experience gained._ (MHS3)

One tutor had experience of students not preparing the necessary work, as being the reason why the students did not contribute.

_If students have prepared relevant work they 'are more inquisitive, and feel able to question. [But] students often have not completed the relevant work to enable them to contribute in a questioning and knowledgeable manner._ (MHS3)

A few tutors reported that students being in their first year at university was a barrier to introducing more student-centred practices.
I would like the students to be much more inquisitive and feel able to question more than they do. I feel that this would make the session more equal and would lead to greater in-depth discussion of queries or ideas. [But the tutor was unable] to make the group smaller, get to know each other more, and therefore for students to feel more relaxed and able to question. Also these are first year students who probably feel some trepidation to degree level study. (MHS3)

External: Varying student willingness to engage

A few tutors identified student resistance to engage and contribute in interactive learning processes, and some gave explanations for this.

Some students will interact during a lecture but most do not, and the take up of other forms interaction is low e.g. online discussion boards. (FLS9)

I intend to move towards a more interactive approach, with students producing collaborative work through group poster presentations, and individual students’ reflective log to back up each contribution. [But] Students on distance learning course are fairly resistant to working together in groups in part due to the global location of all the students. (FLS14)

Some students will interact during a lecture. [But] Most students will not interact during a lecture, as students are reticent as there is a risk of ‘getting it wrong’. (FLS9)

One tutor reported her habit to revert to being tutor-centred.

I would very much like the session to be interactive, student-led and active. [But] I have a tendency to slip into more tutor-led strategies as a safeguard against ‘silence’. (Hum6)

Equality of student contribution was also identified as a dilemma in introducing group work:

Collaborative learning approach can boost student understanding but has difficulties if one student doesn’t contribute sufficiently. (FLS14)
Similarly a tutor:

Has tried a number of things to shift the onus onto the students in the class, [but the
tutor] has a lot of information to pass on; it seems that if I do not give it to the students,
the students may not bother to find it for themselves. (Hum8)

External: Time constraints

Many tutors wished to give students control and choice but cited the necessity to cover
the content, and the time constraints as reasons why they could not.

I would prefer students to pick their own projects. [But], time constraints make the
assessment of student projects difficult if the projects are not comparable. (Hum_ph5)

Students bring topics for discussion, but due to time-constraints only selected topics are
discussed. (MHS_ph2)

In relation to assessment, one tutor’s view was that,

Students should be given more control over evaluation. [But] in a short space of time
students can find it difficult to work and assess themselves entirely on their own. (FLS14)

One tutor would ‘prefer students picking their own application process’: But ‘time
constraints makes difficult assessment if [student] projects are not comparable’
(Hum_ph5). Other tutors’ report:

The students can decide which fundamental principles and theories to apply to the
application of a problem, [but] fundamental principles and theories need to be covered,
and the time is limited to just one semester. (Hum_ph5)

There is an essential need for students to achieve specific tasks and outcomes, whilst
working with restricted time and resources. Therefore a balance between staff-
led/student-led content is essential. (EPS_ph3)
External: University institutional socio-historical influences

There was evidence from the data that practice may be influenced by multiple factors including the socio-historical contexts within the University. These factors may be contradictorily and pose dilemmas, if the tutors perceive there is a tension or contradiction between the external influence and their preferred or ideal practice. One tutor explained how she changed her practice to become more student-centred, but initially her practice was influenced by:

*Partly following ‘tradition’ in my department regarding 2nd year UG assessment (=an essay) but also partly shaped by my experience in previous years when the assessments were set more clearly by me, which resulted in ‘identical’ essays regurgitating lecture notes.* (Hum18)

However, subsequently the tutor became more causal in her practice:

*This year I set essay topics that required the students to read across the module and to be more creative in terms of answering the questions. In other words they had to work to decide the question & find an answer to it. I also allowed students some latitude in terms of which particular theoretical approaches they compared. This resulted in much more diverse essays that were largely unique, presenting an original argument.* (Hum18)

Practice can be influenced by the values of an educational philosophy which a tutor gained from the literature, for example one tutor explained:

*I teach Friere to all my classes (BA/Med) and try to teach those values and principles.*

(Hum4)

A few tutors also reported being influenced by attending educational development events, for example:
The individual reflection activity (learnt at CEEBL) is an essential starting point for this session – before going on to more collaborative group work activities critiquing examples of reflective writing. (Hum4)

Departmental and university institutional influences are perceived as influencing practice by some tutors, for example:

Move towards a more interactive approach, with students producing collaborative work.

[But], most students work on their own – there is nothing in place for group work. This is in part determined by the requirements for the assessment laid down in the course specs throughout FLS [Faculty of Life Sciences]. (FLS14)

5.3.2 Analysis of dilemmas disaggregated by dimensions

The majority of tutors identified a spectrum of approaches on various dimensions of teaching and learning. These viewpoints contained either a student-centred or tutor-centred bias and often the participant statements contained both. When the statements expressed tensions which seemed contradictory and were either/or type, the statements could be classified as disjunctive dilemmas. Or when the statements expressed tensions which seemed to hold mutually held beliefs and were both types, the statements could be classified as conjunctive choices. Often the dilemma and choice statements also contained references to both external and internal influences.

Student versus tutor control of content

Some tutors expressed the tension between tutor regulation and providing student freedom. At times tutors wished to ensure that the students are supported but often this seemingly contradicted giving students freedom to explore a subject area.

It is important that students are able to explore a subject area. Students should be mature enough to explore their own questions and to be curious to expand their knowledge. [But], students must be provided with direction, support and structure to the
project otherwise students might study inappropriate material and get lost in the sheer volume of material. (EPS13).

I suppose I think you need to provide a framework of knowledge while giving them freedom to develop their learning in the ways they wish. (Hum5)

Students do their own research around a topic but are expected to show certain core knowledge. (FLS14)

[The] purpose of the project is to introduce post-grad students to self-directed inquiry, [but] within a set of theoretical/conceptual guidelines. (Hum_ph1)

Aspects of students as researchers, are explored by some tutors:

I would like to ensure that students feel comfortable at 'owning' their own research/studies on this MA and that they see this as an opportunity to explore research topics relevant to their own research + practice requirements. There won’t be enough time to have a tutor-led centred approach given the diversity of the material. (Hum6)

[The tutor provides] students with lecture material, case study examples and a module handbook. [Where] teaching and learning is centred on key note lectures and discussion of case studies in class... However I do expect my students to undertake their own research to complete the wiki based coursework and expect them to apply the relevant taught theory to the case studies through their own personal study. (EPS2)

Most tutors use various student-centred and tutor-centred approaches, for example:

At times one tutor 'just lectures. [And] I employ different learning approaches e.g. student undertakes own research and feeds back to the group. (Hum8)

It’s important to facilitate a wide range of approaches (individual, small group, large group, whole class. (Hum4)

Teaching and learning is centred on key note lectures... and is centred on discussion of case studies in class. (EPS2)
These types of statements above could be viewed mostly as conjunctive, where there is shared responsibility between both the tutor and the student, despite that fact that the statements could be viewed as contradictory where tutors are practising at both the student-centred and tutor-centred ends of the spectrum at the same time. Another example of this in relation to the extent a student has responsibility is:

The purpose of the project is to introduce students to self-directed inquiry, [but] I provide a set of theoretical/conceptual guidelines. (Hum_ph1)

There was recognition by one tutor of the different degrees of student and tutor-centeredness of assessment:

I also allowed students some latitude in terms of which particular theoretical approaches they compared. This resulted in much more diverse essays that were largely unique, presenting an original argument. (Hum18)

There was a tension expressed between the origin and relevance of knowledge expressed by one tutor:

There are a set of concepts, a body of literature that defines the field. [But], case study examples and the students’ own investigative projects are key to bringing concepts and theory to life. (EPS2)

**Student versus tutor control of process**

Many tutors explained the extent to which ‘scaffolding’ (EPS_ph1) i.e. guidance and instructions were given to students.

Students need to be self-directed and confident in communicating their ideas, challenging themselves, others, and tutors. [But], there needs to be a formal element of how interaction is conducted as there is the potential to over-run, or for individual students to dis-engage. (Hum6)
Ideally students should be taking more control and responsibility of the project planning and time management. But this was very much a first exposure to project so required scaffolding. (EPS_ph1)

Students should be encouraged to seek creative and independent processes to arrive at expected outcomes. [But], the process has a defined structure of deadlines and a specific outcome. (MHS_ph1)

There are specific steps that have to be carried out in a particular order. The process of enquiry is pre-defined. But the students are free to focus the enquiry as they wish. (Hum_ph5)

Students benefit from the initial introduction to the process. It allows me to introduce it in a controlled environment – Gives structure to the unit before I let the students run with the topics. (MHS2)

Students sort schedule and organise activities for dissertation projects...however, I attempted to add more structure through a learning agreement that outlined the student responsibilities. (Inter_ph1)

Part of the exercise is for students to organise their time, plan the project and organise meetings. However, regular tutorials fixed expectations. (EPS_ph1)

It is important for the students to become self-motivated researchers, to learn methodologies, and to become independent learners. [But the], tutor is there for support and to act as a facilitator. (EPS13)

One tutor identified that even when implementing problem-based learning there still is a tension between how much the tutor directs the learning process and the extent of student freedom.

The student learning takes place within a well-defined timetable each PBL scenario occupies a particularly number of sessions but within that the students set their own agenda. [But], there is the potential to allow the students to lead the process to a greater
extent within the framework. I am an experience EBL facilitator & probably have the confidence to let students take the lead. (MHS_ph3)

Concerning responsibility for assessment, and strategies for student self-evaluation some tutors reported:

Students already have some degree of autonomy but I feel they lack ‘ownership’ of assessment. Ideally I would like them to see that they have a role/responsibility for assessment. (Hum17)

Some tutors employed both individual and student group work. One tutor does not advocate all teamwork assessment for the programme:

The course is delivered via collaborative work and is assessed, but it forms part of a larger programme where individual work and teamwork have a balance. (EPS13)

Students do individual work... but students also work as a team. (Hum10)

One tutor wished for students to work collaboratively, but the lack of engagement by some students provided a tension:

I would like students to have completed the work individually, and then to come together as small groups to discuss further their results. [But], many students are not motivated to carry out work alone away from university and will wait until class for the group work, often for someone else to answer the questions for them. The more interested students often take the lead, making this more individual than group work. (MHS3)

The conjunctive nature of individual versus group work is explained by one tutor:

Students have a framework within which they can create their own pieces for assessment. The assessment takes place in a group where students collaborate. [But], there are individual elements which are intended to counteract some of the unevenness of group work. (Hum17)
Theoretical abstract concepts versus real-world relevance

Many tutors identified the potential for a conjunctive perspective of theory and practical applications; theories and real-world-solutions; or knowledge and practical skills. For example, one tutor reported how in relation to the Context/Authenticity Dimension real-world projects may be better conceptualised if underpinned with a theoretical perspective, he articulated the continuum nature of the dimensions, and how complex real-world scenarios benefit from simplification and theorising:

*They are not two ends necessarily; sometimes they are kind of the same thing. I mean we deal with the real world not in terms of every single complexity; it is I guess impossible for us as people to do that. It’s just the way we deal with the real-world. As we come up with our artificial constructs, and then we say this is how the real-world works.* (EPS_ph3)

Similarly, other tutors reported:

*Students need to see where things fit in the real world and appreciate the real world experience. [But], theory driven concepts provide a framework for understanding.* (MHS2)

*Students will initially be focused on theory, but they will hopefully transition to more practical applications of their knowledge. [And], ideally, students are able to use the theoretical abstract concepts in real-world situations. Students will hopefully be motivated to a greater extent, since they know the results they produce will add value to the City Council, and possibly their very own community/city.* (Inter_ph1)

*Students must learn theories as a foundation for the real world solutions they will design.* (Hum_ph5)

But one tutor refers to some of the perceived barriers to achieving the ideal practice of unifying knowledge and practice;
The university context, levels of resources; limited practical experience tutors may have, and other practical considerations will always limit to some degree the level of authenticity, and remove the teaching and learning sessions from the real-world. (Hum5)

Many tutors state that ideally they would like to integrate both theory and practice:

Practical and theoretical should go hand in hand. (Hum17)

Believe both theory and applications need to be taught to students. (EPS1)

Theory driven concepts provide a framework for understanding but students appreciate the real world experience. (MHS2)

I would like to strengthen the theoretical side of the reflective process, and develop the theoretical basis for the practical skill much further... whilst ensuring that the real world application is still clear. (Hum4)

One tutor explains how students are perceived as viewing the course:

The students probably regard the teaching as theoretical, abstract, and removed from the real-world as the course requires students to be analytical and reflective and not descriptive and linked to the real-world. (Hum4)

Some tutors in the Medical and Human Science Faculty identified the dissonances in creating real life clinical practice scenarios for students to acquire vocational skills:

The teacher would like to try and make the link between theory and practice more explicit, to provide a good methodological grounding rather than spending more time on theoretical controversies dominating the field, which might seem quite irrelevant at the early stage in the students learning. (MHS15)

The project focus is specifically around (real life) clinical experiences although the setting where they are addressed is academic and learning is facilitated. [But], learning within the 'real life' clinical area should be independent; [as] students need to develop autonomy in identification of and seeking out solutions to clinical dilemmas. (MHS_ph1)
Students seek out answers to questions/problems raised in clinical work within a group.

[But the] group setting may not be realistic for supervision in the 'real world'. (MHS_ph2)

In addition, one tutor wished to engage students in problem-based learning.

As a vocational subject it is essential that our students are learning in context. We have worked hard to make the content PBL [problem-based learning]/EBL activities relevant.

[But], I believe that for EBL to be truly successful there must be genuine engagement with students on a personal level enabling them to acknowledge & meet their needs as learners. I'd like to explore the more personal aspects. I'm not sure I have a good enough awareness of this. (MHS_ph3)

One tutor recognised that students have different professional trajectories and a sizable proportion of students will not go direct into a profession related to the discipline they are studying.

We recognise that a sizable proportion will not go direct into science but we attempt to generally equip them with a set of generic transferrable skills – how to learn, research, solve problems... we are working towards equipping students with a set of generic transferrable skills of relevance even if they do not continue in science. (FLS9)

5.3.3 Dissonance between tutors’ reported actual and espoused ideal practice

This section presents the quantitative findings from the worksheets and relate to the qualitative findings in the previous Section. During the workshops and individual interviews 31 tutors were asked to reflect on where they would position their actual and ideal practices on the worksheets. Each worksheet represented a dimension of teaching and learning and was expressed as a Cartesian axis, numbered from 1 (tutor-centred end-point) to 5 (student-centred end-point). Firstly, the participants were asked to identify a particular teaching and learning session, and to consider where their actual practice would be situated on the dimension, and write an ‘a’ at that position. Secondly, tutors were
asked to consider where they ideally would like their practice to be situated on the same dimension, and write an ‘i’ at that position.

In total 99 worksheets were generated, the quantitative data can be found in Appendix 14 (p.261). The results from this exercise are presented in this section in three ways: in a Figure 15, (p156) displaying the average tutor actual and ideal positions; via radar graphs; and Spearman's Rank Correlation Coefficients. The participants were summarised and presented as one of four codes relating to the University Faculties. The number of participants from each Faculty code were: EPS:7, MHS:8, Hum:14 and Inter:2, the participants codes key is located at Appendix 21 (p.272).

Sixty-six per cent (Appendix 17, p.268) of the worksheets demonstrated a positive dissonance between tutors’ reported actual and espoused ideal practices. Ninety-seven percent of those tutors where a dissonance was expressed reported that their espoused ideal practice became more student-centred and enquiry-based than their reported actual practice. Therefore through exposing the tutors’ dissonance the EBL worksheets were effective as a pedagogic instrument in eliciting a reported desire to change practice towards including more enquiry-based and student-centred practices.

The interdisciplinary (Inter) data had only two participants, not sufficient to make any valid generalisations, but as I am studying singularities (Bassey, 1983) these have been included. The two interdisciplinary tutors taught on the same module, which demonstrated the subjectivities in participant location of practice, as the precise numerical placement differed between these two participants, however they were positioned in the same octant (Appendix 18, p.270). This module was also significant as it contained the most student-centred approaches, and therefore was the most enquiry-based of the participants across all the EBL dimensions.
Figure 15: Average tutor reported actual and espoused ideal positions, and dissonance

Also four radar graphs (Appendix 20, p.272: Figure 21-Figure 24) display the tutors’ espoused ideal practice in relation to their reported actual practice, each graph representing one dimension of EBL: Content, Process, Culture or Context. Each radar graphs centre is labelled 1 and corresponds to a tutor-centred approach, whilst the outside edge is labelled 5 and corresponds to a student-centred approach. Therefore the bigger the polygon shape, the more student-centred the practices. Each participant is labelled simply by their Faculty code.

For all four graphs the espoused ideal practice of the participants was almost entirely more student-centred than the participants’ reported actual practice, which is illustrated by the red polygon shape (espoused ideal practice) being bigger than the blue polygon shape (reported actual practice). The Context Dimension demonstrates the largest polygon shape for both the participants’ actual and ideal practices. This indicates that tutors consider it important for them to include real-world contexts or practical applications in their teaching. This corroborates the evidence from the participants’ worksheet statements (p.152) in which tutors deemed it important that theory and
practical applications are integrated; and that knowledge and practical skills should be unified.

The Spearman's Rank Correlation Coefficient provides detailed information indicating the strength of correlation across each Faculty code, and EBL dimensions. The method of calculating the strength of correlation is outlined in Appendix 15 (p.266) and the results are summarised in Table 4 (p.268). The data for all the Faculties (omitting the interdisciplinary participants, discussed below) across all the learning and teaching dimensions when analysed using Spearman's Rank Correlation Coefficient indicated a strong, or very strong positive Spearman correlation, which corresponds to a consistent increasing monotonic trend between the actual practice (independent variable) and ideal practice (dependent variable). If the value of the actual practice increased, then the value of the ideal practice tended to also increase. The majority of the tutors' ideal practice positions had a higher value than for their actual practice, indicating more student-centred teaching aspirations. Thirty-three per cent of the EBL worksheets showed that the tutors expressed no dissonance in their positioning of the actual and ideal practice (Appendix 19, p.271), perhaps indicating in these instances that they were happy with their current practice for particular dimensions, and had no desire or intention to change.

The qualitative statements made by many of the tutors concurred with the quantitative findings, and indicate that the tutors wished to change their practices. Some tutors were clear as to what change they desired, for example: 'I would like to try more group/collaborative assessment with a degree of student creativity involved' (Hum18); and 'I would very much like the session to be interactive, student-led and active' (Hum6).

Whilst other tutors wished to change but were uncertain on how to proceed: 'I feel I would like to see more involvement. I'm bored myself with the first part [traditional lecturing]... I wonder whether they may be more efficient and interactive ways of doing it'
(Hum5); and 'There is some capacity for change... the question is how to change it and in what direction’ (Hum17).

However, the majority of tutors preferred a conservative incremental change in practice. One tutor reported that her strategy for introducing innovation was 'very gradual, to see how initially it goes and then, so I have got some evidence to say look this approach is working and the students are liking it' (MHS2/W2). Similarly other tutors reported: 'A marginal change in the way I was doing things' (EPS3_I); and 'all the time I try to improve, so there is not a significant change’ (EPS3_I). The evidence for this strategy was also supported by small differences between actual and ideal practice (Figure 15, p156). The percentage average dissonances were between 12.5% and 20%, indicating a reported incremental desire to change towards student-centred and enquiry-based practices.

The interdisciplinary tutors’ data were an outlier, and were consequently treated separately Table 5 (p.268), as their actual practices were already towards the student-centred end-points and consequently the ideal practice for the Process Dimension demonstrated a very strong negative Spearman correlation (exceptionally compared to the other participants). The actual practice was already student-centred. The tutors wanted to become more tutor-centred, in order to introduce a little more structure, because of the variation in students’ commitment, with some students being dedicated and others requiring more encouragement. It was proposed that a student learning agreement would be introduced, to acknowledge student ‘responsibilities in interacting with, and meeting the goals of the City Council Project Managers’ (Inter_ph1).

The quantitative participant placement of participants’ actual and ideal practices on the dimensions was a subjective decision. For example, two tutors (Inter_ph1 and Inter_ph2) who both worked on exactly the same interdisciplinary module placed both their actual and ideal positions (Appendix 18, p.270) on all three dimensions in different positions.
However, there was commonality in that the actual and ideal positions were placed within the boundaries of the same octant\(^2\) (Figure 16, p.159).

![Functional Three-dimensional EBL Model](image)

**Figure 16:** Functional Three-dimensional EBL Model, with the Green City Project placed into the student-centred octant.

Also the extent to which the two tutors were satisfied with how the module was being taught varied. One tutor (Inter_ph2) for the Process and Context Dimension showed zero dissonance, and a very small amount of dissonance for the Content Dimension. Whilst another tutor (Inter_ph1) contradicted this opinion, judging some dissonance for the Process and Context Dimension, and zero for the Content Dimension. This demonstrates the subjective perceptions and judgements, variation in interpretation of the models and

\(^2\) An octant is the division of space of the three-dimensional Cartesian system, where the space is divided into eight regions according to the planes and divisions of the axes.
practice made by tutors. This does not invalidate the role of quantitative positioning on
dimensions and models, but rather illustrates the EBL Worksheets as a prompt for
reflection and discussion, and to affirm subsequent espoused actions.
6 Discussion of participant data

This chapter synthesises the empirical findings of the action research project which are presented earlier in Chapter 5. It addresses the three research questions which relate to the aim of understanding the perspectives and experiences of students and tutors. The research questions are presented as the main headings in three sections: firstly, discussing how students reported their experience of the teaching and learning process; secondly, reflecting on how tutors reported the teaching and learning process; and thirdly, exploring the nature of the dynamic between tutors and students during the teaching and learning process.

6.1 RQ1: How do students experience the teaching and learning process?

This section discusses the findings which were derived from the student photo-elicited interview data (Section 5.1, p.101).

6.1.1 Students’ reflections on teaching and learning situations

The three dimensions of the Values-based EBL Model (Figure 10, p.85) were used as an analytical framework to map how students experienced teaching and learning. The empirical content analysis of the student data (Appendix 13, p. 249) identified three principal themes: student activity (how active the students were in constructing knowledge), student interaction (whether the learning culture is collaborative), and application of learning (how authentic and real-world the learning experience is). These comprise the three dimensions of the Student Involvement in Learning and Teaching Model (Figure 12, p.89) introduced earlier in Section 4.2.3(p.87). These are not totally separate entities, there is overlap and potential difficulty in definition between the Student Activity (x-axis) and Student Interaction (y-axis) Dimensions. However, interaction refers to where students interact with peers and tutors or external stakeholders (e.g. research
participants, or clients providing real-world projects), whilst student activity refers to students involved in constructing knowledge.

**Student activity**

One student reported being active during an EBL ‘practical session’, working collaboratively with students and the tutor in ‘constructing a written piece of work that they can revise from’ (Liz). However, students more frequently reported lecture situations where the tutor was active, whilst the students were not active: ‘we don’t really have much of an opportunity to be pro-active [sic]’ (Liz); and ‘it’s very centralised, with a very passive audience... just the lecturer talking at you...I guess it’s one active participant - the lecturer - and 59-60 very passive participants’ (Phil). Some students criticised this form of teaching stating, ‘I find it hard to pay attention for an hour’ (Phil). Students reported that lectures varied in how engaging they were: ‘It depends on how interesting the subject is, interesting to me, if I feel like I’m hooked and try to get whatever the Professor is saying. Some other lectures are not very interesting to me I tend to daydream a lot’ (Kwame).

When a lecture was reported as more engaging for example when ‘the lecturer was doing a demonstration’ (Lee), then students ‘paid attention’ (Lee). In lecture situations the students recounted their roles as being to ‘memorise’ and ‘taking notes’ (Kwame), and ‘remember by heart’ (Lee). This has been known to be less conducive to learning. As long ago as 1967, Freire condemned exactly this type of overly narrative nature of education, ‘the ‘banking’ concept of education, in which the scope of action allowed to students extends only as far as receiving, filing, and storing the deposits’ (1967, p. 3). Instead he calls for a ‘co-intentional education which liberates and frees students to recreate knowledge’ (1967, p. 69). Similarly, Dewey (1938) advocates, ‘situations which involve learning by doing’ (p. 162). More recently this has been analysed in relation to the ‘research-teaching nexus’. Jenkins & Healey (2009) argue that, ‘all undergraduate students in all higher education institutions should experience learning through and about research’ (p. 6), this would necessitate students being more active, having more
responsibility and status in higher education, as described by a PhD student, ‘I will quite often have the opportunity to ... determine the agenda’, and the student was active in ‘analysing data... researching, reading journal articles, writing’ (Sharon). Graham, et al., (2007) recently points to ‘a diverse body of educational research [which] has shown that academic achievement is positively influenced by the amount of active participation in the learning process’ (p. 233).

**Student interaction**

Most students considered it important to have opportunities to interact with peers and tutors: ‘I take in a lot more because it’s broken up by debate and discussion’ (Phil); ‘I would like to participate more... I think interacting with the Professor [sic] would help’ (Kwame); and ‘the ability to bounce ideas off other people, which I think is a great way to learn’ (Liz). These are interactive and communicative attributes of typical socio-constructivist EBL pedagogies and social constructivism (Vygotsky, 1978), which are features of group work and peer learning. Kahn & O’Rourke (2005) state ‘EBL is usually organised around collaborative work in small groups or with structured support from others, thus promoting the social interaction and cohesion’ (p. 2). Johnson et al. (2007) drew on extensive research to support their position that cooperative learning tended to result in improved critical thinking, creative problem solving and intrinsic motivation. This theme also relates to the ethos of teaching and learning, for example whether the learning culture promotes a societally conscious life (Makiguchi, 1930), where students expand their knowledge within a social context (Vygotsky, 1978), versus competitive and individualistic efforts (Johnson, et al., 2007). Tinto (2006) advocates ensuring students are socially involved as these are then more likely to persist and graduate. As long ago as the 1920s, Dewey (1924) advocates the inclusion of a social experience which accentuates ‘the active tendencies of the individual, so that in the end what the individual undergoes are consequences which he has himself tried to produce’ (p. 274). This
reference to ‘active tendencies’ emphasises the difficulty of discrete categorisation between the Student Activity and Student Interaction Dimensions.

**Application of learning**

Students reported having positive experiences when they considered learning to be useful and preparation for the real-world. One student considered it important to be able to ‘directly use what you learn’ (Lee). He perceived that when the course content was ‘useful’ in this way it became more interesting. Similarly, Liz reported an EBL session being ‘prep[aration] for real-life … I feel like you learn more because it is totally your direction and that is the way you would innately do it in practice’, for example, ‘the point of the practical is to appreciate the patient, and how the patient would feel’. This theme aligns with aspects of authentic pedagogy (Newmann, et al., 1996a) which extends an in-depth understanding ‘that is useful to students and society outside the classroom’ (p. 18). This perspective has been known about for some time. Dewey (1938) advocates an experiential education where: ‘What he has learned in one situation becomes an instrument of understanding and dealing with situations which follow’ (p. 44). Likewise, Rogers (1969) argues that, ‘significant learning takes place when the subject matter is perceived by the student as having relevance for his own purposes’ (p. 158). And Freire (1967) advocates education as, ‘the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world’ (p. 34).

**6.1.2 Responses of students to teaching and learning situations**

During the student photo-elicited interviews, students reported a variety of responses to the tutor or student-centred pedagogical approaches employed by tutors, which were expressed as a variety of impacts on students’ consequent behaviour, cognition and emotional states. These constituted an effect on student involvement. This theme expresses the unification and consequences of how the three dimensions of teaching from
the students’ perspective created variation in student involvement and demonstrates synergies with the student engagement literature (Section 2.1, p.23). In Trowler’s (2010) comprehensive review of the literature on student engagement, she refers to its beginnings arising from Astin’s (1984) work on student involvement. Trowler (2010) cites Bloom’s (1956) educational classification system: ‘the cognitive, the affective, and the psychomotor domains’ (p. 7), as the basis for his taxonomy of student engagement comprising: behavioural, emotional and cognitive engagement, each having positive and negative poles. Tinto (2006) states ‘involvement, or what is now commonly referred to as engagement, has long proven to be one of the most important factors, given student skills and abilities, influencing student success’ (p. 15).

Trigwell et al’s (1997) framed student responses to teaching approaches differently, focusing on the effect of students adopting surface or deep approaches to learning. Their study was the first to investigate relations between teacher’s approaches to teaching and students’ approaches to learning. They discovered that teachers who described their teaching as an ‘information transmission/teacher-focused approach are more likely to be teaching students who report adopting a surface approach in that class’ (p. 66). And conversely ‘when teachers report that they have the student as the focus of their activities, where it matters more to them what the student is doing and learning than what the teacher is doing’ students reported adopting a deep approach to learning’ (p. 66). They argue that this is significant as previous studies of student learning have shown that surface approaches to learning are related to lower quality learning outcomes for students.

Some students had a positive experience of, and did appreciate having tutor-centred lectures expressing positive aspects of involvement. Lee reported ‘the lecturer started to show the demonstration and everyone started to look at him with great interest’; Kwame did not like to miss lectures. He preferred tutors ‘telling you exactly how things work, that’s how I get it... For me it’s like I think its 90% from the lecture’. Lee and Kwame are
both international students from Asia; the University has Manchester has large numbers of students from China in particular. It is a general assumption amongst University tutors that Asian students prefer lectures. However research disputes this. Chuang’s (2012) findings revealed different preferences between Western and Far East Asian student groups. ‘Both the student groups liked passive, active, and alternative learning methods equally. As the Far East Asian learners [became] expose[d] to different cultures and environments, they tended to adjust their learning preferences to fit in the environment’ (p. 490). Entwistle & Tait (1990) explain that students differ in their preferences for different kinds of teaching depending on their learning preference. Where ‘those adopting deep approaches being more likely to favour courses that they find intellectually challenging and assessment that allows them to express their own ideas. Students using surface approaches prefer courses that provide a ready link between the material taught and fact-based assessment procedures’ (Entwistle & Peterson, 2004, p. 423).

Conversely many students negatively reported their experiences of predominantly tutor-centred teaching situations: a ‘standard passive lecture ... when that woman just reads off the slides, it makes me think – why am I here?’(Phil); similarly, ‘just [being] talked at in a lecture theatre’(Liz). This demonstrates that the reported academic performance of tutors vary. Davis, et al.’s (2012) study suggests ‘that there is a need for universities to support staff to improve the quality of lecturing’ (p. 309).

There were multiple examples of forms of engagement pervading the student photo-elicited interviews describing responses to particular practices. Behavioural engagement: aspects of non-attendance/attendance, dis-attention/attention, and passivity/activity. For example, Liz reported how ‘everybody really struggles to focus and pay any attention during the lectures’, and Lee during the photo-elicitation interview (Photograph 1, p.105) reported that when the tutor switched from a standard lecture to doing a demonstration, ‘the students all paid attention, to look at it [the demonstration]. Maybe ten seconds before I took this photo everyone was like texting, and sleeping and eating’. Cognitive
engagement: aspects of dis-interest/interest, lack of understanding/understanding, daydreaming/listening, and inattention/concentration. For example, Lee reported ‘the content being taught is not very interesting’, and conversely Phil reported, ‘I find the topic, the material very interesting’. Emotional engagement: aspects of boredom/enjoyment. For example, Liz reported, ‘I had a lecture this morning that was unbelievably boring’, and conversely Phil describing a seminar he attended reported, ‘I enjoy having my say’.

In conclusion, the empirical content analysis of the student data (Appendix 13, p. 249) created a new Student Involvement in Learning and Teaching Model comprising three dimensions: Student Activity, Student Interaction, and the Application of Learning (Figure 12, p.89). Also what emerged from the data were the variation of effects reported to be experienced by students depending on: the nature of the teaching and learning processes, where the experience was located within the dimensions on the Student Involvement in Learning and Teaching Model, the students’ learning preferences, and how the students responded to the tutors’ practice.

6.2 RQ2: How do tutors experience the teaching and learning process?

What emerged from the qualitative data derived from the EBL worksheets completed by the tutors (Appendix 23, p.281) was that tutors’ experienced teaching and learning in terms of a series of dilemmas (Section 5.3, p.137) which illuminated perceived constraints, drivers for change, and the ability of tutors to actualise their ideal practices. These dilemmas were created by the tensions and interplay between internal factors and external influences which affected tutor practices. In the next two sections, the order of the discussion will be analytically framed using Bronfenbrenner and Ceci’s (1994) ‘bioecological model’ (Figure 17, p.168). Beginning at the centre of the model with the internal factors (e.g. tutors’ pedagogical skills and know-how; confidence to have causality over decisions of practice). And then discussing the external influences (e.g.
large class sizes; varying student preparedness; university institutional socio-historical context) starting with the micro-system, and ending with the macro-system.

![Diagram of Bronfenbrenner's bioecological model]

Figure 17: Visual representation of tutors’ external influences and internal factors affecting tutors’ practices in higher education framed with Bronfenbrenner & Ceci’s (1994) bioecological model.

However, the classification of the dilemmas was not straightforward as the dilemmas often consisted of multifaceted tensions which included combinations and interplays of internal factors and external influences. For instance a tutor reported her habit to react in a certain way: ‘I have a tendency to slip into more tutor-led strategies as a safeguard against ‘silence”’ (Hum6). However, this example also contains an external influence, when students were hesitant to contribute, which was similarly reported by another tutor, ‘most students will not interact during a lecture, as students are reticent as there is a risk of ‘getting it wrong”’ (FLS9). Obenland, et al. (2013) reports that ‘students are more likely to be vocal in class when they have time to prepare for class and read the assigned material’ (p. 79), and in their study found students who participated frequently learned
more. Woods & Sheardown (2009) suggest overcoming student silence via facilitated peer and class discussion.

Also, the interrelatedness of the micro, meso, exo and macro (Brofenbrenner & Ceci, 1994) dilemmas influencing tutors became apparent from the data. An example is when tutors referred to students’ expectations believing ‘they expect to be ‘spoon-fed’’(Hum8), and reasoning that ‘they come from a heavily ‘spoon-fed’ environment’(FLS9). This is both an external influence used to justify tutor-centred approaches, and an internal factor as it is a tutor belief based on an assumption. However, one student reported that ‘students are conditioned to listen rather than be pro-active and speak’(Liz). This example emphasises the interrelatedness and sometimes contradictory perceptions between tutors and students.

Another example of interrelatedness is of how the exo-system policies and protocols are linked to the meso-systems, and internal factors affecting tutors’ practice. One tutor (Hum_ph2) explained that the assignment structures were already determined in course specifications. However, if tutors were responsible for writing and implementing the course specification, then what content and how the content was covered was within the tutor’s control, and therefore categorised as an internal factor related to the force characteristic i.e. the tutor’s desire to change the course specifications. However, sometimes the learning outcomes and course specification were influenced by external professional accreditation organisations, and in those instances the tutor was constrained by exo-system influences.

The majority of the tutors’ dilemma statements were of a disjunctive type as opposed to conjunctive dilemmas were often expressed as separate and problematic. Disjunctive statements involved a choice between two statements, with the dilemma statements implying an adversative relation, with a tension between the tutor-centred and student-centred practices. Disjunctive statements tended to include a ‘but’, for example one tutor reported, ‘ideally I would like students to come up with their own topics, but in a group of
60+ I’m not sure how this is logistically possible’ (Hum18). Conjunctive statements would include an ‘and’ or ‘however’, for example:

I provide my students with lecture material, case study examples and a module handbook. However, I do expect my students to undertake their own research, to complete the wiki based coursework, and expect them to apply the relevant taught theory to the case studies through their own personal study. (EPS2)

6.2.1 Internal factors (tutor’s personal characteristics)

Bronfenbrenner (1995) identifies two factors characterising an individual: firstly, ‘resource’ characteristics’ are measures that ‘relate to past experiences, skills, and knowledge’ (p. 634); secondly, ‘force characteristics’ which conceive an individual as ‘an active agent in and on, its environment’ (p. 634).

Resource characteristics

An example of a personal resource characteristic is the extent to which tutors perceived that they had the knowledge and skills, to innovate and be more student-centred in their practice. For example, one tutor wished ‘to facilitate learning and be less prescriptive; requiring students to be more pro-active, and responsible for meeting the students’ own learning needs’, but the tutor did not think he had the skills or knowledge of how to implement best practice stating in order to do so he required an ‘input and ideas from a sound pedagogical standpoint in order to change teaching practice’ (Hum8). Tutors would benefit from having continuing professional development opportunities, and receive training in pedagogical approaches, in order to facilitate excellence in teaching and learning practices. However, Stes et al. (2012) find that all types of ‘instructional development for teachers in higher education does not automatically result in effects on students’ learning outcomes’ (p. 307). Barnett (1997) and Skelton (2005) advocate ensuring that a critical aspect is essential to ensure effective, reflective educational
practice. It is necessary to facilitate a change in tutors’ conceptions and beliefs in order to facilitate a change in teaching approach.

**Force characteristics**

One tutor depicted an example of a personal force characteristic. Despite the dilemmas posed by the external context she was personally motivated by her aspiration to achieve student collaborative group work, 'I want to make my teaching as good as it can be' (EPS2_I). This tutor was inclined to set in motion an enhanced interaction between the students, and found a way of delivering group work to a large class of 250. She acquired the skills, and invested the time, to create an online virtual learning environment which enabled student group work to be conducted outside of the classroom. The online teaching and learning setting of a Wiki had the affordance and action possibilities (Gibson, 1979) of student-centred collaborative work and group assessment.

Comparing the ‘Person’ force and resource characteristics Bronfenbrenner & Morris (2006) claim the ‘force-characteristic’ is the internal factor ‘most likely to influence future development’, and these behavioural dispositions ‘can either ‘set proximal processes in motion and sustain their operation, or - conversely - actively interfere with, retard, or even prevent their occurrence’ (p. 810). An example of a force-characteristic which could retard the implementation of innovative student-centred processes is being nervous (EPS3_I) about the consequences. Whilst the case of the innovative tutor (EPS2_I), demonstrates how a behavioural force characteristic can set in motion EBL processes; despite no prior skills or experience (resource characteristic) due to her desire to implement her ideal practice, she implemented an enhanced enquiry-based teaching environment. Tutors recognised that implementing EBL 'would very likely result in more work for me as a tutor. It’s just a matter of time': (Hum5). If a tutor committed to the additional work required, this would be an example of the force characteristic. Tutors who have strong ‘force characteristics’ are important as they can champion EBL practices,
by providing examples of innovation and good practice in student-centred practices that other tutors can follow.

6.2.2 External influences (context of the tutor’s University social systems)

Bronfenbrenner (1979) describes an ‘ecological environment’, as the environmental factors that impact on an individual’s human development. This is ‘conceived topologically as a nested arrangement of concentric structures, each contained within the next’ (p. 5). It was later that Bronfenbrenner (1995) combined these into the ‘context’ element of the bioecological model. The findings from the tutor narratives demonstrated that they experience the teaching and learning process as a multiplicity of situated contextual dilemmas. The possibility of tutors incorporating EBL into their teaching was most often impeded, and only occasionally promoted, by external influences. Examples of how these ‘micro-, meso-, exo- and macro-systems’ (Bronfenbrenner, 1979, p. 22) created dilemmas and tensions in implementing student-centred practice are discussed below:

Micro-system: the teaching and learning setting

Bronfenbrenner (1979) describes a micro-system as ‘an immediate setting containing the learner’ (p. 5). In the following examples all of the tutors referred to the elements within the classroom setting and environment. The micro-system in a higher education setting refers to the physical features and social elements within immediate teaching and learning settings. The micro-system was the most common of the external systems reported to influence practice. Tutors experienced dilemmas within the micro-system which included the variety of student cohorts and varying student aptitudes were cited by many tutors as creating dilemmas in their pedagogic practice. For example, ‘I had over 100 Chinese students alone and a huge number of students from overseas, from all continents of the
world, often coming to the U.K. for the first time, and adapting to a very different educational system’ (EPS2_I).

Tutors reported a lack of commitment in students to undertake additional work and students often not doing the necessary work or preparation prior to a class, exemplified by, ‘I would like students to have more agency, and more involvement in setting the topic and the research questions... [But] the students would be required to undertake a lot more work, and I am not sure that the students would be up for it’ (MHS15). Similarly, lack of student preparedness, students varying in confidence and ability, lack of experience in EBL and independent working, were reported as common recurring themes in the data and cited by tutors as reasons for not giving students more responsibility. For instance, ‘students will be encouraged to creatively arrive at outcomes. [But], students have little, if any experience of independent/autonomous information seeking’ (MHS_ph2). A review of the literature revealed that the views of the tutors could neither be refuted nor supported, as Macaskill & Taylor (2010) explain:

A great deal of attention is paid to the requirement for university students to become autonomous learners. A review of the literature revealed a lack of relatively short psychometrically sound measures of autonomous learning despite its purported importance. (p. 351)

The teaching infrastructure available created dilemmas. For example, when only tiered lecture halls were made available to a tutor (EPS2_I) for a class of over 200 students, it was more difficult to set up group work. The tiered lecture hall as a teaching and learning setting had implicit affordances and action possibilities of predominantly tutor-centred provision (Gibson, 1979). Another example of a teaching and learning setting that some tutors referred to was the University’s online virtual learning environment.

The tutor and student roles as participants in the micro-system were another factor where ‘occupants engage in particular activities in particular roles’ (Bronfenbrenner, 1979, p. 5).
This is exemplified one tutor, ‘I guess this is the way that most previous colleagues have done it so you learn by example, and that’s what we used to do 20 years ago when we started’ (EPS3_I). This corresponds with Rohlfing et al (2003) who reason that within teaching and learning settings, for example a seminar, ‘The actions of an individual... are constrained by this context’ (p. 134). Hence, the practices of tutors were potentially constrained by the ‘situatedness from the interaction of situation and context’ (p. 134), the perceived socio-cultural conventions of a micro-system within a university.

Tutors reported postgraduate classes tended to be smaller, making it easier to set up group work, potentially enabling the tutor to devote more time to each student, and to allow for more diversity in the student work. Conversely, many tutors felt constrained by large class sizes, this is exemplified by one tutor who reported that because of ‘the size of the class (250 plus). I do not have the time to make the learning process more student-centred with this number of students to support’ (EPS2). However, student-centred practices can be embedded into lectures to large cohorts, Mulryan-Kyne (2010) points to literature on how to achieve ‘innovative approaches to large-group college teaching, and active teaching methods in this context, focus on adapting lectures to involve students more directly in the teaching-learning process’ (p. 181), via methods such as introducing activities such as short writing activities followed by class discussion, think pair share, formative quizzes, and student presentations. Also there is debate in the literature concerning class sizes, Brühwiler & Blatchford (2011) conclude ‘that teachers in small classes are able to provide more educationally beneficial experiences for students and teachers’ (p. 105), however, Blatchford et al (2009) contend that ‘teachers do not necessarily change the way they teach when faced with smaller classes’ (p. 787).

Class sizes illustrated the fluidity of the embeddedness of the external contextual systems. Class sizes could be classified at both the micro and exo-systems. At the micro-system the number of students impacts on the possible interactions within the teaching and learning setting. However, it was at the exo-system where policy concerning class sizes
were manifest. When other micro-system influences are included the dilemmas created by class sizes become more pronounced. Typified by one tutor (EPS2_I) who reported that varying student language abilities and adaptation to a different educational system, when combined with the increasing class sizes, this made it more difficult to ensure students kept up with the coursework. Paola, et al (2013) found that little work has been done examining the effect of class size on student performance in post-secondary education. However, in their study they concluded that smaller class sizes benefit low-ability students, whilst the effect on high-ability students was negligible.

**Meso-system: departments and organisations**

Bronfenbrenner (1979) defines the 'meso-system [as] the system of micro-systems’ (p. 6), the 'interrelations among the major settings’ (p. 5). In this study this equated to the exchanges between the various University social groups, and included, tutors’ peer influences from School or Faculty departments, and University organisations. Tutors’ peer influences were often contradictory and posed dilemmas. For example, tutors spoke of attending educational development events which advocated student-centred practices, ‘*I have been in some EBL events, and I liked the idea of getting students more involved in the learning process*’(Hum10). However, for one tutor this contradicted the ‘*tradition in my department*’(Hum18), which was predominantly lecture-based, with essays as a form of assessment. These meso-systems factors demonstrate that there can be external influences toward student-centred or tutor-centred approaches. However, the personal choice that the tutor makes which gives one external influence predominance over the other is decided by the internal factor, the tutor’s personal conceptions and beliefs concerning teaching.

**Exo-system: policies and protocols**

Bronfenbrenner & Ceci (1993) defines the exo-system as comprising
the linkages and processes taking place between two or more settings, at least one of which does not contain the developing person, but in which events occur that indirectly influence processes within the immediate setting in which the developing person lives. (p. 24)

There have been different analyses of the exo-system, Steinberg et al. (1995) interprets it as social influences outside the meso-system, taking the meaning from Bronfenbrenner’s (1979) first use of the model intended to explain the relationship between environmental conditions and the development of a child. However, the model has subsequently evolved as it has been applied to different contexts. Charland (2011) applies it to examine the introduction of an arts programme and aligned the exo-system specifically to ‘policy, curricula and standards’ (p. 5).

The exo-system here is represented by the formal policies and protocols within the University, the artefacts that link the meso and macro-systems. For example, one tutor reported, 'Students should have a little less formal structure', but ‘The assignment structure and brief has already been determined in the course unit specifications’ (Hum_ph2). Similarly, tutors reported they wished to give students more control and choice, but cited the necessity to cover the content and time constraints as reasons why they could not, for example, it ‘is still very much syllabus based learning, as I want to ensure material is covered... [But the tutor] wants students to work on their own research projects’ (EPS1). Another tutor planning a new course perceived, ‘that there may be expectations of how the school/university teaches’ (Hum6). And one tutor wished to ‘move towards a more interactive approach, with students producing collaborative work’ (FLS14), but reported this was partly restricted ‘by the requirements for the assessment laid down in the course specs throughout FLS [Faculty of Life Sciences]’ (FLS14).
Macro-system: university culture and values

Bronfenbrenner’s (1977) conception of the macro-system is as the ‘carriers of information and ideology that, both explicitly and implicitly, endow meaning and motivation to particular agencies’ (p. 514). These ideologies are articulated in the discourse of tutors within the University, and through the artefacts in the University for example the policies and protocols. For example, a common belief espoused by tutors, was that the purpose of their teaching is to prepare students ‘in a very practical way for some of the professional work they will be engaging in’ (MHS15), which ‘gives them skills and capacity for their professional careers’ (Hum6). Are these personal values expressed by the tutors, or are they institutional values embedded and expressed as personal beliefs? This is an example of the embeddedness of the micro within the macro social system.

The University itself is influenced by strategic compliance where it relays external policies and values. Knight & York (2003) state that ‘many governments are concerned that investment in higher education should increase the stock of human capital, which is seen as a source of national economic well-being’ (p. 1). This aligns with Skelton’s (2007) ‘performative’ view of the purpose of higher education, emphasising the goal of the tutor is to make teaching relevant to the requirements of economy, commerce and industry.

For example, tutors reported that they believed the main purpose of a university was to equip students for the workplace: ‘imparting that knowledge that future graduates will hopefully use in real-life, wherever they go to work’ (EPS3_I), and similarly one tutor proposed ‘universities should not only provide scholastic knowledge, but also equip students with practical skills and knowledge that can make it easier for them to get jobs’ (Hum5). This concurs with Skelton’s (2007) assertion that a performative view of teaching excellence that is relevant to economy, commerce and industry currently dominates the way that teaching is conceived. Skelton criticises this view as being ‘merely a defensive reaction to contemporary economic pressures rather than a proactive expression of its identity and potential contribution to society’ (p. 2). Significantly, no tutors reported that
they believed the purpose of education was for students to attain a critical perspective. This concurs with Levy’s (2007) conclusion that, ‘Critical understandings of learning and teaching are always at risk of marginalisation in the context of the ’performative university’” (p. 256).

6.3 **RQ3: What is the nature of the teaching and learning process which takes place between tutors and students?**

In the previous two sections broader themes were explored addressing research questions one and two, where the general teaching and learning experiences of tutors and students were analysed. This section differs as it specifically examines the nature of the teaching and learning processes between tutors and students, and relates to Bronfenbrenner’s (1995) proximal process element of the bioecological model (Figure 17, p.168), which he defines as ‘forms of interaction in the immediate environment’ (p. 620), consisting of the ‘form, power, content, and direction of proximal process[es]’ (p. 621).

Firstly, tutor experiences of proximal processes, derived from the content analysis of tutor narratives (Section 5.2, p.122); and secondly, students experiences derived from the photo-elicited interview data are discussed (Section 5.1, p.101).

6.3.1 **Tutor descriptions of the proximal processes between tutors and students**

I identified five categories which emerged from the tutor data which included: responsibility, agency and independence, guidance and structure, control, decisions and choice. These categories often intersected, and were underpinned by the values and attitudes which shaped tutor practices, and constituted the nature of the proximal processes between tutors and students. For example, where responsibility lies within the proximal process, with the student or with the tutor; who has agency; and whether tutors facilitate students having independence within teaching and learning process.
Responsibility

Many tutors expressed the desire that: ‘Responsibility for learning is equally shared’ (MHS3_1). Similarly, another tutor reported ‘Ideally I would like them to see that they [the students] have a role/responsibility for assessment’ (Hum17); and ‘ideally students should be taking more control and responsibility of the project planning and time management’ (EPS_ph1). One of EBL’s characteristics is to facilitate ‘students to take responsibility for what and how they learn’ (CEEBL, 2005). In particular, Jenkins’ (2007) EBL Planner referred to learner empowerment where ‘students [are] encouraged to take greater responsibility’ (p. 2). Similarly, Gipps (1999) suggests reconstructing learning and assessment by shifting more ‘responsibility to the students’ (p. 386), through changing the relationship between teacher and student, and having ‘negotiated assessment and self-assessment’ (1999, p. 378). And Rogers (1969) states that ‘learning is facilitated when the student participates responsibly in the learning process’ (p. 162).

Agency and independence

Only one tutor specifically mentioned student agency: ‘I would like students to have more agency, and more involvement in setting the topic and the research questions’ (MHS15). And a few tutors wished for greater student independence: ‘I believe that students should be as independent in their learning as possible – but they still need some guidance’ (EPS3). And similarly, ‘Learning within the ‘real life’ clinical area should be independent’ (MHS_ph1). Spronken-Smith & Walker (2010) in their conceptual model of different modes of inquiry-based learning (Figure 6, p.41) showed the interplay between the level of independence and the focus of learning, in terms of strengthening the teaching–research nexus ‘in a stepped fashion to illustrate the scaffolding metaphor – the wider base is where teachers provide more support for learning of inquiry skills, whilst at the top students are more independent, and there is less teacher support’ (p. 736). This theme has a more pronounced emphasis on student autonomy and self-determination, relating to aspects of power and freedom.
Guidance and structure

One tutor reported providing direction to students: 'My belief is students need more guidance to set them on the correct track' (FLS14/W4). Similarly, another tutor proposed that 'group working needs to be provided with some structure without curtailing student involvement' (Hum5). Tutors’ providing guidance and structure is suggestive of more tutor-centred practices. However, Stave & Bay (1987) categorise different types of enquiry as structured – where students are provided with a problem and an outline, and guided – where students are self-directed in exploring questions provided by the teacher.

Providing guidance and structure, could be an essential component of EBL, Kirschner et al. (2006) argue that guided learning is more effective for learners.

Control

One tutor recognised that: 'I seem to have quite a strong degree of control over 'my courses’ as a teacher’(Hum17). Another tutor identified that there was a correlation between student control and involvement in learning: 'The greater the students have control of content, the more interested the students are and the more engaged the students are in learning’(EPS_ph1). One aspect of Healey and Jenkins (2005) concept of the research-teaching nexus i.e. research-based teaching, and the authoring (discovery-active) aspect of Levy’s EBL model (2009), both seek to facilitate students having more control by embedding research skills in the curriculum. This potentially raises the status of undergraduate students to become researchers, and the associated kudos of this role raises the implicit power of students.

Decisions and choice

There was no consensus from the tutors on the extent to which students would have choice. One tutor reported: 'Group management & organisation and the intermediate deadlines are completely decided by the students’(EPS_ph3); and similarly 'I would prefer students to pick their own projects’(Hum_ph5); In contrast other tutors reported:
'I believe too much choice of content would be intimidating rather than illuminating’ (Hum_ph3); and ‘We need to retain some input in topic choice’ (Inter_ph2). Tose & McDonnell (2006, p. 2) describe EBL as ‘a process of learning in which the learner has a significant influence on or choice about the aim, scope, or topic of their learning’.

### 6.3.2 Student descriptions of the proximal processes between tutors and students

I identified two categorises which emerged from the student data, both of which were also reported as tutor categories: responsibility and control. Students predominantly reported situations where students expressed disempowerment during teaching and learning situations, especially during lectures, experiencing passivity, where tutors were perceived by the students as having the control and authority.

**Responsibility**

Students mostly reported aspects of tutors having responsibility. For example, ‘the *Professor [sic] who was in charge that day*’ (Kwame). Only Sharon a PhD student reported having responsibility explicitly. Her narrative demonstrated having power in her learning experience, ‘*I feel as though it’s my project and my responsibility*’ and she was able to ‘*determine the agenda*’. But as a PhD student, her role was that of an apprentice researcher, and it was expected that she would take the lead on the research project. Kirschner et al. (2006) refer to these two extremes as ‘guided’ versus ‘discovery’ learning, with true discovery learning having minimal guidance (Hmelo-Silver, et al., 2006). Kirschner et al. (2006) argue that guided learning which includes scaffolding is more effective for novice learners, because it reduces the cognitive load, making new topics more accessible (Sweller, 1988).
Control

Phil reported that the tutor had power in the teaching situation, and reported: 'The lecturer is in charge, and everyone else is listening, or not listening as the case may be'. Liz experienced 'being monitored and observed by a lecturer’ and that 'she [the tutor] was definitely in control of the situation, demonstrated authority, you definitely know who was the lecturer’. In relation to control of the exam focus Lee reported how the tutor was 'going through some key points that would appear in the exams, what you are meant to be learning. What you are supposed to be learning’. And Phil reported feeling constrained 'there is no room for debate, or argument so it does get a bit monotone after a while’. This is in contrast to Dewey’s (1938) philosophy of education, which respects all sources of experience where students have ‘the power to frame purposes …power to select and order means and to carry chosen ends into operation’ (p. 64).

6.3.3 Power in the teaching and learning process

One feature that emerged very strongly from both the student and tutor data, was their conceptualisations of the asymmetrical relationship between students and tutors. It was evident from the narratives that both tutors and students expressed aspects of power, relating to the social action and interactions of teaching and learning. Power is implicit in the nature of the interactions i.e. the proximal processes (Bronfenbrenner, 1995) which take place between tutors and students, within the context of the micro-system of teaching and learning situations. This concurs with Zukas and Malcom (2007) who propose that educational practice can be conceived as ‘driven by specific and often conflicted purposes, power relations and interests’ (p. 62).

Wilson & Cervero (2001), whilst looking at the politics of power and responsibility in adult education identify that ‘we have come some way in understanding how power works, and we have new insights into how to respond strategically to inequitable distributions, although micro-practices clearly need further attention’ (p. 282). It is not until 2012 that
Doloriert, et al. ‘highlight the seldom-discussed aspects of power and emotion within doctoral supervision’ (p. 732), including, contrasting directorial and laissez-faire approaches of supervisor styles (Gatfield, 2005). However, power in relation to micro-practices of tutors, and relationships to undergraduates in higher education has not been directly studied until now.

The data, derived from the tutor and students descriptions of the micro-practices contained within the teaching and learning processes lends itself to be viewed from a Foucauldian (1980) perspective of power, where power is viewed as pervading society, and which is in constant flux and can be negotiated: ‘power is everywhere’ and ‘comes from everywhere’ (p. 63).

In thinking of the mechanisms of power, I am thinking rather of its capillary form of existence, the point where power reaches into the very grain of individuals, touches their bodies and inserts itself into their action and attitudes, their discourses, learning processes and everyday lives. (p. 39)

Power permeated the tutor and student discourse which reported the experiences of the proximal processes between tutors and students. The descriptions of the dimensions of EBL were inexorably infused with aspects of power: the extent to which students’ or tutors’ have agency, responsibility, control, authority and choice. Dewey (1924) argued ‘that education is not an affair of “telling” and being told, but an active and constructive process’, and questioned ‘Why is it, in spite of the fact that teaching by pouring in, learning by a passive absorption, are universally condemned, that they are still so entrenched in practice’ (p. 38)? The evidence from the student photo-elicited interviews indicates that little has changed in terms of the student experience since Dewey’s time. Many tutors did wish to ensure that they gave more responsibility to students. However, this was an ideal espoused practice whilst their reported practice-in-action as reported by the students, was of predominantly passive roles during many of the teaching and learning sessions (Argyris & Schön, 1974).
7 Conclusions

In this concluding chapter, by synthesising the practitioner and research findings, I attempt to answer the overarching aims of the research: to understand how tutors and students experience the teaching and learning process, and to develop my own practice through practitioner research (McLeod, 1999; Campbell, et al., 2004). This chapter is composed of four sections: I summarise the empirical and theoretical findings which emerged from the reported student and tutor experiences; outline my contribution to knowledge in the theorisation of EBL, and to the practice of educational development; reflect on the development of my professional learning, and how my values and practice have reflexively changed; and finally reflect on the research process, and make recommendations for further research.

7.1 Findings

In this section I convey the three main findings: the students’ responses to the pedagogical approaches employed by tutors; the effectiveness of the workshops in exposing tutor dilemmas, and dissonance between their reported actual and ideal practice; and the conceptualisation of the context of tutor practice framed with Brofenbrenner & Ceci’s (1994) 'bioecological model'.

Firstly, students reported a variety of responses to the pedagogical approaches employed by tutors, which had both positive and negatives consequences on student involvement and disinvolvevement. Students frequently reported the effect of positive behavioural, cognitive and emotional involvement (Trowler, 2010), when tutors’ practice incorporated EBL, and occasionally when tutors employed only tutor-centred lectures. Conversely, when tutors employed only tutor-centred practices across all three dimensions (Student Activity, Student Interaction, and Application of Learning), students often reported forms of disinvolvevement. This concurs with Trowler’s literature review that states ‘specific aspects of engagement, such as involvement, time on task, and quality of effort, have
repeatedly been linked to positive outcomes’ (2010, p. 34). However, even during lectures, the levels of student involvement could be increased by tutors becoming more student-centred across specific EBL dimensions. For example, in the Authenticity/Application of Learning Dimension, the lectures could be made more interesting by conducting demonstrations showing the real-world applications of learning, or in the Culture/Student Interaction Dimension students could be more involved by having opportunities to have discussions with peers or the tutor.

Secondly, the diversity, complexity, and interrelatedness of the dilemmas that tutors faced (Section 5.3, p.137) were exposed, whilst making choices concerning their pedagogic approaches. These provided evidence that the workshops, and EBL dimensions presented as a pedagogic instrument, were successful in creating impetus for tutors’ reflections. Also the EBL worksheets exposed a positive dissonance i.e. the data when analysed using Spearman's Rank Correlation Coefficient (Wessa, 2012) indicated a strong or very strong positive correlation, between the tutors’ reported actual practice and espoused ideal practice (Appendix 16, p.268). If the value of the reported actual practice increases, then the value of the espoused ideal practice tended to also increase (Section 5.3.3, p.154), where a dissonance was expressed the majority of tutors reported to desire a more student-centred practice. However, tutors were conservative in their espoused desire, preferring an incremental change. This signifies that achieving changes in practice is difficult, as the tutors who participated in the workshops represented those who were keen to reflect on and potentially change their practice, but despite this were conservative in their desire to incorporate more EBL. This concurs with Postareff, et al’s (2007) study in which the results ‘imply that approaches to teaching and self-efficacy beliefs change slowly’ (p. 568). However, if tutors have the force-resource characteristics (Bronfenbrenner & Morris, 2006) (i.e. the skills, knowledge and confidence) to implement teaching innovation, then the dissonance between tutors’ ideal and actual practice can be diminished.
Thirdly, Brofenbrenner & Ceci’s (1994) ‘bioecological model’ was used to re-conceptualise and theorise the context of tutors’ practice within a University. The complex interrelatedness between the structure (micro, meso, exo and macro-systems) and agent (tutor’s personal characteristics), and how the proximal processes between the tutor and students, that encompass micro-practices and micro-politics are embedded in these social systems is illustrated in Figure 17 (p.168). This representation accords with a Buddhist ontological assumption which illustrates the factors which affect the practices of tutors, is not hierarchical, it is an interrelated system, with the tutor at the centre. Skelton (2009) advocates a critical approach to teaching excellence through exploring values and value-related conflicts in higher education. However, this approach does not account for the complexity of the University context within which tutors are situated, or the significance of micro-practices of tutors in contributing to teaching excellence. The findings demonstrated that conceptualising dilemmas (Winter, 1982), framed using Bronfenbrenner’s (1995) ‘bioecological model’ provided a valid analytical framework, with which to understand where the dissonances that existed between tutors’ actual and ideal practices originated. Conflicts existed between the ideal practices of tutors, and the inherent values within the micro, meso, exo and macro-systems. These conflicts created the dilemmas exposed during the data analysis. It is these dilemmas in combination with the personal characteristics of the tutors, which determine tutors’ micro-practices.

7.2 Contribution to knowledge

I sought to make a contribution to the theorisation of EBL, and to the practice of educational development. Firstly, I have developed three new models articulating specific dimensions of teaching and learning. Most notably a model of student involvement articulated from the student voice, conceptualising teaching and learning dimensions in terms of tutor-student power relationships. Secondly, I have outlined the process and outcomes of introducing EBL models as a pedagogic instrument, and exposed the external influences and internal factors effecting tutors’ pedagogic choices, and ability to transform
practice within the context of a University. Thirdly, I have illustrated how the proximal processes between tutors and students are embedded in the political and social systems within a University.

1) Three new pedagogic models were developed during the research. The first was a Values-based EBL Model (Figure 10, p.85) initially influenced by EBL literature (Aubrey & McMorrow, 2010; Kahn & O'Rourke, 2005; Levy, 2009), sustainable education (Ikeda, 2002; Sterling, 2001) and the pedagogy of value-creation (Makiguchi, 1930). There is a significant body of literature and interest in ensuring that education contributes towards creating a sustainable future. It particularly emphasises the inherent values in education, and recommends a holistic approach (Sterling, 2001; Sterling, et al., 2010). These ideals are consonant with EBL, the Values-based EBL Model contributes to this field. Findings from the workshops demonstrated that when the inherent values in tutors’ practice are exposed, particularly the Authenticity Dimension, this creates the impetus for tutors to reflect on their pedagogic assumptions and alternative practices. The second was an assessment model (Figure 14, p.92), derived by interrogating the assessment literature (Gipps, 1999). And third, an empirically derived Student Involvement in Learning and Teaching Model (Figure 13, p.90), viewing teaching and learning from students’ perspectives, abducted (Blaikie, 2000) from photo-elicited interviews.

The Student Involvement in Learning and Teaching Model (Figure 13, p.90) is particularly noteworthy as it is articulated from the student voice, and conceptualises dimensions in terms of power relationships within the tutor-student proximal processes. Bovill, et al. (2011) identify, ‘within higher education, students’ voices are frequently overlooked in the design of teaching approaches, courses and curricula’ (p. 133), it is complementary to the ethos of EBL for students to become ‘partners in pedagogical planning’ (p. 135). The notion of power in the situated teaching and learning processes between tutors and students is under discussed in the literature in
relation to micro-politics of practices in undergraduate education, 'the topic of power relationships between faculty and students in higher education has not been directly studied' (Aguinis, et al., 1996, p. 269). This has still not occurred in the last 18 years since this comment was made.

2) There was a gap in the literature on documenting both the process and outcomes of introducing EBL models to tutors as a reflective instrument to elicit change in conceptions of practices. Some educationalists (Boud & Prosser, 2002; Conole, et al., 2004; Levy, 2010) provided a limited or full explanation of how to implement their EBL pedagogic model/instrument. However, none of the authors published how they were received by participants, or the outcomes of using devices. I have documented recommendations for a process of introducing EBL worksheets as a pedagogic instrument (Section 4.3, p.92) in order to assist tutors’ in reflecting on their practice and to consider incorporating more EBL approaches. A particularly innovative and powerful aspect of the structure of the worksheets was the exposing of dissonances between reported actual practice and espoused ideal practice. This was a vital feature in delivering the pedagogic instrument. The worksheets were designed to facilitate tutors’ reflections on dimensions of EBL and tutors’ micro-practices, and attempt to expose a cognitive dissonance (Festinger, 1957), and consequently to ‘motivate the person to try to reduce the dissonance and achieve consonance’ (p. 3). The outcomes from the workshops after the quantitative analysis of the tutor positioning were that: the EBL worksheets as a pedagogic instrument were effective in identifying that there was a dissonance apparent between reported actual (current) practice and espoused ideal (desired) in tutors’ practices (Section 5.3.3, p.154).

3) The micro-practices of tutors and how the proximal processes between tutors and students are embedded in the political and social systems of a University are exposed. This contributes to an understanding of the factors involved in the facilitation of educational change, in that it exposes the importance of context of the
tutor e.g. the external influences as a factor in the promotion or inhibition of change. It is the dissonance between the values of external social systems, and the values in the tutors’ practice that create the tensions in achieving student-centred practices. The full context of tutors’ external influences and internal factors were articulated during the research. This articulation (Figure 17, p.168) is useful to educational developers concerned with facilitating change in practices, as it provides an explanation of practices, not in isolation, but within the socio historical meso, exo and macro systems in higher education. The micro teaching and learning practices, the proximal processes between tutors and students, are situated and influenced by the University culture and values, organisational groups, policies and protocols, and teaching and learning settings, and the situatedness of the presumed roles of tutors and students. And finally, I contend, most importantly, tutors’ own personal characteristics, for example, being determined (force characteristic), and using creativity to acquire the skills (resource characteristic), can enable a tutor to implement student-centred practices despite external influences. Bronfenbrenner & Morris (2006) propose that proximal processes are the ‘primary mechanisms producing human development’ (p. 795). So, it is vital that the nature of the micro-practices of teaching and learning are understood and critically reflected upon if excellence in EBL is to be achieved.

7.3 Development of my professional learning

In order to address the tension which existed between my dual role of practitioner (promoting EBL) and researcher (seeking objectivity) discussed in Section (2.2.1, p.33), I ensured I specifically incorporated participant data which contradicted my theoretical expectations; strengthening my reflexivity by being receptive to challenging my own conceptions through ‘confrontation with the experiences of people in their daily lives’ (Lather, 1986, p. 67). For example, several tutors positioned their practice on the EBL dimensions indicated not a specific numerical positioning but spanned an arrow across a
dimension (e.g. Appendix 23, p.287); this unexpected interpretation of the dimensions re-defined their practice not as a dichotomous teacher-centred versus student-centred dichotomy rather as a holistic view of educational practice. And similarly my understanding of student expectations and their learning requirements altered during the course of this action research project as student data indicated that some students expected to receive and appreciated teacher-centred lectures. Consequently my conceptions changed from believing that student-centred practices are desirable, to an holistic perspective, where both ends of the spectrum of EBL dimensions are required for excellent practice. Billig (1988) explained that the ‘values of each position is not mutually exclusive’ (p. 45). I concur that tutor-centred teaching and student-centred EBL are not mutually exclusive. Education and the situated practice of tutors is too complex to be categorised into simple dichotomies. Successful teaching may contain aspects of different educational ideologies, and a mixture of teaching styles and pedagogical approaches, containing and integrating aspects of transmissive and student-centred interpretations. The EBL models created in the course of this action research project are proposed as holistic educational models intended to expose the possible choices that are available in the repertoire of student-tutor relationships. I concurrently transformed my ideological position and associated practice, now recognising the value of both student-centred and teacher-centred pedagogical approaches for effective facilitation of tutor reflections on EBL. In response to feedback from participants, observations and reflections during the delivery of the workshops I changed my practice to incorporate both student-centred facilitatory and tutor-centred lecture styles. I became more tutor-centred than I originally envisaged, providing a more didactic theoretical introduction via mini lectures to the workshops, with detailed explanations of the EBL dimensions, and their pedagogic and philosophical context.

What emerged from the tutor data was the complexity of dilemmas and tensions, and external micro, meso, exo and macro systems influencing practice. Tutors face a number of obstacles to implementing EBL, for example: large class sizes; the automatic
assignment of traditional tiered lecture halls; the diversity of students’ experiences, skills, knowledge, expectations, and preferences; and the tutors own, knowledge and skill, and desire to transform practice. Consequently I established a greater understanding and empathy with tutors concerning their situation and context.

An output of the research is an interactive pedagogic instrument, based on the empirically derived Student Involvement in Learning and Teaching Model, which has been digitalised and published online (The website can be publicly accessed at http://www.teachinginnovation.manchester.ac.uk/). This online tool has been deployed at the University as part of the New Academic Programme, to assist tutors in analysing their practice and increasing their pedagogical awareness. An e-learning modeller augments the tool, by recommending e-learning technologies which align both the tutors’ reported actual (current) teaching, and the espoused ideal (desired) practices. For example, if tutors express student-centred preferences for the Student Interaction Dimension then a discussion board is recommended as this incorporates the affordance and action possibility (Gibson, 1979) of involving students in online conversations. Similarly, Wikis offers the affordance of involving students in collaborative online team work. Norman (1988) defines “the term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used’ (p. 9). Web links to further information on the recommended learning technologies are provided for the tutors, providing examples of University case studies of good practice, associated literature and resources.

After synthesising the findings and my reflections, a new perspective on excellence in EBL is proposed. A pedagogic perspective which encompasses both tutor-centred and student-centred approaches, which develops reciprocal processes in teaching and learning, where power and responsibility are shared between tutors and students within the proximal processes across EBL dimensions. This notion is inherent in student-centred philosophies, and pedagogies consonant with EBL. But what has been exposed in this
thesis, which is an original contribution to the field of education, is how dimensions of power are reflected in the proximal processes of situated tutor and student interactions. And by balancing power, agency, and control across the multi-dimensional teaching and learning practices, student involvement can be enhanced. As Gipps (1999) states ‘This does not mean the teacher giving up responsibility for student learning and progress; rather, it means involving the learner more as a partner’ (p. 386).

EBL can be articulated as specific multi-dimensional aspects of teaching and learning and assessment proximal processes. This perspective can facilitate tutors’ reflections on their micro-practices, enabling them to focus more precisely on definite and explicit aspects of power within tutor-student interactions. These EBL dimensions are not simple dichotomies, or precise quantitative indicators of degrees of student-centeredness. EBL dimensions are spectrums of pedagogic approaches that can change from moment to moment in teaching situations. It was evidenced from the tutor conceptions that EBL dimensions are best viewed as spectrums, and that good practice unites both tutor-centred and student-centred end-points, encompassing a spectrum of approaches. For example, the end-points of the Culture/Ethos Dimension are: individual student work versus collaborative student work, but both are necessary to achieve excellence in EBL. This concurs with Johnson et al’s (2007) conclusions that individual accountability is required for successful group work. Similarly, for the Authenticity/Context Dimension: a theoretical and abstract understanding is necessary to achieve understanding of the complexities within the real-world. If tutors attempted to reconcile the dichotomous tensions in practice in this way, by seeing them not as disjunctive and mutually incompatible, but rather as conjunctive and resolvable, this may better enable tutors to move toward their ideal practice, and incorporate student-centred approaches into their teaching repertoire. Value-conflicts can be resolved by providing students with more responsibility and choice, and ensuring that what is learnt is useful to students, and can be applied to real-life situations.
I have developed a conceptual framework for thinking about teaching and learning practice. EBL practice can be situated within this broader teaching and learning framework. Excellent in EBL contains not only student-centred practices but also facets of what could be considered tutor-centred, which are necessary to support student-centred and enquiry-based learning approaches. The Student Involvement in Learning and Teaching Model makes no reference to enquiry as such, but is an empirically-informed pedagogic device intended to facilitate tutor reflections on tutor-centred/led and student-centred/led approaches along its three dimensions: Student Activity, Student Interaction, and Application of Learning.

In creating a new conceptual framework to frame EBL practices situated in the spectrum of tutor and student-centred approaches, I did not aspire to create a definitive model. Pedagogic models evolve and change, and are subject to different theoretical and subjective perspectives. The Student Involvement in Learning and Teaching Model (Figure 12, p.89) is an over simplification of a complex area, and on its own it does not engender reflections on the scholarship of teaching and learning, or on the beliefs or context of teaching practices. Entwistle, et al. al. (2000) report that when there was a reliance by student teachers on a ‘guiding metaphor or image [it] provided greater clarity in thinking about teaching than beliefs, but such an image would be too simple to match the complexity of everyday teaching’ (p. 22). However, Entwistle, et al. (2000) also state that ‘frameworks derived from research may well help to bring about the conceptual development necessary for teachers to guide their own teaching’ (p. 24). The empirically derived Student Involvement in Learning and Teaching Model implicitly conveys how political and social control is played out in teaching and learning situations, in the proximal processes between tutors and students. However, a weakness of the Model is that on its own, this may not be obvious. I therefore recommend that the Model is best accompanied with an explanation of its theoretical connections, and philosophical context. And it is best delivered in a workshop environment thus enabling peer discussions to facilitate tutors’ conceptual thinking.
Bernstein (1977) also sees pedagogic approaches as an expression of political and social control, ‘How a society selects, classifies, distributes, transmits, and evaluates the educational knowledge it considers to be public, reflects both the distribution of power and the principles of social control’ (p. 55). I propose that excellence in EBL practice is: where aspects of power, agency, control and responsibility are balanced between students and tutors; where tutors provide guidance and structure; when reciprocal relationships are developed in the proximal processes between tutors and students, maximising student power and involvement across all dimensions of teaching and learning; ensuring students are active, have opportunities for interaction and that the application of learning can be applied to real-world contexts relevant and useful to students’ lives.

7.4 Reflections on the research process and recommendations for further research

In relation to methods, photo-elicitation was used to solicit the student voice, a technique that has previously very limited use in higher education. This technique resulted in rich descriptions of the student teaching and learning experience. From these narratives a new perspective on EBL was created by abducting (Blaikie, 2007) an empirical model expressing dimensions of teaching and learning predominantly from a student pedagogic perspective, articulated from the student voice.

Dilemma analysis (Winter, 1982) also provided an effective methodology (Section 5.3, p.137) with which to analyse the situation and context affecting tutors’ practices. Dilemma analysis illuminated the complexity and interrelatedness of the external influences and internal factors that affect tutors’ actions, and whether EBL and student-centred practices were utilised. However, later in the data analysis an additional analytical framework was also required to understand the interrelatedness of the dilemmas Bronfenbrenner and Ceci’s (1994) ‘Bioecological Model’ usefully achieved this.
However, the dynamic interplay and complexity of the university context, the micro, meso-, exo- and macro-systems, and tutors’ individual resource and force characteristics presaged difficulties in achieving simple classifications.

Adelman (1989) criticises the views of action research as a ‘democratizing force and means of achieving informal, practical change arising from issues at the grass roots are overbearing’ (p. 179). My observations concurred with these views that achieving critical reflections is difficult. The participatory reflective process during the workshops had difficulties: achieving equal contributions in the participating groups was not possible as some participants were extremely talkative tending to dominate the conversation; the focus of the subject was often lost with participants digressing; and the tutor descriptions and conversations were often characterised by providing explanations of the status quo classified within the functional paradigm (Milam, 1991; Burrell & Morgan, 1979; Kezar & Dee, 2011).

If I was to do this research again it would be different as I would incorporate more formal and structured participant evaluation after the workshops to gain feedback into how tutors had received the EBL models and worksheets, and how they found the process of individual reflection and group discussions. However, I was reluctant to ask the participants to fill in a questionnaire as they had already devoted time to completing three written EBL worksheets.

One limitation of the research design was that it did not attempt to garner evidence that a change happened in the tutors’ actual practice as a result of reflecting on the EBL models. Future research that could be undertaken is a medium-term longitudinal study, which would seek to measure the EBL models as pedagogic instruments which had an effect on actual practice. A second limitation of the design is that it was not able to be triangulated against data obtained from the student perceptions of the same tutors’ practice in a specific teaching and learning situation. Firstly, to ascertain how students conceive the tutors’ practice, evaluated by their positioning on the EBL dimensions within a particular
teaching session delivered by a tutor. This could provide data to compare the tutors’ reported actual practice, against the students’ interpretation of the tutors’ actual practice-in-action from the students’ learning perspective. This would strengthen future studies, and counteract Kane et al (2002) and Thomson’s (1992) concerns that any serious attempt to characterise a teacher’s conception of teaching should not be limited to examining only tutors’ professed views.
Abbreviations and Glossary

EBL Enquiry-based learning

CEEBL Centre for Excellence in Enquiry-based Learning

UK United Kingdom

Explanations of the concepts relevant to the research study:

**EBL Dimensions**

The EBL models consist of different EBL dimensions. Each dimension frames the choice of emphasis of a different pedagogic consideration. An EBL dimension is represented by a Cartesian coordinate system. Each pedagogic dimension constitutes a reference line, called a coordinate axis. The coordinates are different points on the dimension, expressed as a number between one and five, where three is the centre point or the origin. The EBL dimensions enables a tutor to position their practice in relation to a particular pedagogic approach.

**EBL Models**

The EBL models are representations of the different dimensions that constitute EBL. The models are intended to represent pedagogic frameworks against which a tutor can evaluate the extent to which their practice is enquiry-based. The EBL models have developed from two to three dimensional models, with each dimension encompassing a different pedagogic consideration. A Cartesian coordinate system has been employed to give a physical representation to the models.

In this study there were four models:

- Functional EBL Model: a general broad-spectrum model encompassing dimensions of teaching and learning.
• Values-based EBL Model: a general broad-spectrum model encompassing the values and implicit philosophical and ideological dimensions of teaching and learning.

• Assessment EBL Model: a specific model encompassing dimensions of teaching and learning assessment.

• Student Involvement in Learning and Teaching Model: a general broad-spectrum model encompassing dimensions of teaching and learning from the student perspective.

**EBL worksheets**

The individual worksheets (Appendix 4, p.239) are the pedagogic instrument, which present the EBL Models as individual EBL dimensions, and present questions to the tutors concerning their practices. The participants were asked to locate their actual and ideal teaching, learning and assessment practices on each EBL dimension. And explain why they placed their practices in the indicated positions; and if a dissonance is indicated whether they are able to change to the ideal position.

**Pedagogy**

The Oxford English Dictionary (2000) defines pedagogy as: ‘The art, occupation, or practice of teaching. Also: the theory or principles of education; a method of teaching based on such a theory’. I take this definition where pedagogy encompasses the art of teaching for both children and adults, and include andragogy which consists of learning strategies focused only on adults, as the EBL models are applicable for students and tutors of all ages.

**Pedagogic approach**

A choice made about the method of teaching. This is the actual teaching method employed by tutors during their professional practice.
**Pedagogic framework**

Pedagogic frameworks are ways of describing and theoretically framing teaching and learning. The EBL models are pedagogical frameworks that are intended to assist tutors in framing and making choices about how they teach. The EBL models extend to more than just ways of elaborating a theory of what EBL is, they encompass dimensions of different pedagogic approaches.

**Pedagogic instrument**

See EBL Worksheets.

**Pedagogic perspectives**

There are a variety of different pedagogic perspectives and dimensions that could constitute EBL approaches and inform the development of the EBL models. Pedagogical perspectives are methodological or philosophical beliefs about practice; these may be influenced by factors such as prior experience or underlying assumptions.
Figure 18: An illustration of how the key concepts relevant to the research study are interlinked.

**Tutor**

I use tutor as a catch all term that emphasises a more student-centred pedagogic approach undertaken in higher education, as tutor has connotations of a more facilitative educational approach which is the preference in EBL. I have not used the term teacher to refer to university tutors as The Oxford English Dictionary (2000) defines a teacher as, ‘One who or that which teaches or instructs; an instructor; also fig.; spec. one whose function is to give instruction, esp. in a school’. This role almost dictates or predicates that the educator’s role is to give the instruction, and teacher is more common in schools, is used infrequently at universities but is a commonly understood term that describes the general staff role of educator. The term educator is seldom used and seems contrived. Terms generally used in universities are: tutor, lecturer, and facilitator.
Works Cited


CEEBL, 2005. What is Enquiry-Based Learning (EBL)?. [Online]
Available at: http://www.ceebl.manchester.ac.uk/ebl/
[Accessed 29 5 2007].


Hodge, D. et al., 2008. *From inquiry to discovery: developing the student as scholar in a networked world.* s.l., University of Sheffield.


Kahn, P. & O'Rourke, K., 2004. Guide to curriculum design: enquiry-based learning, s.l.: HEA.


Krause, K., 2005. *Understanding and Promoting Student Engagement in University*. Paper presented as keynote address: Engaged, Inert or Otherwise Occupied?: Deconstructing
the 21st Century Undergraduate Student at the James Cook University Symposium
‘Sharing Scholarship in Learning and Teaching: Engaging Students’, James Cook
University, Townsville/Cairns, Queensland, Australia, 21–22 September..

Kreber, C. et al., 2007. What Do You Mean By "Authentic”? A Comparative Review of the

Press.


effective use of learning technologies.* London: Routledge.


Lenzo, K., 1995. Validity and Self-Reflexivity Meet Poststructuralism: Scientific Ethos and

A. Skelton, ed. *International Perspectives on Teaching Excellence in Higher Education.*
London:: Routledge, pp. 241-256 .


Stenhouse, L., 1981. What counts as research?. *British Journal of Educational Studies*, pp. 29 (2), pp. 103-114..


Appendices

Appendix 1: Literature search strategy

The search tools used for literature on education were: the Education Resources Information Centre database - where I selected only peer reviewed literature; Google Scholar and Google search engines - to identify literature or recent professional reports which had emerged from scholars within the Centres for Excellence in Teaching and learning in the UK, whose context in educational development were consonant with my own professional goals. In particular the materials from the Centres for Excellence in Teaching and Learning, which in 2005 formed a Learning Through Enquiry Alliance partnership of EBL centres, whose goals were to support teaching innovation and to facilitate enquiry-based practices. These Centres for Excellence in Teaching and learning included: CEEBL, at the University of Manchester; the Centre for Inquiry-based Learning in the Arts and Social Sciences, at the University of Sheffield; and the Centre for Active learning, at the University of Gloucestershire; and the Centre for Excellence in Applied Undergraduate Research Skills, at the University of Reading. Not all of the literature and pedagogic models I have included has been peer reviewed or published in academic journals, as it was important to include the professional reports from the Centres for Excellence in Teaching and learning, as this body of work, is directly relevant to the concurrent development of various perspectives on EBL models. Deignan (2009) identified that interest in EBL has been stimulated since 2005 in the UK through the Higher Education Academy’s Funding of the Centres for Excellence in Teaching and learning.

There are two main facets to the literature review: the first encompassing the meanings and definition of EBL; and the second encompassing the process of tutor reflection using enquiry-based pedagogic frameworks or reflective tools. The dates of the review are from 1900 to the present; however the majority of the literature is more recent from 1990 to the present, as most of the material directly relating to the search terms are found
more recently. The scope was necessarily broad to encompass the various pedagogic approaches encompassed within the term EBL. In order narrow the scope key literature was selected which complemented my practitioner research journey, and my personal philosophical perspective on student-centred and EBL. Where possible literature was selected from the post-compulsory sector, however literature relating to child education, and the secondary school sector was included when I deemed it as particularly relevant, or where material in a specific area was scant in the higher education sector; many of the principles of student-centred education and EBL are relevant across the educational sectors (with the exception of the learners as researchers and the research-teaching nexus which is specific only to higher education).

A summary of the key words that were performed during the process of conducting the literature review was: enquiry-based learning; EBL; inquiry-based learning; IBL; student-centred learning; definition + enquiry-based learning; definition + enquiry-based learning; history + inquiry-based learning; history + enquiry-based learning; problem-based learning; definition + problem-based learning; history + problem-based learning; experiential learning; collaborative learning; students as researchers; authentic pedagogy; EBL + assessment; assessment + enquiry-based learning; education for sustainable development; ESD.

The search around the pedagogic devices for assisting in curriculum design and tutor reflections was limited to include pedagogic instruments that incorporated an enquiry-based and student-centred focus. This focus also included the pedagogic theories which could be encompassed within EBL. Also pedagogic instruments that sought to facilitate tutors in considering more enquiry-based approaches. The search initially focussed on the pedagogic models and literature emerging from the Learning Through Enquiry Alliance Centres for Excellence in Teaching and learning, and proceeded by a keyword search (using the search tools listed above): pedagogic model + enquiry-based; pedagogic instruments + enquiry-based; tools + reflection on EBL; tools + reflective practice.
Another general search strategy employed during the literature review, was to investigate sources referenced in the key papers that were located.
Appendix 2: Summaries of CEEBL project holders’ projects

The following are abstracts written by the project holders, describing their projects for the purposes of bidding to CEEBL for funding. The outcomes of most of the projects were published in CEEBL case studies publication (CEEBL, 2008-10).

**Bridging the Gap – an experiential EBL approach in Mental Health Education**

This project aims to implement and evaluate an innovative EBL approach, which encourages students to both reflect on their clinical practise, and make explicit links between their clinical experiences and theoretical knowledge base.

**Material and Textual Cultures**

As part of the development of the MA in Medieval and Early Modern Studies, a core course is being designed that will give students practical awareness of the different types of literary text prevalent during the Late Medieval and Early Modern Periods. The course will be predicated upon EBL approaches and will encourage independent learning, project-based skills and an appreciation of the complexity of textual cultures from 1300-1700.

**Green City Projects: facilitating cross-faculty communities of practice in environment and sustainable development research for Manchester City Council**

This project seeks to foster cross-university collaboration between dissertation and team research project components of taught masters and other level 4 programmes. Students will use EBL as research-based learning to develop solutions independently or in discipline teams on real projects for the City.

**A Structured Approach to Preparation for Group Project Work**
The Embedded Systems Project (ESP) is a major student-centred problem-based learning activity where students work in small groups throughout the second semester on the design of a microcontroller based product. This development project will generate a series of linked activities focused on the three key areas of team working, project planning and presentation skills, which the students previously identified as areas of difficulty.

Second Computer Science

The School of Computer Science will establish a private island in Second Life to create a secure space for first year Computer Science students to collaborate. In addition to using Second Life as a rich collaboration and discussion platform, students will be able to use free materials in Second Life to learn how to build parts of the virtual environment for themselves using the Second Life scripting language.

Engaging with Early Christian Communities: An EBL approach

Development and evaluation of two different models for introducing EBL to ‘The Rise of Christianity’ course unit. Model 1 is a series of ‘Contentions’, bibliographically supported packages of primary and secondary source material that students can use to understand and contribute to ‘classic’ debates. Model 2 is that of source analysis, a presentation (oral and web-posted) of analytical description of primary source material. The project will develop templates for each model that can be cascaded to other disciplines and will contribute to the on-going development of strategies for supporting independent research by students in the History of Christianity area.

Incorporating EBL in Experimental Laboratory Projects in Chemical Engineering

This project aims to embed EBL into experimental laboratories in the third year of the Chemical Engineering undergraduate degree. Problem statements will be developed
which are less prescriptive and support students to actively research, plan, design, perform and report their experimental work.

**EBL for the year abroad learning log for languages degrees**

Initial project for language-based year abroad students to help them engage with native speakers and make the most of their year abroad to develop language skills as well as other key skills: problem-solving, research, communication, information compilation and presentation skills. The Blackboard VLE will be used throughout the project for two-way communication between the University and the students abroad.

**Teaching Foundations for Interaction Design using an EBL Approach**

Re-development of a Human-Computer Interaction module from being lecture based to collaborative and project-driven. Students will engage in collaborative observation and discovery in analysis of real world examples of interactive technologies and gain first-hand experience applying tools and techniques used by industry. This new delivery approach to Human-Computer Interaction will prepare students with a better understanding of the foundations for interaction design and create a more relevant learning experience.
Appendix 3: Invitation to teaching staff to attend workshops

Dear Colleagues

We would be delighted if you could join us for:

**An Action Research Workshop: An exploration of Enquiry-Based Learning (EBL) and aspects of student-centred teaching and learning.**

- **Date tbc**
- **CEEBL**
- **12.30 - 3.30pm (starting with buffet lunch)**

**Who is it for?**

This workshop will be of particular interest to academics who teach and wish to reflect on their practice. The workshop will focus on aspects of one particular module that you deliver.

**What is it about?**

The action research workshop has three goals: the first is to assist you in developing a greater understanding of enquiry-based learning, by participating in a session where you will have the opportunity to examine your own practice; the second is to contribute to an educational research project which explores influences on practice; and the third is to provide a framework which may enable you to introduce innovation into your practice.

If you would like to apply to attend the workshop please email ceebl@manchester.ac.uk indicating –

**Your name:**

**School:**

**Module that you teach (including course code):**

**Student numbers on module:**

We will contact you with confirmation of your place and a copy of the participant consent form which will outline the research project in more detail.

We very much look forward to welcoming you to CEEBL.

CEEBL Team, CEEBL

Email: CEEBL@manchester.ac.uk
Appendix 4: Example of worksheet for one dimension of an EBL model

**CONTENT DIMENSION**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Tutor-led</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Student-led</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Your name:**

**KEY:** E: Example. A – Where your actual teaching practice is positioned. I – Where you would ideally like your ideal practice to be.

Task one: Place an A, where you position your actual teaching practice on this dimension.

Task two: Describe in a short statement why your intended practice places your project in that position. e.g. E, I provide all the learning materials to the students.

Task three: Place an I, where you would ideally like to place yourself on this dimension.

Task four: State why you would place yourself there. (e.g. Describe your personal ideological/pedagogic belief/s)

Task five: If A and I are in different positions, are you able to move to your ideal position?
Appendix 5: Initial workshop programme

1. Introduction

A brief 5 minute presentation by Julia McMorrow, introducing the context of the initial two-dimensional EBL model (Figure 2, p.36), and its rationale as an instrument to locate teaching practice.

2. Participant group introductions

The participants in each group briefly introduced themselves to each other.

3. Exploration of the Content Dimension

Individual task

The participants were asked to complete an individual Content Dimension worksheet (Appendix 4, p.239). The end-point descriptors were tutor-led and student-led.

- To locate the intended position of their project on the dimension, and describe in a short statement why their intended practice was placed in that position.
- To locate where they would ideally like to place themselves on the Content Dimension. And to state why they would place themselves there, for example, by describing their personal ideological or pedagogic beliefs.
- To explain if their intended project and ideal projects are in different positions the reason why.

Group task

A larger copy of the dimension had been drawn onto a large A1 sheet of paper which was located on each table. Each participant was asked to indicate the position of their project on the Content Dimension, by placing a cross and writing their name on their selected location on the Content Dimension. The participants were asked as a group to discuss why they had located themselves at a particular location on the dimension, and where their practices were
positioned relative to each other.

4. **Exploration of the Process Dimension**

The Process Dimension worksheet was identical to the Content Dimension but titled the Process Dimension. The individual task and group tasks as described above (step 3) were repeated.

5. **Exploration of the Authenticity Dimension**

The Authenticity Dimension worksheet was identical to the Content Dimension but titled the Authenticity Dimension, also the end-point descriptors were altered with initial point changed from 'tutor-led' to 'theoretical/abstract' and the terminal point changed from 'student-led' to 'real-world'. The individual task and groups tasks as described above (step 3) were repeated.

6. **Final Group Tasks**

The participants were asked to discuss in a group:

- Why their ideal positions and project positions were different.
- The validity of these three dimensions and to propose alternative or additional dimensions.
**Appendix 6: Final workshop programme**

1. **Introduction**

A presentation introducing the context of the initial three-dimensional EBL model (Figure 9, p.81) and its rationale as an instrument to locate teaching practice.

2. **Participant group introductions**

The participants in each group briefly introduced themselves to each other.

3. **Exploration of the content/Knowledge Dimension**

A presentation on the pedagogic and philosophical context associated with this dimension, including educational theories and ideological values-based perspectives consonant with EBL.

**Individual task**

The participants were asked to complete an individual Content/Knowledge Dimension worksheet (Appendix 4, p.239).

- To locate the actual position of their teaching on the dimension, and describe in a short statement why their actual practice was placed in that position.
- To locate where they would ideally like to place themselves on the Content Dimension.
  
  And to state why they would place themselves there, for example, by describing their personal ideological or pedagogic beliefs.
- To consider if there was a dissonance between their actual and ideal practice, and whether tutors’ are able to change their practice to be in their ideal position?.

**Group task**

The participants were asked to discuss their individual placements and reflections.

4. **Exploration of the process/interaction /involvement dimension**

The Process Dimension worksheet was identical to the Content Dimension but titled the Process Dimension. The individual task and group tasks as described above (step 3) were
repeated.

5. Exploration of the culture/Ethos Dimension

The Culture Dimension worksheet was identical to the Content Dimension but titled the Culture Dimension. The individual task and groups tasks as described above (step 3) were repeated.

6. Exploration of the context/Authenticity Dimension

The Authenticity Dimension worksheet was identical to the Content Dimension but titled the Authenticity Dimension. The individual task and groups tasks as described above (step 3) were repeated.
Appendix 7: Semi-structured interview questions to tutors

Examples of types of interview questions that may have been used as prompts during participant reflections on EBL models:

   Explain why have you placed your teaching practice in that position?

   (If different from ideal practice) Explain why have you placed your ideal teaching practice in a different position to your actual practice?

   Is it possible to change your practice to move to your ideal position?

   Can you propose any alternative dimensions?

Examples of types of interview questions that may have been used as prompts:

1. What factors have influenced the way you teach?
2. Why did you become a teacher?
3. What is the purpose of teaching?
4. What motivates you to introduce innovation/change in your teaching?
5. Do you have any personal beliefs [ideologies] which influence your practice?
6. How does the environment affect the way you teach?
7. How much power do you have to change the way you teach?
8. What is the purpose of a university?
9. Has your view of teaching and learning changed as a consequence of reflecting on the EBL dimensions?
## Appendix 8: Semi-structured interview questions to students

<table>
<thead>
<tr>
<th>Photo Elicitation</th>
<th>Time Space Elicitation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emergence</strong></td>
<td></td>
</tr>
<tr>
<td>What does each image represent?</td>
<td>What is happening in the situation (place/time)?</td>
</tr>
<tr>
<td>What is emerging from this photograph?</td>
<td>What is emerging from this situation?</td>
</tr>
<tr>
<td>What questions does the photograph evoke? (can you answer that question?)</td>
<td>Does the situation evoke any question? (can you answer that question?)</td>
</tr>
<tr>
<td>What did you intend to represent in this photograph?</td>
<td>What is represented in the situation?</td>
</tr>
<tr>
<td>What does the image evoke?</td>
<td>What does the situation evoke?</td>
</tr>
<tr>
<td><strong>Invariance</strong></td>
<td></td>
</tr>
<tr>
<td>What elements are there in the photograph?</td>
<td>What elements are there in the situation?</td>
</tr>
<tr>
<td>Can you classify elements of the photograph?</td>
<td>Can you classify the elements in the situation?</td>
</tr>
<tr>
<td><strong>Reification</strong></td>
<td></td>
</tr>
<tr>
<td>What is being experienced in the photograph?</td>
<td>What is being experienced in the situation?</td>
</tr>
<tr>
<td>What is being constructed?</td>
<td>What is being constructed?</td>
</tr>
<tr>
<td><strong>Multistability</strong></td>
<td></td>
</tr>
<tr>
<td>What can you interpret from the photograph?</td>
<td>What can you interpret from the situation?</td>
</tr>
<tr>
<td>What are the dynamics in the image?</td>
<td>What are the dynamics in the situation?</td>
</tr>
</tbody>
</table>
Appendix 9: Tutors’ participation consent form

Project title: Enquiry-Based Learning Communities of Practice

Aims:

- To validate an EBL framework, and inform the development and conceptualisation of this framework, through a Community of Practice at University of Manchester comprising of teaching staff in the University of Manchester, CEEBL project holders, students at the University of Manchester and CEEBL staff.
- To explore personal ideologies and how this informs practitioners motivation and how engagement with educational interventions may transform intended practice.

Contract:

- Information obtained will be used only in the context of the research project, that is, in the evaluation, development and dissemination of EBL pedagogy and understanding of Communities of Practice within the University of Manchester.
- The information disclosed by the participant will be anonymised.
- Audio recordings of the focus group or interview will be made. These recordings will not be circulated or viewed beyond the research team.
- The participant can decline the use of any data gathering device such as an audio recorder.
- It is anticipated that anonymised quotes from the focus group or interview may be used to illustrate points.
- Outside the research team, reference to the participant will be through a single letter and a brief description. E.g. Focus Group L, an Electrical Engineering academic said ....
- The participant has the right to participate or not with the research study without prejudice to them.
- The participant has the right to review any material and withdraw from this process.
- Copies of any papers or reports will be made available to the participants.
- No remuneration will be made for participation in the focus group.
- I understand that I may contact the one of the research team if I require further information about the research.

Signed ................................................................. (Research participant)

Print name .............................................................. Date ........................................

Researcher: Adele Aubrey (CEEBL, Manager)

Supervisor’s Name: Daniel Muijs (School of Education)
Appendix 10: Student commentator participation consent form

Student Voice : Photo-elicitation Project 2010

Dear <student name>

Thank you for agreeing to participate in the ‘Student Photo-elicitation Research Project’.

The research project will be used for collecting research data for two purposes: a Doctorate in Education which I am undertaking; and for CEEBL educational research with possible publication in an educational journal.

Your role as student commentator within the teaching environment cannot be anonymised. However in the subsequent publications (thesis and journal) your identity will be anonymised.

The process may run as follows (however I am open to changing this to suit you):

1. You identity two classes: one teacher-led (e.g. lecture-based); and one more student-led (e.g. seminar).

2. Approval will be obtained from the member/s of staff responsible for the class and the students within the class/es to ensure that they are all ok with (potentially) having their photograph taken.

3. You will be lent a discreet digital camera to take photographs in the teaching environments. You will be asked to take photographs in each teaching environment; the photographs will seek to illuminate your experience of teaching and learning at the University of Manchester, to frame issues or perspectives which you wish to voice.

4. You will select a small number (4-5) photographs from each teaching environment.

5. We will meet to have a semi-structured discussion where you provide a commentary, which will be digitally audio recorded.

6. Taking part is voluntary and you may withdraw at any time.

Let me know if you have any questions.

Best Wishes, Adele Aubrey, CEEBL Manager
Appendix 11: Student photo-elicitation participation consent form

Student Photo-elicitation Research Project

Student Brief

You are being asked to take part in a study which explores student perspectives on their learning experiences at the University of Manchester. The research project will be used for collecting research data for three purposes:

1] data for a student undertaking a Doctorate in Education

2] a paper publication in an educational journal

3] to communicate the student perspective to your teachers

If you decide to take part in the study, one of your fellow students will take photographs of your class during your usual teaching session. This may include photographs of you, your classmates, the teaching space or the tutor. To assist the research project we request that you try and behave as usual in the class and try to ignore the fact that you are being photographed.

Taking part is voluntary if you decide not to take part you will be excluded from being photographed. Please inform the student commentator if this is the case. Or if you wish to contact the researcher at any time please email:

adele.aubrey@manchester.ac.uk
Appendix 12: Worked example of the process of dilemma analysis of an EBL worksheet

The process of data analysis employed in dilemma analysis, is outlined in detail below for one individual’s participant worksheet. The process involved the following steps:

1) Transcribing the participant worksheets (Figure 19, p.250). This particular worksheet was from a workshop that focussed on assessment, the dimension was therefore called the ‘Assessment Content Dimension’.

2) Identifying dilemmas statements from the participant discourse (see numbered items in Figure 19, p.250).
### ASSESSMENT CONTENT DIMENSION

<table>
<thead>
<tr>
<th>Question to participant</th>
<th>Written participant response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why your <strong>actual</strong> teaching and learning assessment is in that position.</td>
<td>[1] Partly following ‘tradition’ in my department regarding 2nd year UG assessment (=an essay) but also [2] partly shaped by my experience in previous years when the [3] assessments were set more clearly by me, [4] which resulted in ‘identical’ essays regurgitating lecture notes. [5] This year I set essay topics [6] that required the students to read across the module and to be more creative in terms of answering the question. In other words [7] they had to work to decide the question &amp; find an answer to it. [8] I also allowed students some latitude in terms of which particular theoretical approaches they compared. [9] This resulted in much more diverse essays that were largely unique, presenting an original argument.</td>
</tr>
<tr>
<td>Why your <strong>ideal</strong> teaching and learning assessment would be in that position.</td>
<td>[10] I am not sure to what extent students would be happy evaluating their own work. E.g. [11] part of learning to write includes getting comments &amp; feedback on one’s writing. [12] Ideally I would like students to come up with their own topics, but in a group of 60+ I’m not sure how this is logistically possible, [13] given that each topic would have to be negotiated with me.</td>
</tr>
<tr>
<td>Are you able to change your assessment practice to be in your <strong>ideal</strong> position.</td>
<td>To some extent perhaps yes, [14] but not without considerable extra work on my part.</td>
</tr>
</tbody>
</table>

Figure 19: An example of a transcribed tutors’ EBL worksheet (participant Hum18)

3) The statements were then categorised where possible into tutor-centred and student-centred aspects. The statements were represented in as unmodified way as possible; editing statements in as sympathetic way as possible, ensuring they made sense in terms of the dilemmas being elaborated.
<table>
<thead>
<tr>
<th>ASSESSMENT CONTENT DIMENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TUTOR-CENTRED</strong></td>
</tr>
<tr>
<td>[3] assessments were set more clearly by me, which resulted in ‘identical’ essays regurgitating lecture notes.</td>
</tr>
<tr>
<td>[4] resulted in ‘identical’ essays regurgitating lecture notes.</td>
</tr>
<tr>
<td>[11] part of learning to write includes getting comments &amp; feedback on one’s writing. [from the teacher].</td>
</tr>
</tbody>
</table>

### Miscellaneous

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] Partly following ‘tradition’ in my department</td>
<td>[2] partly shaped by my experience in previous years</td>
</tr>
<tr>
<td>[13] given that each topic would have to be negotiated with me [the teacher].</td>
<td>[12] Ideally I would like students to come up with their own topics, but in a group of 60+ I’m not sure how this is logistically possible</td>
</tr>
</tbody>
</table>

**Key:** Words in square brackets [ ] indicate addition by researcher. Words with strikethrough indicate deletion by researcher.

Figure 20: Initial sorting of the dilemma statements into tutor-centred, and student-centred aspects (participant Hum18)

4) Then the dilemma statements where sorted into a number of expressions of dilemma, tension or contradiction, and condensed into a table (Figure 20, p.251).

5) The dilemma statements were sorted into four super categories, as dictated by the learning, teaching and assessment dimensions explored during the workshops i.e. under: Content/Knowledge (eidos); Process/Interaction; Culture (ethos); Context/Authenticity (praxis); plus an additional category for miscellaneous items. For this particular worksheet (Figure 19, p.250) for participant Hum18 all the dilemma statements fell into the Content/Knowledge Dimension which was expected as the
worksheet was titled and explored this particular dimension. The dilemma statements for this example worksheet is below:

Dilemmas expressed by an individual tutor on the 'Content/Knowledge Dimension' (participant Hum18)

A) Concerning influences on practice

Teacher follows 'tradition in the department. [But] Teaching practice shaped by teachers own personal experience in previous years. (Hum18)

B) Concerning student versus teacher responsibility

1) Assessment

Assessments can be set by the teacher. [But] Students can decide the question, and find the answer to it. (Hum18)

2) Outcomes of essays as a form of assessment

Assessments set more clearly by me resulting in identical essays regurgitating lecture notes. [Or] Assessment enables students to be to be more creative, resulting in much more diverse student essays that were largely unique, presenting an original argument. (Hum18)

3) Topic selection

Teacher sets the essay topics. [But] Students allowed latitude in terms of which particular theoretical approaches they compared. (Hum18)

C) Concerning socio-cultural environmental factors

1) The logistics of large class sizes
Ideally students to devise their own learning (or research) topics. [But] Topics have to be negotiated with the teacher; in a group of 60+ I’m not sure how this is logistically possible.

(Hum18)
**Appendix 13: Abductive content analysis of student data for empirical EBL model**

1) Content phrases: How active the students were in constructing knowledge?

Student activity: ‘active participant’ (Phil)

<table>
<thead>
<tr>
<th>Subtopic</th>
<th>Tutor-centred end-point descriptor</th>
<th>Midpoint</th>
<th>Student-centred end-point descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility</td>
<td>[tutor] telling you exactly how things work (Kwame)</td>
<td>‘negotiation’ (Sharon)</td>
<td>[students] determine the agenda (Sharon)</td>
</tr>
<tr>
<td></td>
<td>[tutor] in charge (Kwame)</td>
<td>[tutor] also responsible for the success of the project (Sharon)</td>
<td>people are working on different projects (Sharon)</td>
</tr>
<tr>
<td></td>
<td>[tutor] is explaining (Kwame)</td>
<td>[students] try to get it (Kwame)…</td>
<td>looking at a different problem (Sharon)</td>
</tr>
<tr>
<td></td>
<td>[tutor has] overview of the project, and where it should be going (Sharon)</td>
<td>‘analyse whatever they are getting’ (Kwame)</td>
<td>come up with a different solution (Sharon)</td>
</tr>
<tr>
<td></td>
<td>‘compulsory’ (Liz)</td>
<td>[tutor makes] suggestion (Sharon)</td>
<td>not compulsory (Liz)</td>
</tr>
<tr>
<td></td>
<td>[tutor] demonstrated authority (Liz)</td>
<td>‘works in both directions’ (Sharon)</td>
<td>‘totally your direction’ (Liz)</td>
</tr>
<tr>
<td></td>
<td>[tutor had] a set plan (Liz)</td>
<td>‘work towards agreement’ (Sharon)</td>
<td>‘self-learning’ (Kwame)</td>
</tr>
<tr>
<td></td>
<td>‘lecturer presented the ideas’ (Lee)</td>
<td>‘slightly different view on things’ (Liz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[tutor] presentations to convey their ideas (Lee)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[students] haven’t prepared (Liz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>activity</td>
<td>‘don’t really have much of an opportunity to be pro-active’ (Liz)</td>
<td>[tutor] provide [s] any assistance (Sharon)</td>
<td>‘initiative’ (Liz)</td>
</tr>
<tr>
<td></td>
<td>just the lecturer talking at you (Phil)</td>
<td>participants … fairly active (Phil)</td>
<td>involving students in doing stuff (Kwame)</td>
</tr>
<tr>
<td></td>
<td>‘listen’ (Kwame)</td>
<td></td>
<td>reporting (Sharon)</td>
</tr>
<tr>
<td></td>
<td>[tutor] in control of the situation (Liz)</td>
<td></td>
<td>students are constructing a written piece of work (Liz)</td>
</tr>
<tr>
<td></td>
<td>‘pull the information straight from the lecturer, and write in</td>
<td></td>
<td>think about what to</td>
</tr>
</tbody>
</table>
| Information | do next '(Sharon)
'pay effort, to learn and do research '(Lee)
'reading journal articles '(Sharon)
'analysing data '(Sharon)
'concentrate on the data '(Sharon)
'researching
'writing '(Sharon)
'represent data '(Sharon)
'experiment/s '(Sharon)
'make sense of it '(Sharon)
'planning '(Sharon)
'work through '(Sharon)
'[student] presenting '(Sharon)
'not prescriptive in its direction '(Phil)

*a very passive audience '(Phil)
'[student] taking notes '(Lee)
'[students] take notes of everything '(Kwame)
'take whatever they can take '(Kwame)
'topic...given by lecturer '(Sharon)
'giving out lecture notes and showing powerpoints '(Lee)
'just sitting...being

Information
'given all the information in lectures, [students] expected to be spoon-fed' (Liz)

'passive participants '(Phil)
'standard passive lecture '(Phil)
'memorise, and remember '(Lee)
'copy it '(Kwame)
'memorise ' (Kwame)
'showing an experiment ' (Kwame)
'show us how things work ' (Kwame)

'down '(Liz)

255
2) Process phrases: Whether the learning culture is collaborative?

Student interaction: ‘interaction’ (Sharon & Liz); ‘interactive’ (Phil); ‘interacting’ (Kwame); ‘interactive activity’ (Kwame)

<table>
<thead>
<tr>
<th>Subtopic</th>
<th>Tutor-centred end-point descriptor</th>
<th>Midpoint</th>
<th>Student-centred end-point descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘collaboration’</td>
<td>‘individual study’ (Sharon)</td>
<td>‘some interaction’ (Kwame)</td>
<td>‘discuss with other members of the team’ (Sharon)</td>
</tr>
<tr>
<td>(Sharon)</td>
<td>‘learning on my own’ (Sharon)</td>
<td>‘ask for feedback’ (Sharon)</td>
<td>‘bouncing off them’ (Sharon)</td>
</tr>
<tr>
<td></td>
<td>‘doing it very on your own’ (Liz)</td>
<td>‘broken up by debate and discussion’ (Phil)</td>
<td>‘working as a team’ (Liz)</td>
</tr>
<tr>
<td></td>
<td>‘nobody was interacting’ (Kwame)</td>
<td>[tutor] bounce back with ideas (Sharon)</td>
<td>‘as a group [sh-st]’ (Liz)</td>
</tr>
<tr>
<td></td>
<td>‘little direct contact with academics, or with lecturers’ (Sharon)</td>
<td>‘bounce ideas off other people’ (Liz)</td>
<td>[bringing] together knowledge (Liz)</td>
</tr>
<tr>
<td></td>
<td>‘less interaction’ (Liz)</td>
<td></td>
<td>[students] help each other (Liz)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[students] work together (Liz)</td>
</tr>
<tr>
<td>‘conversational’</td>
<td>‘can’t talk’ (Liz)</td>
<td>‘a little bit of discussion’ (Liz)</td>
<td>‘involved in a group discussion’ (Phil)</td>
</tr>
<tr>
<td>(Liz)</td>
<td>‘working in silence’ (Sharon)</td>
<td></td>
<td>‘discuss it amongst ourselves’ (Phil)</td>
</tr>
<tr>
<td></td>
<td>‘silent atmosphere’ (Sharon)</td>
<td></td>
<td>[students] be proactive and speak (Liz)</td>
</tr>
<tr>
<td></td>
<td>‘lecturer tells you what you need to know, and you just write it down and learn it’ (Liz)</td>
<td></td>
<td>‘discussion/s’</td>
</tr>
<tr>
<td>questions</td>
<td>'the Professor asked different questions to people' (Kwame)</td>
<td>'[tutor] answering questions from the students' (Liz)</td>
<td>'can ask questions' (Liz) (Kwame)</td>
</tr>
<tr>
<td></td>
<td>'[the tutor] put forward a question' (Phil)</td>
<td></td>
<td>'ask your classmates' (Liz)</td>
</tr>
<tr>
<td></td>
<td>'[students] wouldn’t want to ask questions' (Liz)</td>
<td></td>
<td>'asking questions' (Liz)</td>
</tr>
<tr>
<td></td>
<td>'[tutor] interrogate' (Sharon)</td>
<td></td>
<td>'opportunity to ask more questions' (Liz)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>'more personalised one-on-one teaching' (Liz)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>'questioning' (Liz)</td>
</tr>
</tbody>
</table>
3) Context phrases: How authentic and real-world the learning experience is?

Application of learning: ‘what I learnt ...is to be applied ’(Lee); ‘applying what you have learnt ’(Liz)

<table>
<thead>
<tr>
<th>Subtopic</th>
<th>Tutor-centred end-point descriptor</th>
<th>Midpoint</th>
<th>Student-centred end-point descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>usefulness</td>
<td>’useful’(Liz &amp; Lee)</td>
<td>’what I think I learn is quite useful ’(Lee)</td>
<td>’really useful ’(Liz)</td>
</tr>
<tr>
<td></td>
<td>’abstract ideas ’(Lee)</td>
<td>’directly use what you learn ’(Lee)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>’[students don’t] know the application ’(Lee)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>real-world/life application</td>
<td>’learning your theory ’(Liz)</td>
<td>’a real thing ’(Lee)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>’theoretical part ’(Kwame)</td>
<td>’not very abstract ’(Lee)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>’preparation for what you are going to do in the real world ’(Lee)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>’prep for the exam, and prep for real-life, and it is a very real-life situation ’(Liz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>’good experience ’(Liz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>’students were gaining experience ’(Liz)</td>
<td></td>
</tr>
<tr>
<td>practical</td>
<td></td>
<td>’practical session ’(Liz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>’do it in practice ’(Liz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>’practicality ’(Kwame)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>’practical practice ’(Liz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>’what you would do in practice ’(Liz)</td>
<td></td>
</tr>
</tbody>
</table>

4) Miscellaneous phrases

Involvement: ’engaged ’(Phil); ’engaging ’(Liz); ’involved in a group discussion ’(Phil)

<table>
<thead>
<tr>
<th>Subtopic</th>
<th>Tutor-centred end-point descriptor</th>
<th>Midpoint</th>
<th>Student-centred end-point descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>attendance</td>
<td>’missed a lecture ’(Kwame)</td>
<td>’turn-out is quite good ’(Liz)</td>
<td>’well attended ’(Liz)</td>
</tr>
<tr>
<td></td>
<td>’the seminar size was greatly reduced ’(Phil)</td>
<td>’we had to attend some lectures ’(Sharon)</td>
<td>’full class ’(Kwame)</td>
</tr>
<tr>
<td></td>
<td>’We should have 180 and there were 100 it was really sparse ’(Liz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>attention</td>
<td>'nodding off' (Phil)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'sleeping' (Kwame)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'sleepy' (Liz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'start daydreaming' (Kwame)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'not listening' (Liz, Lee &amp; Phil)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'restless' (Lee)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'try and stay awake' (Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'pay good attention' (Lee)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'listening' (Liz &amp; Phil)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'attentiveness' (Phil)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'pay attention' (Lee/Phil)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'turn-out is quite good' (Liz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'can't fall asleep' (Liz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'concentration' (Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'[students] are being quite receptive' (Liz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'focussed' (Sharon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'think carefully about' (Sharon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>understanding</td>
<td>'don't understand anything' (Kwame)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'understand everything' (Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'understood' (Sharon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>interest</td>
<td>'not interesting' (Kwame)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'content being taught is not very interesting' (Lee)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'not very interesting' (Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'quite interesting' (Phil &amp; Lee)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'interesting' (Phil &amp; Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'really interesting' (Liz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'great interest' (Lee)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'the topic, the material very interesting' (Phil)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'hooked' (Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'interesting to me [the student]' (Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>enjoyment</td>
<td>'boredom' (Phil)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'boring' (Lee)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'get bored' (Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'boring' (Liz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'enjoying it' (Phil)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'fun method of teaching' (Liz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'an environment which you are happy and relaxed in' (Liz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'relaxed environment' (Liz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'relaxed' (Liz &amp; Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'happy' (Liz, Kwame &amp; Sharon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'laughing' (Kwame)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 14: Quantitative placing of tutors’ actual and ideal practice on EBL dimensions

Content/Knowledge Dimension (31 worksheets)

<table>
<thead>
<tr>
<th>Participant code</th>
<th>Faculty code</th>
<th>Actual position</th>
<th>Ideal position</th>
<th>Dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS3_I</td>
<td>EPS</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>EPS2_I</td>
<td>EPS</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>EPS_ph1</td>
<td>EPS</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>EPS_ph2</td>
<td>EPS</td>
<td>4.3</td>
<td>4.7</td>
<td>0.4</td>
</tr>
<tr>
<td>EPS_ph3</td>
<td>EPS</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EPS1/W2</td>
<td>EPS</td>
<td>3.5</td>
<td>4.3</td>
<td>0.8</td>
</tr>
<tr>
<td>EPS13/W3</td>
<td>EPS</td>
<td>2</td>
<td>2.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Hum_ph1</td>
<td>Hum</td>
<td>4.4</td>
<td>4.4</td>
<td>0</td>
</tr>
<tr>
<td>Hum_ph2</td>
<td>Hum</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Hum_ph3</td>
<td>Hum</td>
<td>2.5</td>
<td>3</td>
<td>0.5</td>
</tr>
<tr>
<td>Hum_ph4</td>
<td>Hum</td>
<td>3</td>
<td>2</td>
<td>-1</td>
</tr>
<tr>
<td>Hum_ph5</td>
<td>Hum</td>
<td>2.8</td>
<td>3.5</td>
<td>0.7</td>
</tr>
<tr>
<td>Hum4/W3</td>
<td>Hum</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Hum5/W3</td>
<td>Hum</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hum6/W3</td>
<td>Hum</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Hum8/W3</td>
<td>Hum</td>
<td>1.5</td>
<td>3.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Hum10/W3</td>
<td>Hum</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Hum11/W3</td>
<td>Hum</td>
<td>3.7</td>
<td>4.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Hum 16/W4</td>
<td>Hum</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Hum17/W4</td>
<td>Hum</td>
<td>4</td>
<td>4.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Hum18/W4</td>
<td>Hum</td>
<td>2.5</td>
<td>3.8</td>
<td>1.3</td>
</tr>
<tr>
<td>MHS_ph1</td>
<td>MHS</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>MHS_ph2</td>
<td>MHS</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>MHS_ph3</td>
<td>MHS</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>MHS2/W2</td>
<td>MHS</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>FLS9/W3</td>
<td>MHS</td>
<td>1.2</td>
<td>3.4</td>
<td>2.2</td>
</tr>
<tr>
<td>FLS14/W4</td>
<td>MHS</td>
<td>2.2</td>
<td>2.3</td>
<td>0.1</td>
</tr>
<tr>
<td>MHS15/W4</td>
<td>MHS</td>
<td>2.7</td>
<td>4.2</td>
<td>1.5</td>
</tr>
<tr>
<td>MHS3_I</td>
<td>MHS</td>
<td>2.5</td>
<td>3</td>
<td>0.5</td>
</tr>
<tr>
<td>Inter_ph1</td>
<td>Inter</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Inter_ph2</td>
<td>Inter</td>
<td>3.7</td>
<td>4</td>
<td>0.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>91.5</td>
<td>112</td>
<td>20.5</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>2.95</td>
<td>3.61</td>
<td>0.66</td>
</tr>
</tbody>
</table>
Process / interaction / involvement dimension (25 worksheets)

<table>
<thead>
<tr>
<th>Participant code</th>
<th>Faculty code</th>
<th>Actual position</th>
<th>Ideal position</th>
<th>Dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS3_I</td>
<td>EPS</td>
<td>3</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>EPS2_I</td>
<td>EPS</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>EPS_ph1</td>
<td>EPS</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>EPS_ph2</td>
<td>EPS</td>
<td>4.2</td>
<td>4.7</td>
<td>0.5</td>
</tr>
<tr>
<td>EPS_ph3</td>
<td>EPS</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>EPS1/W2</td>
<td>EPS</td>
<td>1.8</td>
<td>1.9</td>
<td>0.1</td>
</tr>
<tr>
<td>EPS13/W3</td>
<td>EPS</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Hum_ph1</td>
<td>Hum</td>
<td>1.8</td>
<td>4.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Hum_ph2</td>
<td>Hum</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Hum_ph4</td>
<td>Hum</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Hum_ph5</td>
<td>Hum</td>
<td>3.1</td>
<td>3.7</td>
<td>0.6</td>
</tr>
<tr>
<td>Hum4/W3</td>
<td>Hum</td>
<td>4.1</td>
<td>4.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Hum6/W3</td>
<td>Hum</td>
<td>3.7</td>
<td>4.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Hum8/W3</td>
<td>Hum</td>
<td>2.5</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>Hum10/W3</td>
<td>Hum</td>
<td>4</td>
<td>4.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Hum11/W3</td>
<td>Hum</td>
<td>4.4</td>
<td>4.4</td>
<td>0</td>
</tr>
<tr>
<td>Hum5/W3</td>
<td>Hum</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Inter_ph1</td>
<td>Inter</td>
<td>5</td>
<td>4</td>
<td>-1</td>
</tr>
<tr>
<td>Inter_ph2</td>
<td>Inter</td>
<td>4.6</td>
<td>4.6</td>
<td>0</td>
</tr>
<tr>
<td>MHS3_I</td>
<td>MHS</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>MHS_ph1</td>
<td>MHS</td>
<td>1.2</td>
<td>2.6</td>
<td>1.4</td>
</tr>
<tr>
<td>MHS_ph2</td>
<td>MHS</td>
<td>1.3</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>MHS_ph3</td>
<td>MHS</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>MHS2/W2</td>
<td>MHS</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>FLS9/W3</td>
<td>MHS</td>
<td>1.6</td>
<td>4.6</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>75.3</strong></td>
<td><strong>94.1</strong></td>
<td><strong>18.8</strong></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td><strong>3</strong></td>
<td><strong>3.8</strong></td>
<td><strong>0.8</strong></td>
</tr>
</tbody>
</table>
# Culture/Ethos Dimension (16 worksheets)

<table>
<thead>
<tr>
<th>Participant code</th>
<th>Faculty code</th>
<th>Actual position</th>
<th>Ideal position</th>
<th>Dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS3_I</td>
<td>EPS</td>
<td>3</td>
<td>3.8</td>
<td>0.8</td>
</tr>
<tr>
<td>EPS2_I</td>
<td>EPS</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>EPS13/W3</td>
<td>EPS</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Hum4/W3</td>
<td>Hum</td>
<td>3.1</td>
<td>4</td>
<td>0.9</td>
</tr>
<tr>
<td>Hum5/W3</td>
<td>Hum</td>
<td>3</td>
<td>3.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Hum6/W3</td>
<td>Hum</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Hum8/W3</td>
<td>Hum</td>
<td>1.3</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>Hum10/W3</td>
<td>Hum</td>
<td>3.2</td>
<td>4.2</td>
<td>1</td>
</tr>
<tr>
<td>Hum11/W3</td>
<td>Hum</td>
<td>4.4</td>
<td>4.4</td>
<td>0</td>
</tr>
<tr>
<td>Hum 16/W4</td>
<td>Hum</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hum17/W4</td>
<td>Hum</td>
<td>4</td>
<td>4.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Hum18/W4</td>
<td>Hum</td>
<td>2.2</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>MHS3_I</td>
<td>MHS</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>FLS9/W3</td>
<td>MHS</td>
<td>2.5</td>
<td>4.8</td>
<td>2.3</td>
</tr>
<tr>
<td>FLS14/W4</td>
<td>MHS</td>
<td>1.2</td>
<td>2.4</td>
<td>1.2</td>
</tr>
<tr>
<td>MHS15/W4</td>
<td>MHS</td>
<td>2.2</td>
<td>3.9</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>49.1</strong></td>
<td><strong>61.5</strong></td>
<td><strong>12.4</strong></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td><strong>3.1</strong></td>
<td><strong>3.8</strong></td>
<td><strong>0.7</strong></td>
</tr>
</tbody>
</table>
### Context / Authenticity Dimension (27 worksheets)

<table>
<thead>
<tr>
<th>Participant code</th>
<th>Faculty code</th>
<th>Actual position</th>
<th>Ideal position</th>
<th>Dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS3_I</td>
<td>EPS</td>
<td>3.5</td>
<td>4.5</td>
<td>1</td>
</tr>
<tr>
<td>EPS2_I</td>
<td>EPS</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>EPS_ph1</td>
<td>EPS</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>EPS_ph2</td>
<td>EPS</td>
<td>3.5</td>
<td>3.9</td>
<td>0.4</td>
</tr>
<tr>
<td>EPS_ph3</td>
<td>EPS</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EPS1/W2</td>
<td>EPS</td>
<td>3.4</td>
<td>4.2</td>
<td>0.8</td>
</tr>
<tr>
<td>EPS13/W3</td>
<td>EPS</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hum_ph1</td>
<td>Hum</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Hum_ph4</td>
<td>Hum</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hum_ph5</td>
<td>Hum</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Hum4/W3</td>
<td>Hum</td>
<td>4</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>Hum5/W3</td>
<td>Hum</td>
<td>2.5</td>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>Hum6/W3</td>
<td>Hum</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Hum10/W3</td>
<td>Hum</td>
<td>4.2</td>
<td>4.2</td>
<td>0</td>
</tr>
<tr>
<td>Hum 16/W4</td>
<td>Hum</td>
<td>4.5</td>
<td>4.5</td>
<td>0</td>
</tr>
<tr>
<td>Hum17/W4</td>
<td>Hum</td>
<td>4</td>
<td>4.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Hum18/W4</td>
<td>Hum</td>
<td>2.6</td>
<td>2.7</td>
<td>0.1</td>
</tr>
<tr>
<td>Inter_ph1</td>
<td>Inter</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Inter_ph2</td>
<td>Inter</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>MHS3_I</td>
<td>MHS</td>
<td>1.2</td>
<td>4</td>
<td>2.8</td>
</tr>
<tr>
<td>MHS_ph1</td>
<td>MHS</td>
<td>4.4</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>MHS_ph2</td>
<td>MHS</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>MHS_ph3</td>
<td>MHS</td>
<td>4</td>
<td>4.9</td>
<td>0.9</td>
</tr>
<tr>
<td>MHS2/W2</td>
<td>MHS</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>FLS9/W3</td>
<td>MHS</td>
<td>3.9</td>
<td>4.8</td>
<td>0.9</td>
</tr>
<tr>
<td>FLS14/W4</td>
<td>MHS</td>
<td>3</td>
<td>3.1</td>
<td>0.1</td>
</tr>
<tr>
<td>MHS15/W4</td>
<td>MHS</td>
<td>4.5</td>
<td>4.5</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>97.2</td>
<td>110.8</td>
<td>13.6</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td>3.6</td>
<td>4.1</td>
<td>0.5</td>
</tr>
</tbody>
</table>
Average tutor reported actual and espoused ideal positions, and dissonance

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Average actual practice</th>
<th>Average ideal practice</th>
<th>Dissonance</th>
<th>Percentage dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content/Knowledge Dimension</td>
<td>2.95</td>
<td>3.61</td>
<td>0.66</td>
<td>16.5%</td>
</tr>
<tr>
<td>Process / Interaction / Involvement Dimension</td>
<td>3</td>
<td>3.8</td>
<td>0.8</td>
<td>20%</td>
</tr>
<tr>
<td>Culture/Ethos Dimension</td>
<td>3.1</td>
<td>3.8</td>
<td>0.7</td>
<td>17.5%</td>
</tr>
<tr>
<td>Context / Authenticity Dimension</td>
<td>3.6</td>
<td>4.1</td>
<td>0.5</td>
<td>12.5%</td>
</tr>
</tbody>
</table>
Appendix 15: Worked example of Spearman's Rank Correlation Coefficient for the Content Dimension

The procedure was employed to calculate the Spearman's Rank Correlation Coefficient for all the dimensions and Faculties, an online tool was used to speed up the calculation process (http://www.maccery.com/maths/). The process was as follows: Firstly the actual and ideal practice (data 1 & data 2) from 1 to \( n \) (where \( n \) is the number of data) were ranked. If two or more pieces of data in one data column were the same, the data was ranked with the mean of rank which would have been spanned if they had been ranked normally. The \( d \) column corresponds to the difference between each pair of ranks. The square of the difference was calculated in the \( d^2 \) column. The sum of the differences (\( \Sigma d^2 \)) was obtained. Finally the values were inserted into the Spearman's Rank Correlation Coefficient formula:

\[
1 - \left( \frac{6 \Sigma d^2}{n(n^2 - 1)} \right)
\]

In the worked example below the Spearman's Rank Correlation Coefficient equates to: 
\[
1 - \left( \frac{6 \times 1721}{313-31} \right) = 0.653024193548 (0.65 approximated to two decimal places)
\]

The significance and strength of the coefficient value can be categorised as either, positive or negative, and the values were interpreted as:

- 0.0 to 0.2 Very weak
- 0.2 to 0.4 Weak
- 0.4 to 0.7 Moderate
- 0.7 to 0.9 Strong
- 0.9 to 1.0 Very strong
<table>
<thead>
<tr>
<th>Data1 (Actual practice)</th>
<th>Rank (Actual practice)</th>
<th>Data2 (Ideal practice)</th>
<th>Rank (Actual practice)</th>
<th>Difference (d)</th>
<th>d²</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>17.5</td>
<td>4</td>
<td>19.5</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>2</td>
<td>1.5</td>
<td>3.5</td>
<td>12.25</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>4</td>
<td>19.5</td>
<td>-14.5</td>
<td>210.25</td>
</tr>
<tr>
<td>4.3</td>
<td>30</td>
<td>4.7</td>
<td>29</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>3</td>
<td>8</td>
<td>9.5</td>
<td>90.25</td>
</tr>
<tr>
<td>3.5</td>
<td>22</td>
<td>4.3</td>
<td>25</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>2.2</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>4.4</td>
<td>31</td>
<td>4.4</td>
<td>26</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
<td>4</td>
<td>19.5</td>
<td>7.5</td>
<td>56.25</td>
</tr>
<tr>
<td>2.5</td>
<td>10</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>2</td>
<td>1.5</td>
<td>16</td>
<td>256</td>
</tr>
<tr>
<td>2.8</td>
<td>13</td>
<td>3.5</td>
<td>14</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>4</td>
<td>19.5</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>3</td>
<td>8</td>
<td>9.5</td>
<td>90.25</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>4</td>
<td>19.5</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>1.5</td>
<td>2</td>
<td>3.1</td>
<td>12</td>
<td>-10</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>4</td>
<td>19.5</td>
<td>-14.5</td>
<td>210.25</td>
</tr>
<tr>
<td>3.7</td>
<td>23.5</td>
<td>4.6</td>
<td>28</td>
<td>-4.5</td>
<td>20.25</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
<td>4</td>
<td>19.5</td>
<td>7.5</td>
<td>56.25</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
<td>4.5</td>
<td>27</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.5</td>
<td>10</td>
<td>3.8</td>
<td>15</td>
<td>-5</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
<td>5</td>
<td>30.5</td>
<td>-3.5</td>
<td>12.25</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
<td>5</td>
<td>30.5</td>
<td>-3.5</td>
<td>12.25</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>3</td>
<td>8</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>3</td>
<td>8</td>
<td>9.5</td>
<td>90.25</td>
</tr>
<tr>
<td>1.2</td>
<td>1</td>
<td>3.4</td>
<td>13</td>
<td>-12</td>
<td>144</td>
</tr>
<tr>
<td>2.2</td>
<td>8</td>
<td>2.3</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>2.7</td>
<td>12</td>
<td>4.2</td>
<td>24</td>
<td>-12</td>
<td>144</td>
</tr>
<tr>
<td>2.5</td>
<td>10</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>3</td>
<td>8</td>
<td>9.5</td>
<td>90.25</td>
</tr>
<tr>
<td>3.7</td>
<td>23.5</td>
<td>4</td>
<td>19.5</td>
<td>4</td>
<td>16</td>
</tr>
</tbody>
</table>

Σd² = 1721
Appendix 16: Spearman's Rank Correlation Coefficient indicators for the Faculty & interdisciplinary tutors

<table>
<thead>
<tr>
<th>Dimension</th>
<th>EPS</th>
<th>Hum</th>
<th>MHS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content / Knowledge</td>
<td>Strong (positive)</td>
<td>Moderate (positive)</td>
<td>Moderate (positive)</td>
<td>Moderate (positive)</td>
</tr>
<tr>
<td>Process / Interaction / Involvement</td>
<td>Very strong (positive)</td>
<td>Weak (positive)</td>
<td>Strong (positive)</td>
<td>Moderate (positive)</td>
</tr>
<tr>
<td>Culture / Ethos</td>
<td>Very strong (positive)</td>
<td>Very strong (positive)</td>
<td>Strong (positive)</td>
<td>Very strong (positive)</td>
</tr>
<tr>
<td>Context / Authenticity</td>
<td>Moderate (positive)</td>
<td>Very strong (positive)</td>
<td>Strong (positive)</td>
<td>Strong (positive)</td>
</tr>
<tr>
<td>Total</td>
<td>Very Strong (positive)</td>
<td>Strong (positive)</td>
<td>Strong (positive)</td>
<td>Strong (positive)</td>
</tr>
</tbody>
</table>

Table 4: Spearman's Rank Correlation Coefficient indicators for the three University Faculties

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Inter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content / Knowledge</td>
<td>Very strong (positive)</td>
</tr>
<tr>
<td>Process / Interaction / Involvement</td>
<td>Very strong (negative)</td>
</tr>
<tr>
<td>Culture / Ethos</td>
<td>No data</td>
</tr>
<tr>
<td>Context / Authenticity</td>
<td>Moderate (positive)</td>
</tr>
<tr>
<td>Total</td>
<td>Very weak (positive)</td>
</tr>
</tbody>
</table>

Table 5: Spearman's Rank Correlation Coefficient indicators for the interdisciplinary tutors
### Appendix 17: Worksheets with positive dissonance towards student-centred/enquiry-based espoused ideal practice

<table>
<thead>
<tr>
<th>EBL dimensions</th>
<th>Number of worksheets with positive dissonance</th>
<th>Number of worksheets</th>
<th>Percentage of worksheets with positive dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content / Knowledge</td>
<td>22</td>
<td>31</td>
<td>71%</td>
</tr>
<tr>
<td>Process / Interaction / Involvement</td>
<td>17</td>
<td>25</td>
<td>68%</td>
</tr>
<tr>
<td>Culture / Ethos</td>
<td>11</td>
<td>16</td>
<td>69%</td>
</tr>
<tr>
<td>Context / Authenticity</td>
<td>15</td>
<td>27</td>
<td>56%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>65</td>
<td>99</td>
<td>66%</td>
</tr>
</tbody>
</table>

Table 6: Summary of positive dissonances on tutor worksheets
### Appendix 18: Interdisciplinary tutors’ positioning and dissonance

<table>
<thead>
<tr>
<th>Participant code</th>
<th>Faculty code</th>
<th>Actual position</th>
<th>Ideal position</th>
<th>Dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter_ph1</td>
<td>Inter</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Inter_ph2</td>
<td>Inter</td>
<td>3.7</td>
<td>4</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Table 7: Content/Knowledge Dimension positioning for interdisciplinary module tutors

<table>
<thead>
<tr>
<th>Participant code</th>
<th>Faculty code</th>
<th>Actual position</th>
<th>Ideal position</th>
<th>Dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter_ph1</td>
<td>Inter</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Inter_ph2</td>
<td>Inter</td>
<td>4.6</td>
<td>4.6</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 8: Process/Interaction Dimension positioning for interdisciplinary module tutors

<table>
<thead>
<tr>
<th>Participant code</th>
<th>Faculty code</th>
<th>Actual position</th>
<th>Ideal position</th>
<th>Dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter_ph1</td>
<td>Inter</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Inter_ph2</td>
<td>Inter</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 9: Context/Authenticity Dimension positioning for interdisciplinary module tutors
### Appendix 19: Worksheets where tutors expressed zero dissonance

<table>
<thead>
<tr>
<th>EBL dimensions</th>
<th>Number of worksheets with zero dissonance</th>
<th>Number of worksheets</th>
<th>Percentage of worksheets with zero dissonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content/Knowledge Dimension</td>
<td>8</td>
<td>31</td>
<td>25%</td>
</tr>
<tr>
<td>Process / Interaction / Involvement Dimension</td>
<td>7</td>
<td>25</td>
<td>28%</td>
</tr>
<tr>
<td>Culture/Ethos Dimension</td>
<td>5</td>
<td>16</td>
<td>31%</td>
</tr>
<tr>
<td>Context / Authenticity Dimension</td>
<td>11</td>
<td>27</td>
<td>41%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>31</strong></td>
<td><strong>99</strong></td>
<td><strong>31%</strong></td>
</tr>
</tbody>
</table>

Table 10: Summary of worksheets where tutors expressed zero dissonance between reported actual and espoused ideal practice
Appendix 20: Radar graphs of tutors’ positioning on dimensions

Figure 21: Radar graph of ideal and actual practice for the Content Dimension

Figure 22: Radar graph of ideal and actual practice for the Process Dimension
Figure 23: Radar graph of ideal and actual practice for the Culture Dimension

Figure 24: Radar graph of ideal and actual practice for the Context Dimension
Appendix 21: Tutor participants codes and key

The participants were identified, and anonymised using the participant code key below:

<table>
<thead>
<tr>
<th>Faculty Code*</th>
<th>Hum</th>
<th>EPS</th>
<th>MHS</th>
<th>Inter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Faculty of Humanities</td>
<td>Faculty of Engineering &amp; Physical Sciences</td>
<td>Faculty of Medical &amp; Human Sciences, and Faculty of Life Sciences (FLS)</td>
<td>Interdisciplinary</td>
</tr>
</tbody>
</table>

I combined the participants from the Faculties of Life Sciences (FLS) and Medical and Human Sciences (MHS) together, as the discipline categorisation of Life Sciences and Medical and Human Sciences can be neatly aligned. Historically the University has separated these two Faculties, however the Faculty of Life Sciences consists of only one School (discipline based departments), whilst the other three Faculties all have a number of Schools, under their structures. The Faculty of Engineering and Physical Sciences (EPS) and Humanities (HUM) Faculty have nine schools, whilst the Faculty of Medical and Human Sciences has five schools, six for the purposes of this study including Life Sciences. Therefore I have coded and categorised Life Sciences as 'MHS' in the quantitative analysis. In addition to this there are a small number interdisciplinary units within the University that straddle across the Faculties and cannot be placed in a specific Faculty, these have been categorised as 'Inter'. In summary the codes are representative of three overarching tribes of disciplines (Faculties) within the university i.e.: 1) Humanities, 2) Engineering & Physical Sciences and 3) Medical and Human Sciences & Life Sciences.
### Tutor participant key

<table>
<thead>
<tr>
<th>Origin of data</th>
<th>ph</th>
<th>W</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Project holders workshop 1 (24/09/2008)</td>
<td>Workshops</td>
<td>Individual Interview</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workshop number</th>
<th>n/a</th>
<th>The number proceeding the workshop code, indicates the workshop.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2: Workshop date: 06/05/2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3: Workshop date: 19/05/2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4: Workshop date: 2/6/2010</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participant number</th>
<th>The number proceeding the letters ‘ph’ refers to the number ascribed to the tutor attending the project holder’s workshop (Workshop 1)</th>
<th>The number proceeding each faculty code refers to the number ascribed to the tutor attending a workshop (Workshop 2, 3 or 4).</th>
</tr>
</thead>
</table>
### Tutor participant codes and pseudonyms

<table>
<thead>
<tr>
<th>Participant Code</th>
<th>Pseudonyms</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS3_I</td>
<td>Lucy</td>
<td>Interview</td>
</tr>
<tr>
<td>EPS2_I</td>
<td>Jane</td>
<td>Interview</td>
</tr>
<tr>
<td>MHS3_I</td>
<td>Sarah</td>
<td>Interview</td>
</tr>
<tr>
<td>EPS_I</td>
<td>Michael</td>
<td>Interview (no worksheets available)</td>
</tr>
<tr>
<td>Hum_ph1</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>MHS_ph2</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>MHS_ph1</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>Inter_ph1</td>
<td>Tom</td>
<td>Workshop 1</td>
</tr>
<tr>
<td>Hum_ph2</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>EPS_ph2</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>Inter_ph2</td>
<td>Kathy</td>
<td>Workshop 1</td>
</tr>
<tr>
<td>Hum_ph3</td>
<td>Mandy</td>
<td>Workshop 1</td>
</tr>
<tr>
<td>EPS_ph1</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>Hum_ph4</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>EPS_ph3</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>MHS_ph3</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>Hum_ph5</td>
<td></td>
<td>Workshop 1</td>
</tr>
<tr>
<td>EPS1/W2</td>
<td>Stephen</td>
<td>Workshop 2</td>
</tr>
<tr>
<td>MHS2/W2</td>
<td>Linda</td>
<td>Workshop 2</td>
</tr>
<tr>
<td>Hum6/W3</td>
<td>Mary</td>
<td>Workshop 3</td>
</tr>
<tr>
<td>Hum8/W3</td>
<td></td>
<td>Workshop 3</td>
</tr>
<tr>
<td>Hum11/W3</td>
<td></td>
<td>Workshop 3</td>
</tr>
<tr>
<td>FLS9/W3</td>
<td>Peter</td>
<td>Workshop 3</td>
</tr>
<tr>
<td>Hum5/W3</td>
<td>Victor</td>
<td>Workshop 3</td>
</tr>
<tr>
<td>Hum4/W3</td>
<td>Louise</td>
<td>Workshop 3</td>
</tr>
<tr>
<td>EPS13/W3</td>
<td></td>
<td>Workshop 3</td>
</tr>
<tr>
<td>Hum10/W3</td>
<td></td>
<td>Workshop 3</td>
</tr>
<tr>
<td>Hum17/W4</td>
<td></td>
<td>Workshop 4</td>
</tr>
<tr>
<td>FLS14/W4</td>
<td>Lesley</td>
<td>Workshop 4</td>
</tr>
<tr>
<td>MHS15/W4</td>
<td></td>
<td>Workshop 4</td>
</tr>
<tr>
<td>Hum16/W4</td>
<td></td>
<td>Workshop 4</td>
</tr>
<tr>
<td>Hum18/W4</td>
<td>Susan</td>
<td>Workshop 4</td>
</tr>
<tr>
<td>ESD1</td>
<td></td>
<td>Education for sustainable development case study participant 1</td>
</tr>
<tr>
<td>ESD2</td>
<td></td>
<td>Education for sustainable development case study participant 2 (Workshop attendee)</td>
</tr>
</tbody>
</table>
Appendix 22: Example of PowerPoint presentation (used in Workshop Three: 19th May 2010)

Workshop Goals
- to assist you in developing a greater understanding of enquiry-based learning
- introduce a framework through which you will examine your own teaching practice
- contribute to an educational research project

What is Enquiry Based Learning?
Makiguchi (1930, p.196) stated that,

- the aim of education is not to transfer knowledge; it is to guide the learning process, to equip the learner with the methods of research. It is not the piecemeal merchandizing of information; it is to enable the acquisition of the methods for learning on one’s own; it is the provision of keys to unlock the vault of knowledge.

- EBL can be simply conceived as a way of conceptualising teaching so that activities become student-centred [Freire (1967), Dewey (1938)]
- 2-D & 3-D functional models of aspects of student-centred learning
- 3-D values-based model
Complete the individual CONTENT/KNOWLEDGE AXIS worksheet.

• Group Task 1: As a group, discuss what influences have led to your teaching practice being positioned in that particular place.

• Group Task 2: If your ideal position differs from your actual position, explain why.

Levy’s (2009) model of inquiry-based learning

<table>
<thead>
<tr>
<th>STAFF-LED</th>
<th>STUDENT-LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producing (discovery-responsive)</td>
<td>Authoring (discovery-active)</td>
</tr>
<tr>
<td>Identifying/Engaging (information-responsive)</td>
<td>Pursuing (information-active)</td>
</tr>
</tbody>
</table>

EXPLORING AND ACQUIRING EXISTING DISCIPLINARY KNOWLEDGE

Curriculum design and the research-teaching nexus. Healey (2005)

<table>
<thead>
<tr>
<th>STUDENT-FOCUSED STUDENTS AS PARTICIPANTS</th>
<th>STUDENT-FOCUSED STUDENTS AS AUDIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research-tutored Curriculum emphasizes learning focused on students essay and papers</td>
<td>Research-oriented Curriculum highlights students understanding of knowledge construction in the subject</td>
</tr>
<tr>
<td>Research-based Curriculum emphasizes teaching processes of knowledge construction in the subject</td>
<td>Research-oriented Curriculum highlights teaching processes of knowledge construction in the subject</td>
</tr>
</tbody>
</table>

EMPHASIS ON RESEARCH CONTENT | EMPHASIS ON RESEARCH PROCESSES AND PROBLEMS |

Paperwork

• Participant Consent Form
### INTERACTION/INVOLVEMENT AXIS

Complete the individual **INTERACTION AXIS** Worksheet

- **Group Task 1:** As a group, discuss where your practices are positioned relative to each other, and what takes place within the situated teaching interaction.
- **Group Task 2:** If your ideal position differs from your actual position, explain why.

### AUTHENTICITY AXIS

Complete the individual **AUTHENTICITY AXIS** Worksheet

- **Group Task 1:** Discuss how important it is for students’ learning to enable them to develop their potential and enable them to create value in their communities.
- **Group Task 2:** If your ideal position differs from your actual position, explain why.

### Interdependency

- Ikeda’s (2002, online) vision of education for sustainable development is to build a value-creating educational system where students are empowered to create value in their communities through,
  - a contributive way of life [which] is based on an awareness of the interdependent nature of our lives-of the relationships that link us to others and our environment.

### Whole systems thinking in education, Sterling (2001)

- Sustainable education requires an integration between:
  - eidos (knowledge creation)
  - ethos (learning culture) and
  - praxis (authenticity of the action)
CULTURE / TOGETHERNESS AXIS

Complete the individual CULTURE AXIS Worksheet.

Group Task 1: Discuss how important it is to develop a sense of an interdependent learning community for student engagement in learning.

Group Task 2: If your ideal position differs from your actual position, explain why.

What evidence is there that collaborative learning works?

- Johnson, Johnson and Smith (2007)
- Johnson, Johnson, Stanne (2000)
- Cooperative learning (enquiry-based group work) compared to individual competitive efforts tend to result in higher achievement.

In what ways can collaborative learning result in higher achievement?

- Motivation
- Teamwork
- Information retention
- Problem solving
- Attendance

Group Task: Are these axes valid?
Discuss the validity of these four axes and propose alternative or additional axes.

Final Group Task: Discuss how effective these axes are in promoting reflection and/or change in teaching practice towards more student-centred methods.
Appendix 23: Examples of worksheets completed by tutors during a one-to-one interview and workshop

Jane (EPS2_I, one-to-one session)

Jane was emailed the worksheet to complete alone, with only the consent form as an induction. Jane did grasp the dimensions stating, 'I quite liked it actually'.

<table>
<thead>
<tr>
<th>CONTENT/KNOWLEDGE DIMENSION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Why the <strong>actual</strong> teaching and learning session is in that position.</td>
<td>(Position 2) <em>I am an expert in the area of project finance. I provide my students with lecture material, case study examples and a module handbook. However I do expect my students to undertake their own research to complete the wiki based coursework and expect them to apply the relevant taught theory to the case studies through their own personal study.</em></td>
</tr>
<tr>
<td>Why the <strong>ideal</strong> teaching and learning session would be in that position.</td>
<td>(Position 2) <em>There are a set of concepts, a body of literature etc that defines the field of project finance. I want my students to be fully conversant with these. However I see case study examples and the students’ own investigative projects as being key to bringing these concepts and theory to life.</em></td>
</tr>
<tr>
<td>Are the <strong>actual</strong> and <strong>ideal</strong> positions in different positions. If so why</td>
<td><em>No</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROCESS DIMENSION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Why the <strong>actual</strong> teaching and learning session is in that position.</td>
<td>(Position 2) <em>Teaching and learning is centred on key note lectures and discussion of case studies in class</em></td>
</tr>
<tr>
<td>Why the <strong>ideal</strong> teaching and learning session would be in</td>
<td>(Position 3) <em>I would like to increase class interaction, learning through the Socratic method. I would like to provide more support</em></td>
</tr>
</tbody>
</table>
that position. | to the students own enquiry based investigative projects.

| Are the **actual** and **ideal** positions in different positions. If so why | The style of teaching and the assessment is constrained by the size of the class (250 plus). I do not have the time to make the learning process more student-centred with this number of students to support. This is a real shame. |

<table>
<thead>
<tr>
<th><strong>CULTURE/ETHOS DIMENSION</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Why the <strong>actual</strong> teaching and learning session is in that position.</td>
<td>(Position 4) Coursework assessment is 70% collaborative group work. Case study discussions in class foster peer learning.</td>
</tr>
<tr>
<td>Why the <strong>ideal</strong> teaching and learning session would be in that position.</td>
<td>(Position 4) I want students to learn with each other. I want them to develop effective collaboration skills that will be required in their future professional working lives</td>
</tr>
<tr>
<td>Are the <strong>actual</strong> and <strong>ideal</strong> positions in different positions. If so why</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CONTEXT/AuthENTICITY DIMENSION</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Why the <strong>actual</strong> teaching and learning session is in that position.</td>
<td>(Position 4) All theory is explained through the use of practical examples. Threshold concepts embedded using real life case studies</td>
</tr>
<tr>
<td>Why the <strong>ideal</strong> teaching and learning session would be in</td>
<td>(Position 4) My professional experience is all industry based. I want to produce grounded students who can quickly become</td>
</tr>
</tbody>
</table>
Jane proposed additional dimensions that looked not only the tutor and student relationships, but also the institutional and environmental relationships, the constraints on teaching and learning: class size and infrastructure:

*The single biggest constraint on teaching and learning is class size. For example I may wish to adopt a more student-centred process but the scale of this task in a very large class is enormous and we are forced to keep teaching and assessment very simple. Perhaps another axis could be environment or infrastructure requirements, or something similar. Also an academic may have different approaches and sit at different positions on your axis depending on the type of course e.g. distance learning vs. campus based, small vs. large class, UG vs. PG.*

**Mary (Hum6/W3, Workshop Three)**

Mary is based in the School of Arts History and Culture, in a new Centre for Arts Management and Culture Policy. She has, ‘been running a new Masters programme for the last year, which is in Departmental Policy where we get people who have recently graduated, or graduated quite a long time ago in a huge range of disciplines. And many of them are already working the culture sector, and or all of them want to carry on working in the culture sector, but they want to come in not necessarily as practitioners, but they are not necessarily artists or musicians, but are working in a management capacity in venues in a community setting’.
'But also I want to bring in a particular academic framework within that which really tries to understand the relationship between culture and property, and theoretical perspectives. So I am kind of interested in this device for how people can come into right areas of interest, and areas of research in a group setting, and encourage the idea of practices research, and research as part of their future professional practice’.

Mary reported how she used the worksheet to envisage where she would position her teaching for a course which had not yet been created or delivered: ‘I find that easier than I expected actually to help pull out the ins and outs of the new course, because I actually found that it affected what I was saying in my A [actual positioning] and my I [ideal positioning]. They are both imagined at the moment because the session I am talking about is a preparatory session really. And I have imagined it to be about three or four weeks into the course, the course has been approved, and it should be running next semester next year, and I would imagine that I would have 20 students on it, and they would come from different postgraduate degree programmes, and different backgrounds. And what I want them to do around about that time is come up with a proposal for their particular cultural objects, but they then need to develop a presentation of, and a piece of written work... I want students to be able to choose anything they might choose: a museum, a whole museum, or an institution, or an object, or they might choose a piece of data but I want them to use it as a way of understanding how we think about these things, and what the implications might be for their future practice. But what I have found is thinking through the A [actual practice] is a bit lower down the scale towards me [the tutor] as is the I [ideal practice] mainly because I think it is going to be quite early on in the course, even though it is in semester 2 it’s an option people are opting onto this, but they will still have expectations about how things are taught in school and coming from different backgrounds and they may be still quite nervous about setting their own learning contexts. And so those were the kind of things I came up with immediately, sort
of about how, immediately helped me think, what we will need to do is try and find a way of building confidence almost’.

Mary explains why she perceives there will be a dissonance between her actual practice when she delivers the course and her ideal practice: ‘My ideal is higher up than my current thinking of how it might go, is partly due to practicalities. In that I think there is such a diverse range of students and interests, in this particular session...that I don't have enough time to take a tutor-led approach to this because we won't be able to cover all these different areas. So it is really important that areas of confidence, and the ability for students to bring their own learning into - slightly into - the classroom’.

Mary describes an example of what she considers good practice in the masters programme, ‘We have work placements as part of the programme, and get more and more interested in how to run life projects for students, and we just run a course where we had them undertaking podcasts into research practice and then presenting them, and that went really really well, and also gave them technical skills which is important and this is an arts management’.

<table>
<thead>
<tr>
<th>Content/Knowledge Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why your <strong>actual</strong> teaching and learning is in that position.</td>
</tr>
<tr>
<td>Why your <strong>ideal</strong> teaching and learning would be in that position.</td>
</tr>
</tbody>
</table>
Are you able to change your practice to be in your ideal position.

Because we haven’t run it yet, so it is uncharted territory. Plus, there may be expectations of how the school/university teaches.

<table>
<thead>
<tr>
<th>Interaction/involvement dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why your actual teaching and learning is in that position.</td>
</tr>
<tr>
<td>Why your ideal teaching and learning would be in that position.</td>
</tr>
<tr>
<td>Are you able to change your practice to be in your ideal position.</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Context/Authenticity Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why your actual teaching and learning is in that position.</td>
</tr>
</tbody>
</table>
of practical content.

Difficult to achieve balance

<table>
<thead>
<tr>
<th>Why your <em>ideal</em> teaching and learning would be in that position.</th>
<th>(Position-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you able to change your practice to be in your <em>ideal</em> position.</td>
<td>Convincing programme / learning + teaching that is valued and valuable to graduates of the programme + that gives them skills + capacity for their professional careers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Culture/togetherness dimension</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Why your <em>actual</em> teaching and learning is in that position.</td>
</tr>
<tr>
<td>Why your <em>ideal</em> teaching and learning would be in that position.</td>
</tr>
<tr>
<td>Are you able to change your practice to be in your <em>ideal</em> position.</td>
</tr>
</tbody>
</table>

**Louise (Hum4/W4, Workshop Four)**

Louise taught in the School of Education, she chose to focus on a module with 25 students.

<table>
<thead>
<tr>
<th><strong>CONTENT/KNOWLEDGE DIMENSION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Why your <em>actual</em> teaching and learning assessment is</td>
</tr>
<tr>
<td>INTERACTION/INVOLVEMENT DIMENSION</td>
</tr>
<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td><strong>Why your actual teaching and learning assessment is in that position.</strong></td>
</tr>
<tr>
<td>(Position indicated by line spanning 3.5-5) <strong>I like to ensure that everyone gets a chance to talk – if students are to learn, they need to be able to critique techniques and they can only do this through discussion and asking questions.</strong></td>
</tr>
<tr>
<td><strong>Why your ideal teaching and learning assessment would be in that position.</strong></td>
</tr>
<tr>
<td>(Position indicated by line spanning 4-4.5) <strong>I teach Friere to all my classes (BA/Med) and try to teach those values and principles. Some of my classes are entirely interactive, but often find myself talking more than I’d planned to do – sometimes this is good and sometimes it’s because students struggle to engage.</strong></td>
</tr>
<tr>
<td><strong>Are you able to change your assessment practice to be in your ideal position.</strong></td>
</tr>
<tr>
<td><strong>This time they were in the same position! Although nothing ever goes according to plan!</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CULTURE/TOGETHERNESS DIMENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Why your actual teaching and learning assessment is</strong></td>
</tr>
<tr>
<td>(Position indicated by line spanning 2-4) <strong>The individual reflection activity (learnt at CEEBL) is an essential starting point for this session</strong></td>
</tr>
<tr>
<td>in that position.</td>
</tr>
<tr>
<td>Why your <em>ideal</em> teaching and learning assessment would be in that position.</td>
</tr>
<tr>
<td>Are you able to change your assessment practice to be in your <em>ideal</em> position.</td>
</tr>
</tbody>
</table>

**CONTEXT/AUTHENTICITY DIMENSION**

| Why your *actual* teaching and learning assessment is in that position. | (Position 4) *I think I’m teaching a practical skill (diary writing), the students probably regard it as theoretical/abstract/removed from the real-world as it requires them to be analytical and reflective not descriptive or linked to the real-world.* |
| Why your *ideal* teaching and learning assessment would be in that position. | (Position 3) *I’d like to strengthen the theoretical side of the reflective process – while ensuring that its real world application is still clear.* |
| Are you able to change your assessment practice to be in your *ideal* position. | *Because I want to develop the theoretical basis for the practical skill much further.* |