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Reflection in Medical Education: A case study exploring students', tutors' and educators' understanding and experience of reflection

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'Let us live the highest vision of what is possible'
Inga Grace (2006)

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TABLE OF CONTENTS **PAGE**

ABSTRACT

CHAPTER 1: INTRODUCTION 1
1.1 Research focus and aims 1
1.2 Background to the research 4
1.2.1 The policy and historical context of reflection within The Medical School 4
1.2.2 Approaches to teaching, learning and assessment in Medical Education 6
1.2.3 The reasons for my interest in this research area 10
1.3 The literature search and research design 12
1.3.1 Research design 13
1.3.2 Research design – The case study 14
1.4 Structure of the thesis 15

CHAPTER 2: REVIEW OF LITERATURE 17
2.1 Overview 17
2.2 Key theoretical perspectives 19
2.3 Meta-cognition 27
2.4 Policy development 30
2.5 The Medical School and the curriculum 32
2.6 Students' reflective skill development: the research perspective 38
2.7 Tutors' and educators' reflective skill development: the research perspective 45
2.8 Scaffolding and developing competence 46
2.9 The Facilitator 48
2.10 Conclusion 54

CHAPTER 3: RESEARCH DESIGN 56
3.1 Overview 56
3.2 Justification for adopting a particular research design 56
3.3 Research design – Case Study approach 61
3.3.1 Study Participants 63
3.4 Data gathering methods 65
3.4.1 Prior to the interview-pilot 68
3.4.2 The interview 68
3.5 Case Study: Data analysis 69
3.5.1 Trustworthiness 71
3.5.2 Credibility 71
3.5.3 Transferability 72
3.5.4 Dependability and Confirmability 72
3.5.5 Reflexivity 73

3.6 Triangulation 74
3.7 Ethical Considerations 75
3.8 Assumptions 75
3.9 Limitations and Delimitations 76

CHAPTER 4: PRESENTATION OF FINDINGS: PARTICIPANTS UNDERSTANDING AND EXPERIENCE OF REFLECTION 77
Presentation of data 78
Table One: Classification of emergent themes and analytical sources 79
4.1 Students' understanding and experience of reflection 81
Educational Issues
4.1.1 The term 'reflection' 81
4.1.1.1 Understanding of the terms 'reflection', 'reflective practice' and 'critical reflection' 81
4.1.2 Teaching and learning 83
4.1.2.1 Preparing to reflect 83
4.1.2.2 Reflective skill development: strategies and resources 84
4.1.2.3 Learning with others 86
4.1.2.4 Time 86
4.1.3 Assessment 86
4.1.3.1 Perceived relevance 86
4.1.3.2 Uncertainty 88
Professional Issues 89
4.1.4 Policy and curriculum requirements 89
4.1.5 Perceived importance of reflection 89
4.1.5.1 Patient care 89
4.1.6 The Facilitator 90
4.1.6.1 Attributes 90

4.2 Tutors' understanding and experience of reflection 91
Educational Issues 91
4.2.1 The term 'reflection'
4.2.1.1 Understanding of the terms 'reflection', 'reflective practice' and 'critical reflection' 91
4.2.2 Teaching and learning 92
4.2.2.1 Theory and practice 92
4.2.2.2 Time 93
4.2.2.3 Learning with others 94
4.2.2.4 Reflective skills development: strategies and resources 94
4.2.2.5 Staff training and continuing professional development 96
4.2.3 Assessment 98
4.2.3.1 Uncertainty 98

Professional Issues 99
4.2.4 Policy and curriculum requirements 99
4.2.5 Perceived importance of reflection 99
4.2.5.1 Patient care 99
4.2.6 The Facilitator 100
4.2.6.1 Attributes 100
4.2.6.2 Environment 101
4.2.6.3 Self 101

4.3 Educators' understanding and experience of reflection 102
Educational Issues 102
4.3.1 The term 'reflection' 102
4.3.1.1Understanding of the terms 'reflection', 'reflective practice' and 'critical reflection' 102
4.3.2 Teaching and learning 105
4.3.2.1 Reflective skills development: strategies and resources 105
4.3.2.2 Preparing to reflect 107
4.3.2.3 Tutor guidance and resources 108
4.3.2.4 Time 109
4.3.2.5 Staff training and continuing professional development 110
4.3.3 Assessment 111
4.3.3.1 Perceived relevance 111
Professional Issues 114
4.3.4 Policy and curriculum requirements 114
4.3.5 Perceived importance of reflection 115
4.3.5.1 Patient care 115
4.3.5.2 Professional context 115
4.3.6 The Facilitator 116
4.3.6.1 Attributes 116
4.3.6.2 Role model 116

CHAPTER 5: DISCUSSION OF FINDINGS 118
Educational Issues 120
5.1 The term 'reflection' 120
5.2 Teaching and learning 123
5.2.1 Preparing to reflect 123
5.2.2 Reflective skill development –strategies and resources 124
5.2.3 Time 128
5.2.4 Staff training and development 129
5.2.5 Learning with others 132
5.2.6 Theory and practice 133
5.3 Assessment 134
5.3.1 Perceived relevance 134

Professional Issues 138
5.4 Policy and curriculum requirements 138
5.5 Perceived importance of reflection 138
5.5.1 Patient care 138
5.6 The Facilitator 139
Conclusion 141

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS 145
6.1 Conclusion 145
6.1.1 Teaching preparation 148
6.1.2 A core educational strand 149
6.1.3 Formal education 150
6.1.4 Resources 151
6.1.5 Policy development 152
6.2 Recommendations 153
6.3 Personal reflection 157

BIBLIOGRAPHY 158

APPENDICES

Appendix 1 Deep and surface approaches to learning
Appendix 2 Reflection-final year assessment criteria
Appendix 3 Search strategy
Appendix 4 Interview guide
Appendix 5 Date coding
Appendix 6 Examination of transcript
Appendix 7 Policy and University documents-comparison
Appendix 8 Criteria of an educational case study
Appendix 9 Participant information and consent form
Appendix 10 Ethics approval-University of Dundee & University of Strathclyde
Appendix 11 Student Data
Appendix 12 Tutor Data
Appendix 13 Educator Data
Appendix 14 Personal reflection

GLOSSARY

ABSTRACT

This study set out to explore the students', tutors' and faculty educators' understanding of reflection, in order to elicit their experiences in medical education. Within the wider national policy contexts of *The Scottish Doctor Learning Outcomes* (SDMEG, 2002, 2008) and *Tomorrow's Doctors: Recommendations on Undergraduate Medical Education* (GMC, 2003), there is a requirement for the doctor to reflect on their personal and professional skills, and reflect on their ways of learning as well as the learning itself.

With a view to focusing on a specific situation, that is the individuals within one organization, a small scale, exploratory case study was undertaken within years one to three of an undergraduate medical curriculum. A qualitative approach using semi- structured interviews and documentary evaluation was carried out. Semi-structured interviews were conducted and analysed with seven students, eleven tutors and eight faculty educators all of whom work in medical education within one university in Scotland.

The importance of reflection is frequently noted in the literature as an essential characteristic for professional competence. Recognised as one of the desired outcomes by which medical education nurtures reflection, one would think that where and at what level it is taught within the curriculum would be made explicit.

The evidence suggests that students, tutors and educators have an incomplete understanding of reflection, the cause of which exists at several levels, not only at curriculum level but also at the level of the educator, tutor and student. Whilst the study presents information regarding curriculum deficits and individual needs it also signifies that policy documents are not clearly understood and suggests that there is a need for education.

It was clear that assumptions were made by participants regarding the teaching, learning and assessment of reflection indicating a need for a review of student and tutor preparation.

The research has highlighted the need for a much greater emphasis on reflection in or through teaching, learning and assessment. Suggestions to overcome these are offered.

1 INTRODUCTION

This chapter outlines the research focus and aims, the background to the research, its limits and design. It closes with a brief overview of the remaining chapters of the thesis.

1.1 Research focus and aims

The focus of this research is on the students', tutors' and key faculty educators' understanding and experience of reflection as it relates to learning and practice during years one to three of a five year combined Bachelor of Medicine and Bachelor of Surgery (MBChB) undergraduate degree programme within one University in Scotland.

The concept of 'reflection' is becoming more widely mentioned in the medical literature but often different terms are used to describe similar processes. As numerous definitions of 'reflection', 'reflective practice' and 'critical reflection' exist within the literature it is important to consider how these terms are used within this study, the extent to which they overlap with other concepts such as critical thinking, thinking skills, meta-cognition and reflective judgement, within the context of medical education.

Dewey (1933) who himself drew on the ideas of the many early educators such as Plato, Aristotle, Confucius is acknowledged as a key originator in the twentieth century of the concept of reflection. He defined reflection as, 'active, persistent and careful consideration of any belief or supposed form of knowledge in the light of grounds that support it and the further conclusion to which it tends' (1933, p. 9). He considered it to be a special form of problem solving, thinking to resolve an issue. Taken from its Latin origins: 'to bend' or 'to turn back,' reflection for Taylor (2001, p. 3) is the throwing back of thoughts and memories, in cognitive acts such as thinking, contemplation, mediation or any other form of attentive consideration, in order to make sense of them, and to make the contextually appropriate changes that are required.

Reflection is an essential component of reflective learning and reflective practice. Reflective learning has the intention of improving learning and when this happens in the context of working with the ill defined problems of professional practice it is often called reflective practice. Reflective practice is something more than thoughtful practice. It is this form of practice which seeks to reappraise many situations of professional performance so that they can become potential learning situations and so practitioners can continue to learn, grow and develop in and through practice (Jarvis, 1992).

Boyd and Fales (1983) advocate the use of critical reflection differentiates between those who merely become proficient in their learning and teaching and those who are also cognitively or affectively changed by the experience. In the medical context it is conceived as the ability of doctors to think critically about their own reasoning and decisions (Mamede & Schmidt, 2004). Critical reflection is:

> 'a window through which the practitioner can view and focus the self within the context of his/her own level of experience in ways that enable him/her to confront, understand and work towards resolving the contradictions within his/her practice between what is desirable and actual practice.' (Johns, 2000, p. 34)

Indeed, the term 'reflection' may be problematic in as much as a range of definitions exist. Therefore, the terms 'reflection', 'reflective practice' and 'critical reflection' will be discussed more fully in Chapter Two.

This study is different in character from other studies on reflection reported in nurse, teacher, general education and medical publications. Arseneau, (1995); Snadden, Thomas, Griffin, and Hudson, (1996); Ker, (2003); Boenink, Oderwald, de Jonge, and van Tilburg, (2004) have described interventions using reflective learning techniques and strategies to develop the student's reflective skills and abilities to evaluate new and existing programmes. Much of the literature suggests that there is an assumption that tutors know how to reflect and can teach reflection. It is also assumed that students, on completion of their course, are able to reflect critically on practice (Hatton & Smith, 1995; Kuit, Reay & Freeman, 2001; Mamede &

Schmidt, 2005). As a consequence of reflecting they contribute to their own personal and professional development. However, students routinely acquire knowledge without having the ability to use it in a meaningful context. Thus, there is a need for participation in authentic activity and to observe practitioners 'wrestling with problems of the world' (Patel, Glaser & Arocha, 2000, p. 259). The learner becomes involved in the community of practitioners and increasingly assumes the role and identity of full participants. Accepting this without examination presumes that tutors and students understand, and can apply the skills of reflection to their development needs and their teaching.

The starting point for this study was a belief based on professional experience that although these areas are said to be important within medical education and the profession they are not systematically incorporated to any great extent within the present teaching and learning.

The concern to be addressed is that the educational needs of the students and tutors are not being met by a Scottish Medical School curriculum provided by medical educators. To fill this gap and to gain a more comprehensive understanding of the situation a case study design is used to explore the participants' level of knowledge, their experiences of reflective learning and teaching, and how these relate to their educational requirements. Qualitative data was gathered and analysed.

The Medical School in this study delivers an integrated, systematic course in which contributions come from anatomy, biochemistry, physiology, pharmacology, behavioural science and public health. The undergraduate programme recruits approximately one hundred and sixty students each year and the education is delivered by a range of professionals within the five components of the course. These five components are Systems Based Teaching, Ward Based Teaching, Clinical and Communication Skills, Integrated Teaching Area (ITA) and Doctors, Patients and Communities (DPaC) (the community part of the programme).

The thesis presents evidence, gathered throughout the study, of the individual participants' understanding and experience of reflection in answer to the overall research question: 'What are the students', tutors' and educators' understanding and experience of reflective practice and reflective learning within the MBChB undergraduate degree programme?' Reflection is examined in terms of their understanding of its meaning in context as 'reflection', 'critical reflection' and 'reflective practice'. There is also a focus on the individuals' experience of the teaching and assessment process. Policy and curriculum documents have been examined to find out what the Medical School requirements are for the student and teacher to reflect.

1.2 Background to the research

This section outlines the background to the research by discussing the policy documents which are significant to the relevance of reflection within the teaching, learning and assessment of medical education.

1.2.1 The policy and historical context of reflection within the Medical School curriculum

In the United Kingdom (UK) the General Medical Council (GMC) has a statutory responsibility for determining the extent of the knowledge and skill that is required for the granting of primary UK qualifications. It also decides the standard required from the candidates at qualifying examinations. The GMC fulfils this responsibility by issuing recommendations about undergraduate medical education to the universities with Medical Schools. It also undertakes visits to the Medical Schools to monitor teaching and to inspect qualifying examinations.

In 1993, British undergraduate medical education struggled to prevent factual overload from suppressing critical thinking (General Medical Council, 1993). As a consequence of the recommendations from the General Medical Council, renewed efforts to define core knowledge and encourage critical thinking and reflection began to be expressed in medical education policy.

Modern day changes in medical education have identified standards which students must achieve before they become qualified practitioners. The *Tomorrow's Doctors: Recommendations on Undergraduate Medical Education* (General Medical Council GMC, 2003), *The Scottish Doctor: Undergraduate Learning Outcomes and their Assessment: A Foundation for a Competent and Reflective Practitioner* (Scottish Deans' Medical Education Group SDMEG, 2002, 2008) and *'Learning Together'* (Scottish Executive, 1999) policy documents have highlighted the need for the professional to be reflective about their personal and professional skills and reflect on their ways of learning as well as on the learning itself.

The standards set within *The Scottish Doctor* learning outcomes (also referred to by students and staff within this Medical School as The Dundee learning outcomes) include twelve learning outcomes:

1/Clinical skills
2/Practical procedures
3/Patient investigation
4/Patient management
5/Communication
6/Health promotion and disease prevention
7/Medical informatics
8/Basic social and clinical sciences and underlying principles
9/Attitudes, ethical understanding and legal responsibilities
10/Decision making skills and clinical reasoning and judgment
11/The role of the doctor within the health service
12/Personal development

These outcomes are significant as they clearly define the qualities and abilities essential for a competent and reflective doctor and for the continuing professional development of medical graduates from any of the five Scottish Medical Schools (Universities of Aberdeen, Dundee, Edinburgh, Glasgow and St Andrews) (GMC, 1993; SDMEG 2002, 2008).

Since the first publication of *The Tomorrow's Doctor* sixteen years ago there has been a greater focus in education on an outcome-based approach and a new agenda for medical education with a reorientation from process to product (Harden, 2002):

> 'In line with current educational theory and research we have adopted an outcome-based model. This sets out what is to be achieved and assessed by the end of the medical course in terms of knowledge, skills, attitudes and behaviour. It is hoped that this approach will be more user friendly, making it clearer to both teachers and students what has to be achieved by the time of graduation.'
>
> (Rubin & Franchi-Christopher, as cited in SDMEG, 2008, p.7)

The publication of the third edition of *The Scottish Doctor* clearly states:

> 'It has been recognized that we cannot expect to deliver our learning programme effectively and to choose the most appropriate tools for the task if we have not made the learning outcomes for our courses explicit.' (SDMEG, 2008, p. 6)

1.2.2 Approaches to teaching, learning and assessment in medical education

The report by the GMC examines critically current teaching, learning and assessment approaches in medical education. It emphasizes the role of learning that includes putting the GMC guidance into practice, highlighting and sharing good practice. Additionally it considers the strengths and weaknesses of the guidance, and the developments in educational theory and research, and professional practice. The GMC's recommendations provide the framework that the United Kingdom Medical Schools use to design detailed curricula and schemes of assessment. The policy documents inform the process of curriculum design and development, and how the outcomes can be assessed.

Assessment within Medical School is concerned with the way doctors think and act. This involves:

- *accessing relevant knowledge and experience* (thinking) and gathering relevant new information (doing).
- *evaluating all relevant information and decision making* in relation to patient management (doing).

- *identifying and re-evaluating own knowledge and experience* (thinking) and addressing own learning needs (doing).

(UoD, 2007, p. 19)

> 'Assessment performs many functions...it should not signify the end of learning or education but rather be an accessory in their acquisition. All too often, particularly from the medical student's point of view, the successful completion of the assessment means that they can then forget about the topic or subject and move onto the next. Outcomes based education, with an emphasis on progression and different levels of achievement for each outcome, can break this inefficient cycle, but only if supported by robust, effective and appropriate assessment.'
>
> (SDMEG, 2002, p. 4)

.

While there may be a lack of detailed methods for teaching and learning, the recommended methods of assessment include: reflective essays and reflective writing; reflective videos and portfolio case studies, and they encourage specific strategies to enable deep learning (SDMEG, 2002, p. 38). Campbell suggests that, 'Deep learners are intrinsically motivated and incorporate the new ideas they are learning with existing knowledge and personal experience' (1998, p. 1). Deep learning is promoted by applying learning to problem-based situations, encouraging discussion and structuring reflection. All these experiences are firmly embedded in medical education. When considered in terms of Bloom's Taxonomy of Educational Objectives (1956) deep learning requires higher order cognitive thinking skills such as analysis, for example to compare and contrast, synthesis, comprehension and application whereby students are required to integrate components into a new whole. Thus, development of the student's 'higher order' thinking requires the learner:

> '…to go beyond the mere recall of factual information to develop a deeper understanding of topics, to be more critical about evidence, to solve problems and think flexibly, to make reasoned judgments and decisions rather than jumping to immediate conclusions.'
>
> (McGuinness, 2005, p. 107)

Surface learning, on the other hand, consists mainly of comprehension and reproducing knowledge, equal to rote learning which is often forgotten by students shortly after the course has ended. Campbell claims that 'Surface

learners are extrinsically motivated, those students typically motivated by grades wanting only to know what to study for the next test' (1998, p. 1). Gibbs (1992) and Ramsden (1992) summarize the difference between surface and deep learning (Appendix 1). This raises a general question: Which learning resources and strategies enable the medical student to develop deep learning or higher order thinking skills?

Regardless of this need for 'reflective and deep learners', neither the GMC nor the SDMEG make reference to how practitioners should develop these qualities and skills. Practice is central to learning in the profession and much emphasis is placed on the situated character of knowledge and skill. The medical student develops in the world of medical practitioners through an extended apprenticeship. Much of the practice of medicine is collaborative in nature whereby cognition in the workplace is shaped by the social context as well as the technologic and other objects that are embedded in the physical setting. Learning in medicine necessitates pattern recognition that leads to guided decisions under conditions of uncertainty and incomplete information (Patel, Glaser & Arocha, 2000). However, there may be an assumption that conceptual knowledge can be abstracted from the situation in which it is learned to a situation where it is used (Greeno, 1998). Thus, medical educators must consider the policy recommendations (Scottish Executive, 1999; GMC, 1993, 2003; SDMEG, 2002, 2008) which are essential to education and the challenges faced in putting these into practice.

It could be argued that deep learning or higher order thinking and meta-cognition are already present within the medical degree programme:

> 'Students must have different teaching and learning opportunities that combine an appropriate balance of teaching in large groups with small groups, practical classes and opportunities for self directed learning.'
>
> (GMC, 2003, p.12)

This may or may not be reflected in the teaching since the course documentation, issued by the Medical School, contains little advice on teaching methods. The teacher has an important role to play as facilitator of

learning: to guide students' reflective skills; to develop their thinking and meta-cognitive skills and to enable students to take responsibility for their learning. 'Teachers are the agents through which knowledge and skills are communicated and rules of conduct enforced.' (Dewey, 1973, p.18) However, it cannot be assumed that all curriculum objectives will be reflected in the teaching practices, particularly when the Medical School set out the aims, content and assessment arrangements but do not provide advice on the teaching approaches. The revised *Scottish Doctor* learning outcomes were developed not simply to define the product but also to assist curriculum planners, teachers, students and those responsible for postgraduate training.

Students' approaches to reflection on both 'thinking' and 'doing' can be assessed in the context of a portfolio by using written evidence from their clinical practice. In year one at this University, students are required to reflect within a personal development plan known as 'My PDP'. From year two students must complete, on a yearly basis, a Record of Achievement (RoA) (now known as the Record of Clinical Experience) as part of their assessment. The RoA is essentially a portfolio-based learning tool which recognises the 'centrality of reflection as a learning process' (Royal College of General Practitioners, 1993). For the purpose of this research study which commenced pre-2008 the term Record of Achievement (RoA) is used throughout. In year five students complete a final year assessment and submit a portfolio of evidence which determines the student's readiness to proceed from the undergraduate programme to year one of the Foundation programme. An essential feature of the year five assessment is that the criteria against which students are assessed are the twelve curriculum outcomes. The evidence in the portfolio is a 'test of reflective ability' (UoD, 2007).

A pre-viva examination grading structure based on the evidence presented in the year five portfolio was developed by the Medical School to assess the students ability to reflect on three levels of increasing complexity. These are

description at level one; evaluation at level two; identification plus re-evaluation at level three (Appendix 2). Although recognised as a reflective grading structure for the year five assessment, I question whether structures are in place within the earlier year assessment to support the development of the students knowledge and understanding of reflection. There is no written exemplar coursework task or grading criterion visible within the years one to three curriculum documents.

1.2.3 The reasons for my interest in this research area

This research study was embarked upon in recognition of the argument that the teacher as researcher can make a valuable contribution to the debate in education. A main purpose of this work is to make such a contribution. I commenced this study with a view to understanding what participants know about reflection, how they define it and how, if at all, they use it in learning and in practice. Finally, how do they value reflection in their personal and professional development? Answers to these questions could then inform policy and practice in the teaching, learning and assessment to promote the process of reflection. The findings from this study will provide feedback to teaching staff and those involved in curriculum design as to the extent to which the aims examined in this study are achieved. It will also enable the development of resources which can be directed to meet the needs of the tutors and students.

The reason for focussing on this topic is twofold. Firstly, I have my personal experience in nursing and nurse education where reflection is a core component of a nursing curriculum. This experience has placed me in the position of an observer of the value of reflection for professional and personal development. Secondly, having transferred my career from nurse education to medical education in 2005 it became evident that there was much spoken on the need for the doctor to be reflective. Regardless of this, there was an indication from medical staff to suggest that there was little awareness among staff within the Medical School of how reflection could help staff and students develop their knowledge for practice. Furthermore,

within an ‘airing and sharing’ medical conference workshop reflection was discussed with medical educators from the five Scottish Medical Schools (F. Muir personal communication, Aberdeen, Dundee, Edinburgh and Glasgow ADEG Conference, January 2006). Anecdotal evidence emerged to suggest that medical teachers support the view that there is a lack of understanding of how and where, if at all, reflection is integrated and aligned within the curriculum. Other questions arose. What, if any, educational techniques such as reflective models or frameworks are used or should be used to structure the process of reflection? If reflection is a taught element of the programme who should teach and asses it? What experience and knowledge do tutors require to facilitate the process? The concerns voiced at the conference replicate those of the GMC (GMC, 1993) and Maudsley & Striven (2000) whereby the doctors preparedness to practise in a reflective fashion was questioned.

As a new Teaching Fellow in medical education at Dundee University, I chose to develop a Student Selected Component (SSC) in reflective practice for students in years two and three as part of my contribution to the curriculum development (Muir, 2006). SSC’s are special study modules which students choose to study in depth. They support the core curriculum and make up one third of the overall curriculum programme. The reflective practice SSC was facilitated by me using a problem based and reflective approach to learning. During the module the student participant group expressed concern about their lack of knowledge of reflection. This information sparked my curiosity as to what students knew about reflection and what teaching they had been given within the medical programme in order to reflect.

These experiences frame my view of research interest and methodology in ways that are reflected in this thesis.

The subject of the research is important because in the past twenty years the term ‘reflection’ has increasingly appeared in education. A major goal of

medical education is to teach or help students learn how to be professionals and lifelong learners. Graduates are expected to have the motivation and technical skill for safe practice, to maintain existing competencies, acquire new ones, and to remain dedicated in their commitment to professional values. As individuals, they are required to keep themselves as competent professionals as they cross the threshold of their medical education programme. While Medical Schools and other healthcare professions refer to the term 'reflection', the perception of reflective practice has widespread application. Additionally, reflective practice discourse has become an integral feature of the professional standards for teachers in the UK. In Higher Education it is seen as a transferable skill, evidence of which is required by the Quality Assurance Agency (Higher Education Academy, 2005).

The main objective of this research is to add significantly to knowledge in a specific area of medical education. Therefore, its aim is to explore the students', tutors' and key faculty educators' understanding and experience of reflective practice/reflective learning during years one to three of the MBChB undergraduate programme.

1.3 The literature search and research design

This section considers my engagement with the literature and provides a brief but broad overview of some aspects of the research design. Further details of the research design will follow in Chapter Three.

The first task of the literature review process involved identifying the key concepts and establishing criteria for the selection of studies. Four broad areas of reading are identified all of which will be discussed in detail in the forthcoming chapters. The first area is adult learning theory, in particular the role of reflection as the specific medical education strategy that supports reflective learning. Drawing on the literature of primary and secondary school education, and the problem solving strategies, Chapter Two considers cognition and meta-cognition strategies to support students in

overcoming their difficulties. The third area is on reflection in teaching, learning and assessment in medical education and on policy development. I shall discuss these three areas in greater detail in Chapter Two. The fourth area is the research design and research methods relevant to this study which I shall discuss in Chapter Three.

As there is a vast literature on reflection and reflective practice, the search strategy for this paper was set up to identify research papers on reflection and reflective practice with particular reference to medical education (Appendix 3). This revealed that there is a relatively small body of work relating to reflection in medical education and an abundance of information in terms of general education, teacher and nurse education.

In addition to the electronic sources, hard copies including published books were obtained from the library. The reference section of the university library provided other materials including theses and conference papers. A variety of other relevant documents were explored, for example curriculum documents i.e. Record of Achievement (RoA): a portfolio based learning tool which recognise the 'centrality of reflection as a learning process (UoD, 2005/06; 2006/07), Quality assurance process document (GMC, 2002), Annual review (GMC, 2004), Postgraduate certificate teaching in higher education (UoD, 2005). My supervisor, work colleagues, and conferences also provided sources of reference in this area.

Earlier in this chapter I identified numerous definitions of the term 'reflection' and conclude that as no one satisfactory definition exists, it is important for the study participants to clarify the meaning that they attach to the term. This will be addressed further in Chapters Two, Three and Four.

1.3.1 Research design

The research design uses a case study of twenty six participants from one Medical School in Scotland comprising seven medical students (3 male, 4 female in years one to three of the medical degree programme), eight faculty

educators (5 male, 3 female) and eleven tutors (5 male, 6 female). The faculty educators are practising National Health Service (NHS) medical clinicians who are directly involved in the Medical School curriculum design, development and teaching delivery. The tutors are General Practitioners and non-medical staff responsible for the curriculum delivery within the community part of the programme. The non-medical staff includes nurses, retired teachers, counselors and others. All participants were 18 years of age or older. Experience in medical education varied between one and twenty years. Five of the eight educators and one of the eleven tutors have a post graduate teaching qualification. Three of the seven students are graduate students and four students entered medicine after completing their sixth year studies at secondary school. These participants are representative of a pool of informants who have the potential to comment critically on their understanding and experience of reflection.

Various research designs were compared. These included: case study design, ethnography, grounded theory, phenomenology and action research. The justification for adopting a case study, the methods of collecting and evaluating the data, triangulation and the ethical considerations are all presented in Chapter Three.

The methods for data collection included: semi-structured interviews with documentary examination.

1.3.2 Research design - The case study

As mentioned earlier the research design uses a case study. Burns (2000) suggests that case studies are valuable preliminaries in major investigations because they are so intensive and generate rich subjective data. This rich descriptive real-life holistic account offers insight and meaning which may in turn become a tentative hypothesis for further research.

A qualitative research paradigm is used in an attempt to understand the meaning or nature of the individuals' personal experience through

interpreting their experience within their own environment. One of the main reasons for conducting a qualitative study is that the study is exploratory. I sought to listen to the participants and to build a picture based on their ideas. This thesis is about explaining what is happening without making a value judgment or trying to induce change.

I will show how participants in this study had a variable knowledge base and variable experience of using reflection whether as students or teachers. Teaching as a career is a continuum based on knowledge and skills which require initiation, induction and development. In-service training and staff development to support a better understanding of reflecting on practice could enhance the provision and quality of continuing professional development thus fulfilling the GMC's recommendations:

> 'Medical Schools must make sure that every person involved in educating medical students has the necessary knowledge, skills and attitudes. Staff development programmes should promote teaching and assessment skills. All staff should take part in such programmes.'
>
> (GMC, 2003, p. 11)

My analysis challenges the current approach to reflection in policy and practice. It has important implications for the practitioner's engagement in local curriculum design. My thesis is about exploring the current situation in order to identify the educational needs of the participant groups. I will suggest that there is a need to develop a structured and standardized method for reflection within medical education.

1.4 Structure of the thesis

The thesis is divided into six chapters-

- In **Chapter Two** I examine the literature concerned with reflection in the context of professional practice, taking account of the helpful nature of policy statements. I explore the following themes: adult education theory specific to reflection, key theoretical perspectives, the process of reflection, the notion of the reflective practitioner, meta-cognition and strategies for learning, policy development and its implications for the curriculum.

Reflective strategies are discussed in context throughout the chapter. Teaching, learning, and assessment, facilitating reflection and reflective thinking are also taken into account.

- In **Chapter Three** the research design is discussed. It draws on the qualitative paradigm, a rationale for using such an approach, justification for adopting the case study and why other designs were not chosen. It shows the approach to data collection and analysis. The following aspects are also covered: data gathering methods, semi-structured interviews, triangulation, ethical considerations, the participants, validity, reliability, reflexivity and the limitations of the study.
- In **Chapter Four** the findings and analysis of the data are presented. This chapter is divided into three sections which present data drawn from the interviews with students (7), tutors (11) and educators (8). The data is organised under two main themes and sub headings drawn from the research question.
- **Chapter Five** presents a discussion of the findings from Chapter Four. Several key themes are revealed. Each theme is important to the learning and development of the medical student and the teacher of medical education, and for the development of the medical curriculum. The findings are compared and a contrast is made with other literature.
- **Chapter Six** is the final chapter which provides an overall conclusion with a commentary on the study as a whole, including a synthesis of my findings, and recommendations arising from the study for future research and practice.

In addition to the appendices, in which I reflect on my study and what it means to me both personally and professionally, there is a bibliography and a glossary of the medical education terms. The full interview transcripts and data analyses are not appended because of their length. These have been retained separately in a file which can be obtained from the author. I have included some examples as appendices.

2 REVIEW OF THE LITERATURE

2.1 Overview

In the literature, reflection and critical reflection are consistently referred to, with many interpretations of reflective practice and the philosophical assumptions underlying the theory. If academics, practitioners and students are required to be reflective they must be able to understand the term. Therefore, it is important to first clarify what is meant by reflection, reflective practice and critical reflection.

Key definitions of reflection and critical reflection derive from the early work of educationalists such as Dewey (1933) and Schön (1983). In the final two decades of the twentieth century these two terms have increasingly appeared in the educational literature to support practice and practice development, education and research. Many studies support the value of reflective practice (Boud, Keogh & Walker, 1985; Schön, 1987; Smyth, 1989; Ross, 1989; Mezirow, 1990; Osterman & Kottkamp, 1993; Maudsley & Striven, 2000; Howe, 2002; Boenink, Oderwald, de Jonge, & van Tilburg, 2004; Mamede & Schmidt, 2005; Grant, Kinnersley, Metcalf, Pill, & Houston, 2006; Roche & Coote, 2008). Numerous writers have contributed definitions of reflection and critical reflection, among them Boyd and Fales (1983); Boud, Keogh and Walker (1985); Jarvis (1992); Reed and Proctor (1993); Reid (1993); Glen, Clarke and Nichol (1995); Wong, Kember, Chung and Yan (1995). Reflection is described using numerous terms: memory, thinking, thought, indication, mirror image. Although wide ranging and difficult to define completely, Hancock reviews the numerous definitions that exist and concludes the following common characteristics:

> '...is based in practice; is capable of developing new knowledge; is consciousness raising; helps turn experience into learning; raises self awareness; develops intellectual skills; liberates individuals from conventional, traditional ways of thinking; is creative; can be both an adult and experiential learning technique.' (1998, p. 38)

As there is a vast amount of research and writing relevant to reflection, this chapter focuses only on one aspect of adult learning theory, specifically

reflective practice, and on reflective education as the specific medical education strategy that supports reflective learning and reflection. In particular, the review addresses relevant education theories, reflection specific models and the concepts which relate to reflective practice. These may inform the development of an approach to reflective education which meets the students' and tutors' needs. These topics may inform the development of a theoretically informed basis of practice whereby a more critical approach is advocated.

With a growing demand from professional bodies to enhance the development of professional competence it is important to acknowledge the ways in which theory and practice, with respect to reflection in medical education, are delivered (Maudsley & Striven, 2000; Howe, 2002; Boenink *et al.*, 2004; Mamede & Schmidt, 2005). The focus of this review is on student and tutor specific (medical) education needs that relate to reflective learning and the degree to which reflective practice education provided by healthcare professionals aligns with the needs of the student, the tutor/teacher and the curriculum.

This chapter begins by considering issues derived from the key theoretical perspectives and notions of learning prevalent in the early 1900's. This study cannot consider all theorists but the ones who have significantly influenced education are Dewey (1933) and Schön (1983). Reference is also made to the changes which have affected medical education in the last twenty years, in relation to the policy perspective within the context of reflection.

Although one aim of this research is to explore educationalists' (which includes both the tutors and faculty educators) and students' understanding and experience of reflection there is only a very limited literature available in the medical field. However, relevant literature from other healthcare and non-medical programmes are reviewed. The literature broadly covers

published work in journals and grey literature, principally handbooks and web based material emanating from the medical programme itself.

2.2 Key theoretical perspectives

John Dewey is an obvious starting point for any examination of reflection because he has been involved in contemporary work on reflective education since the early 1900s. Acknowledged as a key philosopher of education, Dewey (1933, p. 9) defined reflection as, 'active, persistent and careful consideration of any belief or supposed form of knowledge in the light of grounds that support it and the further conclusion to which it tends.' His basic idea was that reflection may be seen as an active and deliberate cognitive process, involving sequences of interconnected ideas which take account of underlying beliefs and knowledge (Hatton & Smith, 1995). Dewey (1933) considered a reflective experience to have a proper sequence: perplexity, confusion, or state of doubt from the situation reflected on. In this sense, reflection shares many similarities with our understanding of critical thinking.

Critical thinking is defined as an intellectually disciplined process. 'Thinking about your thinking, while you are thinking, in order to make your thinking better' (Paul, 1992, p.7). It is a meta-cognitive process essential for reflection which requires both discipline and restraint.

> 'Discipline is needed to actively and skilfully conceptualise, apply, analyse, synthesise, and/or evaluate information gathered from, or generated by observation, experience, reflection, reasoning or communication. Restraint relates to systematic reasoning, testing of inferences, and weighing evidence.' (Rideout, 2001, p.58)

When we think critically we are required to put together a vast variety of cognitive skills, such as reasoning skills, concept formation, inquiry skills and translation skills (Lipman, 1988). Within the context of medicine critical thinking within the clinical setting includes: clinical reasoning and decision making, clinical judgment, moral and ethical reasoning, medical research, quality improvement and clinical learning. Out with the clinical setting it includes: classroom learning, test taking, daily reasoning and

decision making (e.g. stress management, time management, long term life management) (Alfaro-LeFevre, 2007). The relevance of critical thinking is related to the shift from learning to thinking as the focus of education and to the goal of helping students develop the reasoning skills that will enable them to exercise good judgment. Being aware of potential cognitive biases in routine thinking can help doctors become better and safer practitioners (Mar, Doust & Glasziou, 2007).

Thus, critical thinking enables the learner to think fairly, explore and appreciate their own beliefs and opinions, as well as those of others. Critical thinkers defer judgment until all the evidence is considered. According to Kataoka-Yohiro and Saylor (1996) students who have integrated the skills of critical thinking will also exhibit such attitudes and behaviours as: confidence, independence, fairness, responsibility, risk taking, discipline, perseverance, creativity, curiosity, integrity, humility and developing critical thinking skills. The outcomes of critical thinking are judgments (Lipman, 1988).

Doctors are professionals whose work constantly involves making judgments. Wherever knowledge and experience are not only possessed but applied to practice, we are likely to see clear instances of judgment. A good doctor not only makes good diagnoses of patients and prescribes well for them, but also makes good judgments about medicine and the ability to practice it (Lipman, 1988). Making a diagnosis is a fundamental cognitive activity of every practicing doctor. With the high cost of health care, increased patient awareness, medico-legal and insurance pressures, every doctor must be empathic, accountable and cost-effective in patient care. Diagnosis must therefore always be logical and well founded based on a consideration of the internal and external environment of a human being. Part of becoming a competent doctor is learning the vast number of facts necessary to practice medicine. Cognitive science is primarily concerned with characterising the knowledge structures and cognitive processes underlying human performance (Patel, Glaser & Arocha, 2000). Studies in

medical decision-making have characterised the cognitive and socio-cultural factors which include, use of memory, well organised knowledge and productive problem solving strategies to enable successful performance (Chi, Glaser & Farr, 1988; Feltovich, Ford & Hoffman, 1997). The essential elements of critical reasoning are cognition (reflective enquiry), a strong underpinning of discipline specific knowledge and meta-cognition (which provides the integrative element between cognition and knowledge). Thus, expertise requires an ability to undertake a reflective process that includes associating experiences and integrating them in terms of patterns (Boud, Keogh & Walker (1988).

Dewey (1974) suggested that, 'the aim of education is the development of individuals to the utmost of their potentialities' (p.12). Education is considered to be a process of development and growth; it is the process and not just the outcome which is important. The experience was more of a concern than the reflection itself. Thus, he maintained that sound educational experience involves continuity and interaction between the learner and what is learned. Education must be conceived as a continuing reconstruction of experience; that the process and the goal of education are one and the same thing. The principle of the continuity of experience or what may be called the experiential continuum is to discriminate between those experiences which are worthwhile educationally and those which are not.

Dewey (1964) insists that neither the old nor the new education is adequate because neither applies the principles of a carefully developed philosophy of experience. He believes that all genuine education comes from experience and that, 'all principles by themselves are abstract which become concrete only in the consequences which result from their application' (Dewey, 1938, p.20). In terms of the medical practitioner an idea is complete only when it furthers some interest in life, for example health or success. He suggests that the science and philosophy of education can and should work together in

overcoming the split between knowledge and action and between theory and practice, which now affects both education and society.

The main purpose is to prepare the young for future responsibilities and for success in life, by means of organized bodies of information and prepared forms of skill which draw on the material of instruction. 'A given experience may increase a person's automatic skill in a particular direction and yet tend to land him in a groove or rut, the effect being to narrow the field of further experience' (Dewey, 1938, p.26). Dewey (1973) suggests that the agreement of the newer philosophy is found in the idea that there is an intimate and necessary relation between the process of actual experience and education. However, he adds that not all experience is considered educational. Learning is dependent upon the process of reflective thinking, which he suggests, results from puzzling situations or uncertainty followed by the act of deliberate inquiry to resolve the troubling situation. He believed that education must employ progressive organization of subject matter in order that an understanding of this subject matter may illuminate the meaning and significance of the problem. Every experience influences to some degree the objective conditions under which further experiences are had. Clearly epistemology, the branch of philosophy which focuses on theories of knowledge, impacts on cognition/thinking.

Building on his definition of reflection, Dewey (1933) offers a reflective process model which includes: pre-reflection or the state of doubt that sets thinking in motion; reflection, which is akin to problem solving and post reflection in which, having solved the problem, there is a feeling of mastery, satisfaction and enjoyment. Reflection is also perceived by Van Manen (1977) to consist of three levels. He identifies a related classification of different forms of reflective thinking. The first level, the lowest level of reflection includes the technical aspects known as technical rationality whereby the teacher is concerned with the technical application of knowledge and basic curriculum principles i.e. does the student apply the basic skills in the classroom environment and is the student on-task? The

second stage is known as the practical application. The teacher becomes more concerned with clarifying assumptions while addressing educational consequences and there is an analysis of the activity i.e. if and how goals are being met. The third level involves critical reflection, an exploration of the underpinnings of practice that enables the student and the teacher to engage in broader cognitive processes including moral and ethical aspects. The teacher is concerned with the worth of knowledge without personal bias i.e. was the content important to the student? Thus, good judgments are the products of skilfully performed acts guided by or facilitated by appropriate instruments and procedures (Lipman, 1988). In support, Johns (1994) developed a series of questions to guide the reflective process providing a comprehensive and valid means of 'knowing' the breadth and depth of reflection.

Dewey's philosophy has influenced the development of theories on how individuals construct knowledge through experience (e.g. Schön, 1983; Kolb, 1984). The common thread among these theories is that knowledge and learning are fundamentally embedded in the activity, context and culture. For Schön (1983; 1987) knowledge construction is a process of critical reflection-in-action and reflection-on-action, dependent on the element of surprise. Reflection-in-action happens at the time of practice and reflection-on-action happens after practice. More recent writers (Mezirow, 1990; Boud, Keogh and Walker, 2000) support the idea that reflection is a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations. Reflective learning is 'a process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self, and which results in a changed conceptual perspective' (Boyd & Fales, 1983, p.113).

The process of reflection is usually discussed in stages or levels (Mezirow, 1981; Boyd & Fales, 1983; Schön, 1990; Boud, 1995). Mezirow (1990) points out the importance of considering what one is reflecting about: the

content, the process, or the premise. Hatton and Smith (1995) suggest that we must consider specific terms that allow us to refer to forms of written reflection and the different forms that can reliably be identified in texts. Descriptive reflection includes justification for practice, and dialogic reflection involves an analytical discussion which draws on different alternatives and critical reflection. As a result, when considered as an educational practice, reflection is viewed as a vital learning tool with implications for the teaching and learning process (Schön, 1983, 1990; Mezirow, 1991; Brookfield, 2000 as cited in Wilson Hayes, 2000, p. 33-49). Therefore, these studies, in relation to professional programmes, suggest that we need to consider the notion of reflection and reflective thinking and the way in which it is applied to practice.

Nevertheless, even with these theories, future research still needs to consider how they can be utilised when so little instruction is given within the curriculum to the process involved in reflecting. Students are expected to reflect when they may lack an understanding of the process and thus may struggle to do so. If sound educational experience involves continuity and interaction between the learner and what is learned medicine might therefore benefit from Dewey's (1933) standpoint, that critical thinking should be grounded in reflecting upon both experience and knowledge. Reflective thought, according to Dewey prevents us from 'merely impulsive and routine activity', and enables us to direct our new activities with foresight and to plan our goals accordingly (1933, p. 17).

The thinking provided by Dewey remains open and many theorists have introduced further terms to clarify the topic. According to Brookfield (1987), being a critical thinker is part of what it means to be a developing person and fostering critical thinking is crucial to creating and maintaining a healthy social equality. Critical thinking implies being aware of the assumptions fundamental to our actions and responses, paying attention to the context within which our actions and ideas originate, questioning single answers to problems and claims to universal truths and being open to

alternative ways of looking at and acting in the world. 'Any experience that has the effect of arresting or distorting the growth of further experience is mis-educative.' (Brookfield, 1987, p. 25)

Dewey (1973) acknowledges that what it needs in the new education is more attention, not less, to subject matter and to progress in technique. He suggests that the fundamental unity of the newer philosophy is found in the idea that there is an intimate and necessary relation between the process of actual experience and education. He suggests that the very process of living together educates: it broadens and enhances experience, it stimulates and enriches imagination, it creates responsibility for truth and intensity of communication and thought. 'Man living alone would have little or no occasion to reflect upon his past experience to extract its net meaning' (Dewey, 1916, p.7).

Dewey's epistemological position, which places emphasis on the education and the experiential world of the child, is clearly similar to Schön's position which draws attention to professional practice and the experiential world of the practitioner. Professional practice, as influenced by Schön, focuses on the relationship between academic knowledge, as defined in the universities, and the competence involved in professional practice. He acknowledges that reflective practice can bridge the theory-practice gap based on the potential of reflection to uncover knowledge in and on action. In order to support this, Argyris and Schön (1974) suggest creating an environment that fosters reflective learning, whereby theory and practice can be combined.

Schön (1987) has challenged the traditional professional schools for not preparing students for competence in real life practice. He affirms that the educational preparation of professionals should be centred on developing the practitioner's ability to reflect. He brings his idea of reflection in and on action into the centre of any understanding of what professionals do. According to Schön, reflection-on-action refers to the tacit process of thinking which accompanies doing and with constant interaction and

modifying practice this process leads to learning. When viewed as an educational theory, many authors have agreed that reflection is a vital learning tool with implications for learning and the teaching process (Schön, 1983, 1990; Mezirow, 1991; Brookfield, 2000). Practitioners need coaching and tools for dealing with practice problems, which, through reflection, may lead to a change in practice.

Schön (1987) instigated the wider use of the term 'reflective practitioner' and observed that many professional education courses had not recognised the nature of professional practice. Professional education should equip students to become reflective practitioners who could deal with multi-faceted problems. In 1983 Schön considered two kinds of knowledge, 'technical-rational' and 'tacit' knowledge. He suggested that a technical-rational approach teaches procedures for solving well-defined problems. However, if we turn from the model of technical rationality to the actual practice of science based professionals, it is clear that the technical problem solving is an incomplete description of what physicians do.

Schön observed that many professional education courses use a technical-rational approach. He argued that students, as they become reflective practitioners within professional education, should be equipped to deal with complex problems. Thus, these problems and situations need to be considered in relation to beliefs and knowledge, and as Brockbank and McGill (1998, p.56) propose, 'a process of reflective practice can be carried out by professionals through which aspects of practice are considered and adapted.' Argyris and Schön (1974) defined the purpose of reflective practice as the creation of a world that more faithfully reflects the values and beliefs of the people in it, through the construction or revision of people's action theories. Schön (1983) introduced the concept as one which uses reflection as a tool for revisiting experience, both to learn from it and also to be able to frame complex problems for professional practice. Learners explore their understanding of their actions and experience and the impact of this on themselves and others.

2.3 Meta-cognition

In 1986, Perkins and Martin (as cited in Soloway & Iyengar, 1986, p. 213) studied twenty high school subjects undertaking a sequence of eight programming tasks, ranging from easy to difficult. The students were in the second semester of a year-long course. Improvement in programming was attributed to direct or indirect encouragement of strategic self prompting, specifically meta-cognition. Meta-cognitive strategies are sequential processes that can be used to control cognitive activities and to ensure that a cognitive goal (e.g. understanding a text) has been met. These processes help to regulate and oversee learning and consist of planning and monitoring cognitive activities, as well as checking the outcome of these activities. Knowledge is considered to be meta-cognitive if it is actively used in a strategic manner to ensure that a goal is met. For example, in medical education, cognitive strategies can help an individual achieve a particular goal (e.g. understanding a text), while meta-cognitive strategies can be used to ensure that the goal has been reached (e.g. quizzing oneself to evaluate one's own understanding of that text). Applying Perkins and Martin's (1986) study to healthcare, one can ask what the students know and what they don't know about reflection. Do they understand the basic language of reflection? Do they possess reflective strategies for reflecting? One can speak roughly of a continuum of low level knowledge of the particular benefits reflection offers and greater theoretical and general methods of reasoning. With such a continuum in mind, is the discrepancy in low level knowledge or in a high level strategic range? However, as Perkins and Martin's (1986) suggest, in pursuing this, one has to recognise a certain oversimplification in the questions, namely knowledge comes across as a 'you have it or you don't' attribute.

Research by Flavell (1979) divides meta-cognition knowledge into three categories: knowledge of person variables, task variables and strategy variables. Cognitive and meta-cognitive strategies differ in function but they are closely intertwined and dependent upon each other. Therefore, any attempt to examine one without acknowledging the other would not provide

an adequate picture. This holds several implications for instructional interventions, such as teaching students how to be aware of their learning processes and products as well as how to regulate those processes for more effective learning.

Prior to Schön's work in 1983 in which he considered two kinds of knowledge ('technical rational' and 'tacit' knowledge) Polyani in 1967 observed that much of our knowledge is implicit or 'tacit' and cannot always be revealed. Tacit knowledge lies outwith the domain of rules and procedures and covers those aspects of human knowledge, skills and competencies which can often be difficult to articulate. Polyani's concept of tacit knowledge is in the layers of knowledge which pre-suppose explicit skills, competencies and the ability to reason. These layers are called the tacit dimension – tacit knowledge is for example, knowing a face but we cannot tell how we know it, so this knowledge cannot be put into words. The physical body is the basis of our knowledge, intellectual as well as practical and all knowing is personal knowing (Polyani, as cited in Kinsella, 2007, p. 396). By this he means that all knowledge is acquired by the knower by means of physical and mental processes. It is not the same as personal knowledge of a subject. No matter what type of activity we are engaged in, we act on the basis of tacit knowledge. To learn to use a tool or a skill properly we need to accommodate and embody it. If we accept that there is a tacit dimension to all knowledge and that we act on the basis of tacit knowledge, then we must consider how this affects our understanding and use of reflection in medical education.

The student may know something about the language but perhaps not enough. Often the person 'sort of knows', has a notion without being able to gather together enough knowledge with sufficient precision to carry a problem through to a sound solution. Returning to the study of Perkins and Martin's (1986), one might say that learners have fragile knowledge, and under the general label of fragile knowledge a number of questions can be addressed. For example, do students have knowledge of methods they do

not succeed in learning? Can deliberate prompts trigger learning? Is it that students do not have certain knowledge or do they get confused about when to use the knowledge they have?

Missing knowledge is knowledge the student has either not retained or never learned, as revealed by disclosing no sign of the knowledge. Perhaps the simplest sort of fragile knowledge is partly missing knowledge: a medical student knows something about reflection but has minor gaps that impair the student's functioning. Inert knowledge is knowledge which the student fails to retrieve but in fact possesses, as revealed by a probe. It is 'knowledge that a person has, but fails to muster when needed' (Perkins & Martin, 1986, p. 218): a problem of transfer. Misplaced knowledge is knowledge applied in the wrong context. It occurs commonly in human experience as a negative transfer where the knowledge or 'know how' in question impairs rather than abets performance through the application in an unsuitable context. Conglomerate knowledge is knowledge which unites several dissimilar strands of knowledge in an inconsistent way in an attempt to provide the individual with the information he or she needs. This appears when the student composes information that expresses loosely the intent without following a structure (Perkins & Martin, 1986).

Meta-cognition plays a critical role in successful learning and, as a concept, relates to reflection and is a part of our everyday activities. It is important to consider meta-cognitive activity and its development to determine how medical students can be taught to better apply their cognitive resources through meta-cognitive control. Meta-cognition refers to higher order thinking, which involves active control over the cognitive processes engaged in learning. Activities such as planning how to approach a learning task, monitoring comprehension and evaluating progress towards the completion of a task are meta-cognitive in nature and thus relate to reflective practice. These activities enable students to benefit from instruction and influence the use and maintenance of cognitive strategies. Whilst there are several approaches to meta-cognitive instruction, the most

effective involve providing the learner with both the knowledge of cognitive processes and strategies (to be used as meta-cognitive knowledge). Also there is the experience or practice of using both cognitive and meta-cognitive strategies and evaluating the outcomes of their efforts (develops meta-cognitive regulation). Simply providing knowledge without experience or vice versa does not seem to be sufficient for the development of meta-cognitive control (Livingston, 1996).

2.4 Policy development

Not until after reflection became associated with nurse education in the 1980s and 1990s, did it gain recognition within medical education. This is perhaps surprising as society expects doctors, too, to keep up to date in patient care and act only within the limits of their knowledge. Doctors need to be trained to meet the future manpower needs of the National Health Service (NHS). By the year 2000, critical reflection and self assessment were being recognised as important to professional practice. This had a major significance in healthcare and medical education. Its aim was to enhance the development of professional competence (Maudsley & Striven, 2000; Howe, 2002; Boenink *et al.,* 2004; Mamede & Schmidt, 2005). Reflection as a tool for learning may support the integration of theory with practice. Learning strategies such as reflective practice are beginning to play an important role, enabling the student to critically reflect upon their own decisions, which is a requirement of a competent practitioner. However, in exploring this through conversation I found that although the idea may be easily recognised by tutors, its actual meaning and interpretation for educators, tutors and students, and its integration within the medical degree programme of the particular institution may be somewhat difficult to conceptualise.

One of the aims of undergraduate medical education is to produce competent doctors who can judge the quality of their work, recognise deficiencies and improve future performance. With the introduction of the revised medical curriculum (SDMEG, 2002; GMC, 2003), reflective

learning is now a better recognized aspect of medical education; a valuable lifelong learning tool and a requirement for all doctors in the United Kingdom for the process of appraisal and revalidation. Informed by 'modern educational theory', (Brookfield, 1987; Knowles, Tyler, Gilburn & Eubank, 2006) the revised curricula aimed to promote self directed learning, critical appraisal of evidence, better thinking skills and a more meaningful experience (GMC, 1993). The subject of this research is important because of the growing interest in reflection which came from established bodies (GMC, 1993, 2003; SDMEG, 2002, 2008). Furthermore, The Bristol Enquiry (Department of Health (DoH), 2001) recommended that, non-clinical skills, such as communicating with patients and colleagues, and engaging in reflective practice, should be promoted and assessed. The growing emphasis on reflection throughout the 1990s and the subsequent consultation prior to the introduction of the new curriculum, are arguably only superficially an example of interactive policy development, implying that an agreed understanding of what is involved has been achieved. Unless practitioners, educators and students are familiar with current requirements, it is possible that there will be no change in individual practices of reflection. In spite of what is recorded on paper, variability is likely to remain. Arguably it is important to clarify what is meant by reflection as the term encompasses many concepts.

Medical education today requires collaborative and reflective practitioners who are lifelong learners and critical thinkers. The GMC (United Kingdom) within their 'Good Medical Practice' guide lists the duties of a doctor which include:

> 'You must keep your knowledge and skills up to date throughout your working life...you should regularly take part in educational activities that maintain and further develop your competence and performance'
> (GMC, 2006a, para. 12)

Despite this, there appears to be a lack of research into the value of reflection for lifelong learning and continuing professional development within medical education. Embracing the opportunities that the National

Health Service Plan (DoH, 2003) has created, whereby education providers can play a leading role in implementing policies for lifelong learning, it is essential that education strategies are developed by healthcare organizations in collaboration with education providers. This will bring about a workforce equipped with the appropriate knowledge base and competencies to meet the needs.

2.5 The Medical School and the curriculum

Traditional British undergraduate medical education required students to master large amounts of factual information. It did not take into account the diversity of capacities and needs that exist in different human beings. As a consequence, in 1993, the recommendations from the General Medical Council (GMC) renewed efforts to define core knowledge and encourage critical thinking and reflective practice. These ideas began to be expressed in medical education policy. Thus, the historical context of reflection within medicine came from within the wider national policy contexts of the General Medical Council and the Government's Lifelong Learning agenda, '*Learning Together.'* Learning together is part of a major review undertaken by the Scottish Executive into the provision of education tailored to individual needs within higher education. The requirement is for them to reflect on their personal and professional skills and reflect on their ways of learning as well as the learning itself (Scottish Executive, 1999). This should take place from the very first day of their training. Learning and Teaching Scotland (2007, p. 42) provide examples of the types of questions which provide a structure to the pedagogic approach in order to promote meta-cognition.

Grounded in theory and research from a variety of disciplines and sources (Dewey, 1933; Schön, 1987; Palmer, Burns & Bulman, 1994; Burnard, 1995; Johns, 1995; Johns & Freshwater, 1998; Freshwater, 2002, 2005), reflective practice and the reflective practitioner have emerged as terms in medical educational policy documents. Teacher and nurse education texts frequently referred to themes of reflective practice (Hatton & Smith, 1995;

Wanda, 1998). Health care in general has utilised problem-based learning based on the notion of constructivism to facilitate the development of reflection and critical reflection (Barrows, 1993; Creedy & Hand, 1994; Alavi, 1995). In support, nursing's statutory and educational bodies accept reflection as an essential component for the development of an autonomous, critical, reflective practitioner (Nursing & Midwifery Council, 2002, 2009; Higher Education Academy, 2005). Similarly, *The Scottish Doctor: Undergraduate Learning Outcomes* (SDMEG, 2002, 2008) and *Tomorrow's Doctors: Recommendations on Undergraduate Medical Education* (GMC, 2003), acknowledge these aspects of education as essential for a competent doctor and for continuing professional development whereby:

> 'Long-term intellectual and attitudinal demands of a professional life will constantly be challenged by growth of knowledge and change of circumstance.' (SDMEG, 2002; GMC, 2003)

The first agreed common outcomes of *The Scottish Doctor* Learning Outcomes were the result of a collaborative project, conceived and undertaken by the Scottish Deans' Medical Group. It included an extensive consultation with staff and students in all five Scottish Medical Schools. The starting point for the development of the outcomes was the definition of the essential elements of the competent and reflective medical practitioner (Harden, Grant, Buckley & Hart, 1999). These are:

- What the doctor is able to do ('doing the right thing' which can be equated to technical intelligences).
- How the doctor approaches his/her practice ('doing the thing right' which can be equated to scientific understanding, and with appropriate decision making and analytical strategies, including intellectual/academic, emotional, analytical and creative intelligences).
- The doctor as a professional ('the right person doing it,' which can be equated to personal intelligences and the development of the personal attributes of the individual).

Across higher education the notion of reflective practice is now widely employed, especially in professional contexts and in the personal development of students. The 'reflective practitioner' approach to professional practice (Schön, 1983, 1987) gained considerable attention in healthcare encouraging learners to link theory with practice, to analyse the situation, their involvement in it, and to draw lessons from this and turn the encounter into a new learning experience. The aim of this study is not to contest this view but to draw attention to how little research has been undertaken within medical education (Davis *et al.*, 2001; Driessen, Van Tartwijk, Vermunt & Van der Vleuten, 2003). To date, no research on the tutor's or student's experiences and understanding of reflective practice appears to have been done in Scotland although it is one of all Scottish Medical School curriculum criteria. This study is an attempt to fill that gap.

It has become common to describe schools as 'learning communities' (Clark, 1996) which are seen as vital agencies in the promotion of the learning society. This, it is argued, is needed if the social and economic challenges of the 21st century are to be met successfully. Teachers and other educators are encouraged to form 'communities of enquiry' and 'communities of practice' where experiences are shared, knowledge is disseminated and a climate of mutual support is created. The educational environment makes an impact on the student's learning experiences and outcomes, influencing how, why and what students learn (Roff, McAleer, Ifere & Battacharya, 2001).

Humes (2004) suggests that the core business of education is learning. Therefore, part of the University's duty is to ensure that undergraduate students are provided with teaching and learning opportunities necessary to acquire the relevant knowledge and skill. Although recognised as one of the desired outcomes by which medical education nurtures reflective practice '…the outcomes are based on the following essential elements of a competent and reflective practitioner' (first level) (SDMEG, 2002, p. 1), one would assume that where and at what level it is taught within the curriculum

would be made explicit. From the educator's perspective, the policy recommendations could be questioned as they are broad and do not have any substantial detail. Notions of professionalism and competence are contested terms within education and beyond the scope of this study to review in any depth. Schön (1987) has challenged traditional professional schools for not preparing students for competence in real life practice. He asserts that the educational preparation of professionals should be centred on enhancing the practitioner's ability to reflect.

Despite an increased interest in medical education, it is surprising that so few empirical studies on the nature of reflective practice have been conducted and little is known about how reflective practice is integrated into an undergraduate medical curricula and how it is assessed (Rees & Garrud, 2001; Nojnuis, 2001; Paton & Peters, 2001). The literature to date is limited to reports of attempts to implement reflective practices (Arseneau, 1995; Snadden, Thomas, Griffin & Hudson, 1996; Blase *et al.*, 2000; Boenink *et al.*, 2004; Mamede & Schmidt, 2008) and proposals of educational approaches for its development (Scott & Irby, 1997; Heidenreich, Lye, Simpson & Lourich, 2000; Ker, 2003; Grant *et al*., 2006). It is interesting to note that reflection in learning is recommended in undergraduate medical education, as well as postgraduate.

Three studies outside the medical arena, which are of interest in understanding how reflection can be incorporated within a programme of study, is described by Williams (1998), Teekman (2000) and Roche and Coote (2008).

Williams (1998) found in her study of radiographers within a new postgraduate programme, that all participants valued a core module on reflective practice. It was designed to enhance and regenerate the knowledge development potential of the students. There was also a need to reflect on the whole programme, with the aims and objectives of the programme devised to ensure that students are critically aware and reflective. Similarly,

the study by Teekman (2000) in which he interviewed ten registered nurses revealed that learning from reflective thinking is not something that happens automatically, rather it requires active involvement and a clinical environment that is supportive towards the learner's needs. A more recent study by Roche and Coote (2008) in which they explored students' perception of reflection and its potential contribution to their development before and after a module within a physiotherapy programme, indicates that students support the inclusion of the module in their training, acknowledging its role in improving confidence and clinical reasoning.

Furthermore, to make sure that reflection is embedded in every component of the assessment of clinical practice, Williams (1998) and Price (2005) in their review of reflective practice challenge curriculum designers to explain when, where, why and how reflective practice is being developed in the programme. They suggest that University staff and Medical Faculty need to be clear about how and where reflection is to be used. While it appears that reflective practice is a necessary requirement within medical education, it could be argued that teachers and learners may become confused about its purpose if the programme handbook, undergraduate outcomes and clinical record assessment booklet do not convey what is meant by the term. One can question where the responsibility for teaching reflective practice lies and consider whether it should be taught throughout the programme of study, in the pre-clinical and/or the clinical years. In addition, clarification is required of where reflection fits in with the aims and outcomes and the benchmark descriptions of the level of learning in this programme of study.

More recently, Grant *et al.* (2006) examined the reflective learning techniques of year three undergraduate medical students who were learning within tutorial groups. This study demonstrated that students are unlikely to take up voluntary reflective learning if they do not think it relates to the curriculum and assessments. However, they are likely to engage with it if they think it will help them to achieve their goals within the curriculum. Based on a voluntary intervention using reflective learning techniques on

students learning, they argue that students were better able to identify what they needed to learn although there was no improvement in the examination results. While the study provides rich data about how reflective learning helps students focus on what they need to learn, students may not take up reflective learning if they do not believe it helps with their immediate learning needs. There is also the question of the value of reflection when the medical curriculum has a large factual content. The findings of Grant *et al.* (2006) study relate to the medical students' views of reflective learning techniques. The reflective learning activities within their study were not a curricula requirement, and one might question what understanding the tutors had of the terminology and reflective models/frameworks which could be used to effectively facilitate learning. Therefore, it would appear that there is a need to extend the use of reflective learning in undergraduate medicine.

Universities are required by the Medical Act (GMC, 1983, 2006a, 2006b) to ensure that students will be fit to practice as doctors when they graduate. With an increase in the number of publications on reflective practice within the healthcare and other professions - physiotherapy, radiography, nursing, teaching, social work - one could expect an increase, also in medicine. In spite of the need to encourage specific strategies of self reflection in medical students, this has not been the case. Moon (1999) focuses on the role of reflection in learning and embeds reflection into the learning process. She identifies stages of learning from superficial to deep, with the latter involving reflective activity that enables integration of new learning into the learner's cognitive structure. If medical students have been shown to enter Medical School with a deep approach to learning, but after a few months their deep scores decrease and surface learning increases significantly, then we must encourage deep learning approaches (Coles, as cited in Dacre & Fox, 2000, p. 662). One can question how this can be achieved when there is no clear guidance documented in the medical curricula?

Meeting these expectations requires the practitioner to evaluate their own knowledge, competence and performance. Schön (1983, 1987, 1990) in his

theory first suggests that an epistemology of practice is necessary to characterise professional know-how and action as already stated and considers reflection to be central to teaching and learning in the professions. Therefore, when reflection is incorporated into professional education, it can counteract the risk of students repeating bad habits and failing to learn from their experiences. It encourages students to reflect on and learn from the experience with the aim of encouraging the integration of theory and practice, which may lead to changes in knowledge, attitude and behaviour (Jarvis, 1992). It is an integral part of professional development as it is a lifelong learning skill (Schön, 1983) enabling individuals to take responsibility for determining their own professional development (Evans, McKenna & Oliver, 2002).

2.6 Students' reflective skill development: the research perspective

Reflection-on-practice and learning from experience are considered prime requirements for achieving and maintaining expertise in medicine (Guest, Regehr & Tiberius, 2001). Benner (2001) studied how nurses move from novice to expert and determined that they go through the following levels of knowledge and expertise acquisition: novices, advanced beginners, competent, proficient and expert. Through their extensive experience, experts develop a critical set of self regulatory or meta-cognitive skills, which controls their performance and allows them to adapt to changing circumstances. The development of expertise is characterised by a cumulative and regular improvement in knowledge and skills, which culminates in the optimal performance of the expert. The nature of experts' knowledge can also account for their superior perceptions of patterns. Experts' superior performance is the result of the comprehensiveness and organization of their knowledge base. Their knowledge bases are hierarchical and densely interconnected, which allows new pieces of information to become well integrated. For example, in medicine integrating clinical findings at various levels, biochemical abnormalities, system levels to clinical manifestations as expressed in the patient's complaints (Patel, Glaser & Arocha, 2000).

As practitioners gain experience in carrying out a task, their performance becomes increasingly smooth, efficient and automatic. While developing competence with attention-demanding complex tasks, some skills become automatic, so that conscious processing can be devoted to reasoning and reflective thought with minimal interference in the overall performance. Much of an experts' knowledge is finely tuned and automatic, enabling them to carry out a set of procedures in an efficient, yet highly adaptive manner, which is sensitive to changing contexts (Patel, Glaser & Arocha, 2000). However, the acquisition of expertise is characterised by a developmental pattern in which periods of growth in learning may be followed by periods of consolidation of knowledge that may cause a decline in performance. Those individuals may have acquired an extensive body of knowledge but have not reorganised this knowledge in a functional manner.
For that reason a major goal of medical education is to teach or help students learn how to be professionals and lifelong learners. Evans, McKenna and Oliver (2002) set out the case for devoting more time to the teaching of self assessment skills. However, they point out that the Medical School has traditionally asked that students master large amounts of factual information and this didactic approach means there is little opportunity to challenge the medical curriculum, whether in University or the clinical environment.

Doctors are now required to set themselves targets and goals and regularly assess their own performance. Medical decision-making has characterized the cognitive and socio-cultural factors that enable successful performance. These cognitive factors include efficient use of memory, well organized knowledge and productive problem-solving strategies. Patel, Glaser and Arocha (2000) acknowledge that it is not a result of generally superior memory skills but a function of a well organised knowledge base adapted to recognize familiar configurations of stimuli. By the time a doctor becomes expert the self regulatory skills are so well practiced that they are effortless. It has been demonstrated that superior expert performance is mediated by highly structured and richly interconnected domain-specific knowledge

(Patel, Arocha & Kaufman, 1994; Patel, Kaufman & Magder, 1996). Building up domain knowledge, in combination with learning the required skills, is the key (Boshuizen & Schmidt; Schmidt & Boshuizen; Schmidt, Boshuizen & Norman, as cited in Boshuizen, 2004, p. 74). Therefore, there is a need to understand what opportunity is available within the medical curriculum to foster a critical approach to developing the students' understanding of reflection.

Indeed, the SDMEG (2002) suggest that several schools (in Scotland) include reflective essays as part of their assessment mode. An interesting example is available in work undertaken by Kidd and Nestle (2004) in Australia who describe the introduction of a reflective assignment in the first year of a medical curriculum. Tutors anticipated that students would require assistance in commencing the process of reflection and the student would be unfamiliar with, and therefore not value, the process as an end in itself. While some students were highly involved with the task others worked at surface level. Kidd and Nestle argue that medical students need to be encouraged to value reflective practice as a core professional skill, with or without feedback. Therefore, if valued as a core skill, Medical Schools should consider when, where and how reflection could be incorporated into the medical programme.

Pee, Woodman, Fry and Davenport (2002) examined 26 dentistry students' reflective thinking using three models: 1/John's (1994) 18 reflective questions, 2/Hatton and Smith's (1995) 'levels of reflection' and 3/peer review. Models or 'thinking frames' are defined as guides to organise and support thought processes. They support and organise thought but they do not do the thinking. Three broad aspects of learning include: acquisition, the learner acquires the initial mastery of the thinking frame, understanding it and applying it to the simple case; making automatic, after some practice the learner becomes able to apply the frame with fluency in simple cases; and transfer, the learner applies the frame across a wide range of contexts, some remote from the original context of learning. Making a frame automatic

means practicing the frame until its application in simple cases becomes fluent. Fluency together with precision makes for efficiency (Perkins, 1986 as cited in Baron & Sternberg, 1987, p.49). John's (1994) model of structured reflection exemplifies a complex framework used to foster double-loop learning and critical reflection. The model has reflective cues based on Carper's (1978) ways of knowing in nursing and includes empirical, ethical, personal, and aesthetic cues. Those students in the study by Pee *et al.* (2002) who completed a greater number of John's (1994) reflective questions were more likely to exhibit critical reflection. Using each model, most students completed the exercise demonstrating reflection at a deeper, as well as a descriptive level. In support of peer review, the efficacy of peer interaction and dialogue as a means for enhancing thinking at the post sixteen level study is well documented (Anderson, Howe, Soden, Halliday, & Lowe, 2001; Anderson & Soden, 2002).

Glaze (2000) studied experiences of reflection among student advanced nurse practitioners (ANP) and suggests that the integration of reflection within the ANP master's course was beneficial for the majority of students whereby perspective transformation led to changes in behavior. They viewed reflection as part of their lives, assisting with the implementation of their roles as ANP's and leading them to more perceptive behavior.

Atkins and Murphy (1993) emphasise that open mindedness and motivation are required to reflect with higher mental processes, which is deemed to be critical (Atkins & Murphy, 1993; Burrows, 1995; Durgahee, 1998; Ward & Gracey, 2006). Much importance is placed on facilitating reflection on experience to develop deeper approaches to learning (Dewing, 1990; Reid, 1993; Boud, 1995). John Dewey (1933, 1938) observed that reflective thinking is called for when people recognize that some problems cannot be solved with certainty. Drawing from this observation, King and Kitchener (1994) selected the term "reflective judgment" to describe the kind of epistemic cognition that includes the recognition that real uncertainty exists about some issues. Reflective judgment is drawn from the theoretical work

of many scholars which describes development in reasoning about such issues in late adolescence through adulthood:

- Dewey (1933, 1938): definition of reflective thinking; the observation that uncertainty is a characteristic of the search for knowledge.
- Flavell (1963, 1971, 1977): stage models generally assume that there are qualitatively different structures organized into logically coherent systems or stages; stages appear in an invariant sequence.
- Perry (1968): sequential development in students' underlying assumptions about knowledge, truth, and values.
- Kegan (1982): evolution of the self; interpersonal relationships as a developmental continuum.

King and Kitchener (1994) suggest that most college students are not ready for mature critical reflection. They found that although reflective judgement begins in the pre-teens years, individuals pass through seven stages of cognitive growth with the last occurring after the age of twenty-five. Each stage provides the foundation for the next. In the United Kingdom Medical Schools welcome applications from students of all ages (National Health Service, 2009). Medical students can commence their studies from the age of eighteen years, which brings into question the medical student’s readiness to reflect.

The first three stages of cognitive growth encompass pre-reflective reasoning: belief that knowledge is gained through the word of an authority figure or through firsthand observation, rather than, for example, through the evaluation of evidence. People who hold these assumptions believe that what they know is absolutely correct, and that they know with complete certainty. They treat all problems as though they were well-structured (King & Kitchener, 2002, p. 39). In these stages knowledge is the only perceived truth or reality. Anyone who does not subscribe to this knowledge domain is incorrect as their answers or solutions do not display any form of reasoning.

Stages four and five display more uncertainty and are referred to as quasi-reflective thinking: recognition that knowledge or knowledge claims contain elements of uncertainty, which attribute to missing information or to methods of obtaining the evidence. Although they use evidence, they do not understand how evidence entails a conclusion and tend to view judgments as highly personal (King & Kitchener, 2002, p. 40). Questions about what is the real truth begin to become apparent. Individuals in these stages recognize that some problems or situations are ill-structured and may demonstrate difficulty in providing sound rationales to support their statements. The last two stages indicate true reflection. People who hold these assumptions accept that knowledge claims cannot be made with certainty, the most reasonable judgments are made and about which they are relatively certain, based on their evaluation of available data. They believe they must actively construct their decisions, and that knowledge claims must be evaluated in relationship to the context in which they were generated to determine their validity. These people also readily admit their willingness to re-evaluate the adequacy of their judgments as new data or new methodologies become available (King & Kitchener, 2002, p. 40). Individuals realize that knowledge is not absolute and its value must be taken within the context that it is presented. Decisions are made based on sound rationale and may be re-evaluated on a constant basis. The individual is both flexible to novel situations and to change. Thus, the age barrier has implications for those in medical education and the students' cognitive readiness for reflective thinking needs to be considered. Drawing on the work of King and Kitchener (2002) many medical students may not fully acknowledge uncertainty as the start of the knowing process. Thus, it could be argued that medical students who are not mature enough to have these higher-level skills cannot execute mature and critical reflection without appropriate support and guidance. King and Kitchener (2002, p. 19) provide a list of common suggestions and institutional strategies that can be used to promote the development of epistemic cognition.

The study by Boenink *et al.* (2004) on reflection in one hundred and ninety five fourth year pre-clinical Dutch students suggested that reflection was influenced by three factors: a general tendency to be reflective, varying levels of skill in reflection, and knowledge and experience. They concluded by questioning if reflection is a skill that can be taught and learnt or a personality trait that can be hard to change.

People show different levels of skill or capability in performing reflective analyses, which probably reflects intellectual capacities and personal sensitivity. Their knowledge, experience, the context and circumstances of the required reflection and the pressure of time may have an influence on reflection. Burrows (1995) in his study on nursing suggests that since reflective judgment has only begun to develop in the early undergraduate years it is prudent to introduce students to the concepts of reflection and the skills and practice needed just as students are introduced to other desirable learning skills, such as self directed learning. Interestingly, Atkins and Murphy (1993) recognise an assumption inherent in the reflective literature that certain cognitive and affective skills are necessary for reflection. These include the ability to describe, analyse, synthesise, and evaluate. Certainly if few medical students are going to start out with these skills they need to be nurtured and developed over time as students learn to use reflection and reflective practice. Ward and Gracey (2006); Grant, Vermunt, Kinnersley and Houston (2007) acknowledge that students require time and formal guidance to enable them to reflect effectively and that the context of the reflection is fundamental to the educational outcome. One can question what the view of the student is on reflective practice, what they understand by the term, how they develop the skill of reflection and how they use it in practice. Furthermore, in line with the importance of continuing professional development, how and at what level do individuals reflect on practice?

2.7 Tutors' and educators' reflective skill development: the research perspective

The United Kingdom Government in 1997 recognised that teaching in Higher Education deserved a higher profile in relation to research than it has had in the past (Dearing Report, 1997). Following this, the guidelines issued for the National Teaching Fellowship Scheme and the completion of the Institute for Learning and Teaching (ILT) membership in 2000, also recognised that teaching in Higher Education was largely seen as a peripheral activity and academic staff were often employed because of their research background (Higher Education Academy, 2005). An attempt to change this climate has been made with the impact of the Quality Assurance Agency for Higher Education and the Higher Education Academy (HEA). Teaching is becoming more recognised, accredited and supported with reflection as a professional standard. The HEA membership application stresses the importance of reflective practice.

Medical educators are integral to the educational interaction, thereby having the potential to facilitate positive reflective thinking abilities in students. In the rapidly changing area of medical education and practice, which is subject to many external influences including political, legal and economic influences, the doctor as a professional, mentor and teacher is required to recognise:

> '…the importance of reflecting on and analysing (one's) own experience of mentors and teachers, identifying the positive and the negative and how to use this in one's own practice as a teacher of others…' (SDMEG, 2002, p. 33)

Despite this, Russell (2005) notes a lack of strategies to help practitioners engage in reflective practice. 'Fostering reflective practice requires far more than telling people to reflect and then simply hoping for the best.' (p. 203) Thus, the concern is with the pedagogy of reflective practice. Acquiring knowledge and practising skills are important elements of learning, but young people need opportunities to make sense of what they are learning, to

think things through for themselves and consider what techniques help them to think and learn. Vygotsky (1978) emphasises the need for a mentor or teacher to structure the activity and to support the students learning from one stage to the next. The role of the teacher is one of supporter rather than supervisor of learning. Vygotsky further suggests that shared thinking provides the opportunity to participate in a joint decision making process. The educator provides the student with many opportunities to practice methods under his or her guidance. He encourages the use of different discovery strategies, giving hints and providing immediate feedback. He assists with parts of the strategy that the student cannot carry out independently. Drawing on Vygotsky's idea of the importance of shared thinking the nature and range of teacher questioning can also help to develop thinking skills and understanding, for example, questions which seek clarification, look for reasons and evidence, explore alternatives, consider implications and consequences (Learning and Teaching Scotland, 2007). Other meta-cognitive activities might involve: predicting outcomes, explaining to one-self in order to improve understanding, correcting errors, planning ahead and time management. Thus, by working alongside practitioners students will learn from experts in a safe, supportive and educationally stimulatory environment (Benner, 1984). A goal of medical education should be to promote the acquisition of self regulated learning. To achieve this goal the educational system has to foster changes in the organization of learning (Ericsson, 1996). Within the context of medical education one can question what support is offered by experienced clinicians to develop these skills and what level of skill does the teacher have?

2.8 Scaffolding and developing competence

Bruner (1975) identifies building on existing competence in order to accomplish the next stage tasks and refers to this as 'scaffolding'. In support, Wood, Bruner and Ross (1976) state that 'scaffolding' is the approach whereby the teacher provides the scaffold for the building, but the building itself can only be constructed by the learner. The teacher observes

the learner and advances understanding by facilitating the learning process through consultation, assisting collaborative interactions, and providing feedback. McGuinness (1999) supports the view that effective teaching extends the giving of knowledge or information by scaffolding and mediating learning through explanations, questioning and feedback, and helping the learners to close the gap between what they already know, think, feel or can do and what they aspire to know, think, feel or do. Initially, learning involves a significant degree of external support, through early environmental structuring (especially for novices, such as beginning medical students). Through time the support and external regulation are gradually phased out, for example, the medical student becomes more and more self regulated and a problem solver. As competence is attained there is an increasing amount of internalised self regulation, when there is a transition period involving decreasing scaffolding of support and an increased opportunity through guided apprenticeship. As the learner develops, the scaffolding changes (Jarvis *et al.,* 1998). Thus, as the direct external support fades away the learning occurs increasingly under the control of the learner (Patel, Glaser & Arocha, 2000).

Alternative strategies for teaching reflective skills and infusion across the curriculum include cognitive skills and strategies, multiple intelligences, thinking dispositions, learning communities and learning classrooms (McGuinness, 2005). Infusion approaches contextualise thinking directly within a curricular area so that the goals of subject matter understanding and developing thinking are concurrent and, in the longer time span, seamlessly practised. The pedagogy includes the need to focus on classroom dialogue, to engage learners in open-ended activities, in collaborative activities and in joint meaning making. Making 'reflective' thinking more 'visible' in classrooms and for teacher development is considered crucial so that a meta-cognitive perspective can be adopted and transfer of learning optimised. Metacognition can be,

'promoted by helping learners not only verbalise but to explain their

thinking, thus making it more available to use on another occasion'
(McGuinness, 2005, p.120)

Therefore, it is important to consider how the reflective teaching abilities of medical teachers' impact upon the medical student's ability to reflect critically and how medical educators can assist students gain the skills necessary to provide medical care. Involving teachers in a structured process of reflection has lasting and positive effects on the quality of their teaching (Freese, 1999). However, Scanlan and Chernomas (1997) suggest that although many educators use reflection as a teaching strategy most have not engaged in planned and/or orderly reflective practices themselves; their practice is derived either from the literature or their work with students.

2.9 The Facilitator

Moreover, there is little research or practical advice for educators on how reflection is to be achieved. Poor preparation and support have been responsible for (nurse) educators' lack of knowledge (Nicholl & Higgins, 2004). Consequently, reflection has not been used consistently or systematically in nurse education (Plazer, Blake & Ashford, 2000; Burns & Bulman, 2000). Much of the research has focused on measuring student's reflective abilities (Duke & Appleton, 2000), whereas the process required by medical educationalists to facilitate reflective practice in student populations has been largely overlooked. If medical educationalists want to teach their students to be reflective practitioners, should they not first be able to understand the development and the use of reflective processes?

Evidence from nursing (Reid, 1993; Johns, 1994; Kohner, 1994) and physiotherapy (Routledge, Wilson, McArthur, Richardson & Stephenson, 1997; Ward & Gracey, 2006) suggests that successful reflection is profoundly difficult without expert guidance and support. Paget's (2001) retrospective three phase multi method study in a single department of nursing which considered (nurse) practitioners' views on how reflective practice has influenced their clinical practice gives further evidence to the role of the facilitator as pivotal in promoting reflection in students. He

suggests that reflective practice should be undertaken by those with appropriate skills who can manage the strong emotions which can emerge. Thus, if a requirement for facilitating reflective learning is important what is known of the teacher in medicine?

Kuit, Reay and Freeman (2001) describe a reflective teaching project involving experienced lecturers at the University of Sunderland. This project considered methods of evaluating and improving the lecturers own teaching. The study emphasises that reflection is difficult and that it also takes time. The study also raises the important question of how teachers can be good reflective practitioners if they don't know what the term means or how to use it. Because of this, aspects of Kuit, Reay and Freeman's work are of value to this study. The work of Lashway (1998) provides similar findings. He further suggests, that for reflection to be part of the learning process people in organisations must make time for collective inquiry and continuous reinforcement. These require appropriate time, space for regular meetings, a safe environment in which the reflective activity can actually occur, and an aligning of individual and group incentives with the value of these activities. These findings are similar to those which were observed in the studies on students' reflection (Boenink *et al.,* 2004; Ward & Gracey, 2006; Grant *et al.,* 2007).

Questions still remain unanswered in relation to new and experienced medical facilitators' use of reflection, their ability to use reflection and their training. In 1986, Harden pointed out that:

> '...though some professionals have attended short in-service courses in education, most have no qualification or formal training in educational theory and practice.' (1986, p. 356)

More recently, Ward and Gracey (2006) in their study of United Kingdom professional practice coordinators advanced the view that facilitators (of physiotherapy) lack formal training, and any they have received has been gained from various sources. They indicated that reflection was a central

component of their teaching strategies. Likewise, Nicholl and Higgins (2004) report on how a group of nurse teachers perceived and interpreted reflective practice in the pre-registration nursing curricula. Their findings suggest a variation in the number of hours allocated to the subject and where reflective practice was included in the curriculum. Emphasis was placed on theoretical models of reflection as opposed to the process or skills required to become a reflective practitioner. A number of teachers expressed dissatisfaction with the preparation they had received to teach the subject, and identified some challenges they experienced when teaching reflective practice. The findings suggest the need to clarify curricular content in relation to reflective practice, and prepare teachers for their role in teaching this subject more effectively. Kahn (2006) in his recent review of new (teaching) academic staff supports this and recommends that programmes for staff should take into account the wide variation of practices employed under the term 'reflective practice' rather than simply combining these approaches under one term.

These studies suggest that there are gaps in our knowledge and that there may be an assumption that tutors in medicine, have been adequately prepared in the facilitation of reflection. Kreber (2004) further recommends that the meaning of the notion of reflective practice is either spelled out or terminology that reflects a more differentiated use is introduced.

From the teacher's perspective one assumption is that qualified and experienced facilitators of learning are reflective practitioners themselves. More commonly, studies support the need for qualified and experienced facilitators of learning to be reflective in order to teach reflectively. Blase *et al.* (2000), who considered the preceptor's use of reflection to teach in ambulatory settings, reports that the coach plays a critical role in fostering the systematic use of reflection and the role of the facilitator enables practitioners to transform their reflections into change in practice (Scanlon & Chernomas, 1997; Blase *et al.,* 2000; Paget, 2001). A preceptor's reflection on teaching can lead to taking responsibility for his own growth

as a teacher that can in turn result in progress through cognitive developmental stages, from novice to expert, and enable the preceptor to view teaching from a more interpretive and critical perspective. The more we understand about our own experiences, the better prepared we will be to facilitate reflection in our students through role-modelling, dialogue and facilitation of reflective strategies.

Academic staff members are increasingly required to evaluate their own professional teaching practice. The Quality Assurance Agency and Institute for Learning and Teaching (ILT), now the Higher Education Academy (HEA) emphasize learning and teaching, and the importance of reflective practice. Teaching ability, as well as good quality delivery, is now recognized, valued, supported, accredited and awarded. However, Blase *et al.* (2000) further question what novice teachers, as well as expert teachers do, so that they are better able to adjust the fit between what they teach and how they teach. Findings suggest that prompting increases the preceptor's reflection during clinical teaching. However, this may not in fact be the case. Mamede and Schmidt (2005) studied two hundred and two qualified physicians working in primary care in Brazil. They studied the structure of reflection in practice and focussed on the process of encountering complex problems. They declared that reflective practice appeared to decrease with increased years in practice and in practice settings where the scientific basis of clinical practice and reflective thinking was not reinforced.

Participants demonstrated individual differences in their orientation to, and their use of reflection. This is consistent with findings from other literature (Mamede & Schmidt, 2004) which shows that some practitioners never engage in reflective practice and it is not clear why this is the case especially when faced with a complex problem. An assumption can be made that doctors think critically and engage in reflection which has implications for students in relation to facilitating the students' learning.

Other criticisms include sparse guidance given to educationalists on the teaching and assessment of reflective practice. Thus the role of assessment and grading of students in relation to reflective practice remains problematic (Boud & Knight, 1994). Ward and Gracey (2006) identified that there was no clear consensus regarding the facilitative models or assessment methods used. Despite this, and as suggested earlier, the SDMEG (2002) has a requirement that students are assessed using reflective essays and reflective writing, for example within a portfolio.

Ward and Gracey (2006) argue that, although there may be no general consensus regarding facilitative models, they believe that reflective practice should be considered as part of the curricula. However, it cannot be assumed that students are encouraged to develop their skills by using models of reflection when facilitators may lack these skills. There is a need to explore strategies for promoting reflective practice among physicians. Hewison (2000) suggests that, to promote a change in teaching, physicians need both knowledge of the practice of teaching and knowledge of their own attitudes, beliefs, values and assumptions about teaching. Brookfield (1995) proposes that reflective teaching can best be achieved by accessing data from four sources: through our autobiography as teachers; through the eyes of our students, through interaction with colleagues and through continual learning about educational theory and practice. Kahn (2006) also supports the idea that institutions themselves need to be aware of ways in which support or strategies to control a programme affects the unfolding of the reflective processes.

Based on Knowles' theory of androgogy, adult learning, according to Jarvis, Holford and Griffin (1998) has always embraced the principle of individualized learning with the role of educationalists to facilitate self directed, reflective and critical learning of learners. Therefore, experiential learning, student autonomy and self directed learning all belong in the tradition of adult education. The experiential cycle involves doing, followed be reflecting, processing, thinking and understanding, and all four stages of

the process are necessary for effective learning to be achieved (Fry, Ketteridge, & Marshall, 1999).

Reflective practice can bridge the theory-practice gap based on the potential of reflection to uncover knowledge in and on action (Schön, 1983). For that reason practitioners need coaching and tools for dealing with practice problems, which, through reflection, can lead to changes in practice. 'A core learning principle in professional development is facilitated reflection.' (Howe, 2002, p. 4) As alluded to earlier, reflection may or may not be taught using a framework, but many (nursing) students and tutors have used this to discuss the care of the individual patient (Johns, 2000). It could be argued that there is an assumption that educationalists in medicine as part of their teaching use a variety of reflective practice models/frameworks and reflective practice strategies. According to Cole *et al*. (2004) teaching skills programmes use a range of teaching approaches but few, report using reflection. Ker (2003), in her study using a reflective approach within a simulation exercise to promote the integration of theory and practice, suggests that students are provided with timed periods of structured reflection. However, despite the development of professional thinking at the same time as developing their technical competence there is no mention of the structure or framework provided to guide the student of medicine during discussion and in the construction of written assessments. This case study further develops the findings of Ker's study in so far as it questions what educational technique or tools exist to measure the student's reflective capacity. Should there be a standardized educational technique or tool used across the Medical School and if so, when should students be introduced to this?

The studies suggest that there is scope here for further research. Firstly, to adjust to the constantly changing nature of the healthcare system, medical staff need the skill to reflect on practice. Secondly, integral to the educational interaction, educationalists have the potential to facilitate positive reflective practice abilities in students.

2.10 Conclusion

This literature review underlines the fact that the concept of reflection is an important developing area within medical education. Based on the experiences of nursing and other professions, a number of general conclusions can be drawn from this review. On a day to day basis reflection in and on practice is an important mechanism for supporting effective performance and to develop better thinking skills in students. However, although it is a General Medical Council requirement, little is known of its use within medical education. Policy contexts require students and qualified practitioners to reflect on personal and professional development. The role of the educationalist is to facilitate self directed learning, reflection and critical thinking of learners. Nevertheless, there appears to be a lack of knowing about the preparation of the professionals, who are also the educationalists or facilitators of the students' learning in medicine.

The review raises a number of important questions which inform the research questions. Professional practice focuses on:

- the relationship between knowledge and competence (Schön, 1983; 1987).
- problem based learning, progressive education and participation of the learner (Dewey, 1933).
- continuum of learning, how thinking might be promoted from a pedagogical perspective and developed in the early years (Boshuizen, 2004; McGuinness, 2005).

Therefore, as reflection is considered an attribute necessary to practising medicine its development needs to be supported. The ways in which the tutor and student construct the meaning of reflective practice within the medical curricula needs to be supported also. More specifically and largely ignored throughout the medical literature are how educators (might) incorporate reflection in the curriculum, how they (might) interpret and

teach the concept and how they (would) ensure that it is embedded within the medical education system.

Reflection appears to be an under-researched area of medical education in Scotland. This research seeks to find out how central the views, understanding and experiences are of the medical undergraduate students, tutors and educators to support future continuing professional development and lifelong learning.

It will ask students, tutors and educators to talk about and illustrate from experience what they know about reflection; to provide a definition for reflection; describe what process they use, if any, to reflect and whether they use a framework to structure their learning. From this it is intended to explore how they use what they know in practice to fulfill the course requirements. This will be discussed more fully in the next chapter.

In considering this, the research questions for the study focus are:
Research Question 1: What do the student, tutor and educator understand by the terms ‘reflection’, ‘critical reflection’ and ‘reflective practice’?
Research Question 2: What are the students’, tutors’ and educators’ experience of ‘reflection’ in terms of teaching, learning and assessment?
Question 3: What support is offered by the Medical School to develop the students’ and tutors’ skill of ‘reflection’?
Research Question 4: What, if anything, would the student, tutor and educator like to see change in how this support is effected?

3 RESEARCH DESIGN

3.1 Overview

This chapter reflects on the research design issues and debates that I considered throughout the research process and provides justifications for the decisions that were made. The chapter begins by exploring the qualitative paradigm and the rationale for using this particular approach.

I am interested in how reflection is used in medical education and the study investigates the understanding and experiences which students, tutors and faculty educators have of reflection as they learn or teach during the first three years of the medical curriculum. The questions which my study addresses are as follows:

Research Question 1: What do the student, tutor and educator understand by the terms 'reflection', 'critical reflection' and 'reflective practice'?

Research Question 2: What are the students', tutors' and educators' experience of 'reflection' in terms of teaching, learning and assessment?

Question 3: What support is offered by the Medical School to develop the students' and tutors' skill of 'reflection'?

Research Question 4: What, if anything, would the student, tutor and educator like to see change in how this support is effected?

The second part of this chapter presents an overview of the appropriateness of my chosen approach which is a case study; some of the debates around case studies and justification of why other research designs: ethnography, grounded theory, phenomenology and action research, were not included. The rationale for my choice of data gathering methods, which combines semi-structured interviews with documentary evaluation are also considered. The reasons for not choosing interviews, focus groups and questionnaires are also given. The final section reflects on the issues around triangulation and the ethical considerations.

3.2 Justification for adopting a particular research design

In considering the research design I took into account the two broad camps which are often referred to as qualitative or quantitative. Traditionally some

methodological strategies (experimental, ex post-facto, correlational and survey) have been designated as quantitative and others (ethnography, case study) defined as qualitative. Qualitative methodologies have been defined as the development of concepts which help us understand phenomena in natural rather than experimental settings, giving due emphasis to the meanings, experiences and views of all participants (Pope & Mayes, 1995). Qualitative inquiry means 'any type of research that produces findings not arrived at by statistical procedures or other means of quantification' (Strauss & Corbin, 1998, p.10-11) whereas quantitative methods are based on the collection of numerical data and statistical procedures.

Epistemology refers to beliefs about the way in which knowledge is construed. It examines whether it is possible to identify and communicate the nature of knowing based on experiences and insights of a unique and personal nature. Thus, how the researcher views the social world will have implications for the sort of methodology that he is likely to consider. From both an epistemological perspective and a subjective perspective I wanted to have involvement with my participants. I placed emphasis on the accounts given by participants verbally in interviews, believing each account to be a personal, subjective and unique experience (Burrrell & Morgan, 1979). As a deeper understanding of the social/human phenomena was sought, a qualitative research paradigm was used in an attempt to understand the meaning or nature of the individual's personal experience through interpreting his experience. Qualitative approaches often focus on research which is carried out in an interpretive frame in which the concern is with the production of meaning (Brown & Dowling, 2001). One of the main reasons for conducting a qualitative study is that the study is exploratory. I sought to listen to the participants and to build a picture of their experience of reflection based on their ideas. Cohen, Manion and Morrison (2005, p.169) suggest that:

> 'Many educational research methods are descriptive and set out to describe and interpret 'what is'. Such studies look at individuals, groups, institutions, methods and material in order to compare,

> describe, contrast, classify, analyse and interpret the entities and events that constitute their fields of enquiry.'

Ethnography, grounded theory, phenomenology and action research were considered and rejected. As it was not my intention to observe directly or take part in the everyday life of my chosen setting or collect data on the individuals' experiences, an ethno-methodological approach was thought to be inappropriate. I did not want to look at a phenomenon through the lenses of the participants or impose my own interpretations to understand the situation. Parahoo (1997) suggests that this approach places particular emphasis on people's behaviour obtaining a holistic view of the participant's behaviour. I would need to study a group in their natural setting during a prolonged period of time by collecting primarily observational data (Wallen & Fraenkel, 1991 as cited in Creswell, 1994, p. 11). This would mean that I would have to spend some time in the company of those being studied. As observations and interviews are the two main data collection methods I would need to ask questions in addition to observing. As Hughes (1992) suggests the researcher uses senses, vision, hearing, touch, smell and/or taste to characterise important physical and social features of a given field of human behaviour. Burns (2000) also suggests that ethnographic research is used to uncover social, cultural, or normative patterns, generally involving an analytic description in terms of social setting, organisation, behaviour and activities. However, this was not my intention. As a single researcher I could not be in several places at one time. I would also need to analyse the data during the interviews and observations, and constantly compare categories, concepts and themes, reviewing and exploring them further. This was a further indication to me of the unsuitability of this methodology.

The main purpose of the grounded theory approach is to generate concepts from the data in order to formulate models, conceptual frameworks or theories. I would therefore need to adopt the inductive approach by relying on data in order to formulate a hypothesis and theory. This would need to be followed by various stages of data collection with constant refinement and

re-grouping of the information (Strauss, 2003). According to Berg (2007) the grounded theorist starts with data. Data is constructed through the observations, interactions and materials that we gather about the topic or setting. Thus, grounded theory was more difficult to dismiss as the optimum design for the study. My intention was to ground my analysis and any theoretical construction firmly in the data. This correlates with the fundamental notion of grounded theory. However, I believed this methodology to be unsuitable as I would need to enter the research situation with no prior preconceptions and create, revise and refine theory in light of the data collected.

There are a number of similarities between ethnography and the grounded theory method. Both seek to study people in the context of their interaction with the environment but the difference lies in their purpose. In grounded theory research, the aim is to generate concepts, hypotheses and eventually theories whereas in ethnography, apart from generating hypotheses and theories, it is possible to discuss them in the context of existing theories.

A longitudinal design is justified on the basis of change over time whereby the data is collected over a period of time to capture any change which takes place. Because the longitudinal design is prolonged in nature it is more likely to raise the participants' awareness and also give them time to change their attitude and behavior. As I wished to investigate the experiences in the here and now I deemed this approach to be inappropriate. Another reason for not carrying out a longitudinal study was that it might prove to be more costly and time consuming.

Similarly, I did not wish to study participants through extensive and prolonged engagement (Dukes, 1984; Oiler 1986 as cited in Creswell, 1994, p. 12) focusing on the individuals' experiences and background. Therefore, phenomenology was deemed unsuitable. A full description of my own experiences from those of the interviewees would need to be written prior to the interview. I would need to be clear about my own preconceptions (Marshall & Rossman, 1999). The phenomenological method is an

inductive, descriptive method which is appropriately used when concern is to understand the subjective perspective of the person who has lived the experience and the effect that perspective has on the individual's experience and behaviour. My task would be to describe the phenomena as experienced and expressed by the participants whilst knowing how they experience the phenomena in the way they do. However, this was not the intention of my research study.

Action research was considered but deemed inappropriate, too. It is a form of self reflective enquiry undertaken by participants in social situations in order to improve the rationality of their own practice. All individuals involved in the study, researcher and subjects alike, are deliberate and contributing actors in the research project (Gabel, 1995; Wadsworth, 1998 as cited in Berg, 2007, p. 223). Action research focuses on the methods and techniques of investigation that take into account the study population's history, culture, interactive activities and emotional lives (Berg, 2007). It usually starts with observations in a real situation that raise questions such as 'why hasn't practice led to predicted results?' Thus, it is used in any area where a problem cries out for a solution with its emphasis being on 'action' and the research methods which are used to inform that action. A specific problem within a specific context is identified, research methods assess the problem, the change is planned and implemented and the outcome is evaluated. The research findings are published in the 'here and now'. However, for my own research there was no 'problem' requiring a solution and I anticipated that the findings would take much longer to publish. I was interested in finding out about the participants' understanding and experiences as opposed to researching a problem. Additionally the research is normally conducted by a team of outside researchers and practitioners working together to advance the researcher's cause. They may also take part directly in implementing the research by continually evaluating the modifications which are being made to improve practice. This was unsuitable for my study as I wanted to engage with my participants and I did not wish to change or continually evaluate practice.

An applied methodology that aims to assess, describe, document or inform from the stakeholder's viewpoint was also considered (Anderson & Arsenault, 2001). It was deemed unsuitable, as the focus of the study was not from this perspective. A problem had not been identified by participants or the organisation and the findings were not intended to have an immediate and practical value. Instead it is hoped that they will add to existing knowledge.

3.3 Research design-case study approach

This study developed from the idea that students engage in reflection and an assumption that students, tutors and educators know about the process involved. As a consequence, the study was carried out to establish the degree to which participants understood what was meant by reflection and critical reflection in order to elicit their experiences of reflection in medical education.

Before deciding on the research design I reflected on the various options discussed above. To develop a full understanding of the professional relevance of reflection to the individuals within one organisation, and to find out their understanding and experiences of reflection in the medical undergraduate programme, I decided to use an exploratory case study approach (Yin, 1993).

Bassey (1999) points out that it is important to consider the meaning of empirical research. This research focuses primarily on data collection and we can distinguish various types: theoretical research which is the enquiry carried out in order to understand; evaluative research, which seeks to understand and evaluate; and action research which is carried out in order to understand, evaluate and change. My research was carried out using a theory-seeking approach (Bassey, 1999), otherwise known as 'exploratory' (Yin, 1993). It was my intention to explain what is happening without making a value judgment or trying to induce change, and to complete the enquiry without changing the situation. Cohen, Manion and Morrison

(2005) point out that while the case study deals with interpretive, subjective phenomena, it still allows for deep probing. It is a preferred strategy:

- if, when, how, who, why, what questions are being asked
- when the investigator has little control over events
- when the focus is on contemporary phenomenon

(Yin, 1994)

It can be viewed as a detailed study which strives to portray 'what it is like' to be in a particular situation, to catch the close up reality and 'thick' description (Geertz, 1973). Burns (2000) suggests that the case study is valuable to preliminaries in major investigations because they are so intensive and generate rich subjective data. This rich descriptive real-life holistic account offers insight and meaning which may in turn become a tentative hypothesis for further research.

The word 'case' can be defined as follows. It is a unit of human activity embedded in a real world, which can only be studied or understood in context. It exists in the here and now and emerges with its context so that precise limits are difficult to draw. Parahoo (1997) implies that the 'research design' describes how, when and where data was collected and analyzed.
I therefore considered:

- The approach (qualitative, quantitative or both, with or without a conceptual framework)
- The method(s) of data collection
- The time, place and source of the data
- The method of data analysis

Thus, reflecting on the research questions for my study, I deemed the case study most suitable to encompass a qualitative approach and semi-structured interviews and documentary evaluation as the best method of data collection. Due to the small number of interviews I analyzed the data myself and will discuss it later in the chapter.

I considered the strengths and weaknesses of case study research. The strengths of this research are numerous. The results are readily understood by a wider audience, they speak for themselves, they are real and may provide insight into other similar situations or cases. They can be undertaken by a single researcher, not a whole team. As Wellington (2000) suggests they can be illustrative, illuminating, insightful and disseminable. They are often accessible and engaging. They can be attention-holding, vivid and strong on reality. They can be of value to teaching and can lead to quantitative research which explores a phenomenon in greater depth. On the other hand case studies are personal and subjective. They are not generalizable or open to cross checking. They may be viewed as biased, despite attempts to address reflexivity (Nisbet & Watt, 1984 as cited in Bell *et al.*, 1984, p. 79). Nevertheless, Berg (2007) suggests that the question need not even be asked. There is clearly a scientific value to be gained from investigating some single category of individual, group or event simply to reach an understanding about similar individual, groups or events.

3.3.1 Study participants and sampling

Participants: The Medical School recruits approximately one hundred and sixty students each year. Many medical clinicians and non-medical staff assume an educationalist role within the medical undergraduate degree programme. The participants in this study were staff and students associated with years 1-3 of the programme. The total number of participants was 26, male (13) and female (13). This involved seven medical students (3 male, 4 female); eleven tutors (5 male, 6 female); eight faculty educators (5 male, 3 female).

The term ‘tutor’ refers to General Practitioner and non-medical tutors. Thirty-two tutors support the teaching within the community part of the programme. The non-medical staff included nurses, retired teachers, counselors and others. The term ‘educator’ refers to the faculty educators who are qualified medical practitioners. Many educators were members of

the Curriculum Review Working Group committee (CRWG) responsible for curriculum design, development and teaching.

All participants were 18 years of age or older and their experience in education ranged from one to twenty years. Participants were identified through the student year lists, community based tutors and the CRWG committee. All teachers, both tutors and educators were directly involved in teaching, curriculum design, planning and/or development. It was hoped that individuals would have the potential to reflect on the understanding and experience of reflection. The reason for choosing these individuals was that they were easily accessible and known to me. I am directly involved in the teaching of students and for supporting the tutors within the community part of the programme, and I regularly attend the CRWG meetings where much of the programme development and delivery is discussed.

Bennet (1996) suggests that the insider researcher who remains within their institution will share some responsibility for implementing change which in turn enables the researcher to own the research for themselves. Although it was not my intention to implement change I was aware that change may happen as a result of my findings. It was my intention to identify themes which had not been previously identified within the literature. Therefore, as an educator involved in the education of medical undergraduate students and tutors, I believed that this understanding of reflection would enhance my awareness of the effect of reflection within the curriculum, and develop my knowledge of educational practice.

Sampling: Data was derived from the one case and not selected on a random basis. The case was chosen because it serves the real purpose and objectives of the researcher of discovering, gaining insight and understanding into a particular phenomenon (Burns, 2000). It was also chosen because of its ease of access. My initial target was to interview fifteen tutors either clinical or non-clinical, five faculty educators and fifteen students, five from each of years one to three. In the end twenty-six participants were recruited and

interviewed: eight educators, seven students and eleven tutors. As I explored a single entity or phenomenon ('the case') bounded by time and activity the issue of numbers was therefore less important. Kvale (1996) suggests that one conducts interviews with as many people as necessary in order to gain the information sought. Each participant was interviewed for as long as required. This took on average approximately forty minutes, with the interviews spread across six months. My decision to stop data collection took into account the following criteria: emergence of regularities; over extension, or going too far beyond the boundaries of the research the research goals and the need to achieve depth through triangulation of data sources (Lincoln & Guba, 1985). Thus, I stopped data collection with each participant group when it became evident that there was recurring themes and thematic saturation.

3.4 Data gathering methods

Depending on the topic, the researcher can choose from a variety of data gathering techniques: asking questions and listening intently to answers; observing events and reading documents. Bassey (1999) suggests that the researcher should work out his or her own methods from a clear ethical standpoint, and base these on the research questions. Following this line of thought, semi-structured, in depth, individual interviews were conducted in the participant's location of choice. The anonymity and confidentiality of the participants was preserved. All identifiable information such as names, were removed from the transcripts, and none will be associated with any publication.

Flick (2002) suggests that clear ideas about the nature of the research questions are necessary for deciding on the appropriateness of the research design for answering the questions. I therefore examined a number of data gathering methods for this research, including interviews, focus groups and questionnaires which Anderson and Arsenault (2001) provide as examples of three approaches to data gathering from human subjects. I considered using questionnaires however decided against this as they are generally used

when large populations are involved. Focus groups, too, were rejected as I did not wish to validate data previously collected in individual interviews (Parahoo, 1997). In focus groups it is only possible to deal with general, and not personal, issues. For example in a group interview I may be able to find out the participants general understanding and experiences of reflection and I may be able to find out whether people agree or disagree with the experiences. However, it is not possible to explore each individual's understanding or experiences, and dominant personalities can monopolise the discussion.

Different types of approaches can be used in qualitative interviewing and the interviews can vary in the degree to which the researcher directs the conversational agenda (Rubin & Rubin, 1995). The interviews can be structured, unstructured or semi-structured. The unstructured approach uses few open ended questions and the participant can lead the discussion whereas the structured interview uses a preset list of questions, such as those used in a survey. These set questions are asked by the interviewer and the participant's responses recorded. After considering these different approaches I carried out semi-structured interviews. I believed this would allow for negotiation, discussion and expansion of the interviewee's response and provide greater flexibility in the ordering and phrasing of the questions. This style of interview (semi-structured) was favoured in comparison to telephone interviews. The latter can be considered intrusive and the participant's attention may not be maintained for an extended period.

An interview guide was used to provide a framework for the interview. I, as the interviewer, used interim results to explore certain areas to a greater extent when I believed it necessary to pursue a line of enquiry or to better understand specific concepts and relationships (Appendix 4). In designing the interview guide the aim was to create open-ended questions. These would seek opinions, views and attitudes regarding the participants' experiences whilst also seeking their views on future needs or new

developments. Therefore, broad pre-formulated questions were used to allow additional questions to be asked. This provided an overall shape to the interview. Genuinely open questions were used to gain opinions or views without either leading or prompting. The literature of qualitative research methods was used to inform the questions. Topics and issues to be covered were specified and outlined in advance. I decided the sequence and working of questions in the course of the interview. As the questions were not completely pre-determined, there was an opportunity for me to change the words but not the meaning of questions to help the participant understand them. Clarification and probing for further responses enabled the participants to understand the questions better and this, Parahoo (1997) claims, enhances validity. The use of prompts enabled me to clarify topics and questions. Probes enabled me to ask the participants to extend, elaborate, add to, provide detail for, clarify and quantify their response, thereby addressing richness, depth of response, comprehensiveness and honesty. Cohen *et al.* (2005, p. 278) suggest that these are 'the hallmarks of successful interviewing'. The strength of the interview guide is that the outline makes the data systematic for each participant. 'All of the interviews remained fairly conversational and situational.' (Cohen *et al.*, 2005, p. 271) Open questions in the main were used to enable participants to let their thoughts flow freely, and only a few closed questions were used.

I commenced interviewing with a tape recorder. However, during the first interview the tape stopped recording with loss of data. As a result of this subsequent interviews were recorded with a digital recorder. This provided a longer time-span for uninterrupted recording. Extensive note taking through the interview can be distracting which is why I only made brief written observations. Cohen *et al.* (2005) advise caution to minimize bias, sources of which include characteristics of the interviewer, attitudes, expectations and opinions. I believe my contribution, as the researcher, to the research setting was useful and positive rather than detrimental. I was familiar to the participants and maintained a neutral, non opinionated approach. It was

clearly stated at the outset that I had no pre-conceived expectations of their responses to my questions.

3.4.1 Prior to the interview - pilot

In qualitative enquiry it is accepted that methods, approaches and policies are tried out to eliminate what difficulties may arise before the main study is attempted (Burns, 2000). With this in mind, I conducted a pilot study using two members of teaching staff who would not be participating in the main study. The participants were asked to make comments on the questions asked in the interview schedule and I made the necessary amendments prior to commencing the interviews. Although few changes were made (one question was removed and another reworded), this helped me refine my data collection plans with respect to both the content of the data and the procedures to be followed (Yin, 1994).

3.4.2 The interview

During the interview I briefly introduced the purpose of the study, and explained what the members of the group were being asked to do. Then, without providing any more background, I proceeded to ask the outline questions. The answers given sometimes led me to ask for clarification and probe for further responses. The participants expressed their ideas in their own way using their own words, determining the range of aspects and issues they wanted to discuss. However, I was aware of the weaknesses of this interview approach. The comparability of the information between participants is difficult to assess and response-coding difficulties could have arisen. Nevertheless, the strengths of the semi-structured interviews became apparent as follows:

- The greater the length of time I spent with the participant the better the rapport.
- The participants' perspective emerged.
- The participants used language natural to them rather than trying to understand and fit into the concepts of the study.

- The participants had equal status with me as the researcher in the dialogue rather than being a 'guinea pig'. (Burns, 2000, p. 425)

3.5 Case study: Data analysis

'Qualitative data has no straightforward framework for analysis and the textual data is more open to the subjectivity of the researcher' (Opie, 2004, p.151). Throughout the research I carried out all interviewing, transcribing and analysis. I recorded the interviews, transcribed them and then listened to them again along with the transcriptions for accuracy. Although suggested by Miles and Huberman (1994); Strauss and Corbin (1998), data transcribing was not interwoven with data collection during the study. With hindsight I appreciate that this might have been a more suitable process to follow to avoid analyzing large quantities of data at any one time. Once all the verified transcripts of the interview were available, the transcripts were analysed.

Based on the literature review of qualitative research methods I used an analytical process which involves a number of interconnected stages (Miles & Huberman, 1994). It is used to classify and organise data according to key themes, concepts and emergent categories.

Once the data were collected the next stage involved analysing them. To gain an overview of the body of the material gathered I immersed myself in the data: listening to tapes, reading transcripts, studying my notes. The transcripts were re-read and codes assigned to recurrent themes representing a description of each participant's experience, setting up a thematic framework within which material could be sifted and sorted. A descriptive code was placed by the side of each piece of datum which enabled me to understand immediately the issue that I was describing because it resembled the issue (Appendix 5). The coding label bore sufficient resemblance to the original data so that I knew, by looking at the code, what the original piece of datum concerned. The codes defined categories which pulled together a wealth of material into some order and structure and kept the words as words maintaining context specificity (Cohen *et al.,* 2005). Stern (1980) suggests that this is known as 'open coding', whereby the data are examined word-by-

word and line-by-line. Miles and Huberman (1994) attach much importance to coding on interview responses, partially as a way of reducing what is typically data overload from qualitative data. This progression, though perhaps positivist in its tone, was a useful way of moving from the specific to the general in data analysis. Although the process is presented as following a particular order it relied on my creative and conceptual ability to determine meaning, relevance and connection. Several tactics for generating meaning came from the transcribed and interview data: counting frequencies of occurrence of the ideas, themes, pieces of data, noting patterns, clusters, the creation of similes (Miles & Huberman, 1994). It was my intention to identify themes which had not been previously identified within the literature and which may be considered for further, larger scale research.

Creating some sort of meaning out of what was a vast quantity of qualitative data was a time-consuming, highly technical and intense process. In order to overcome these potential difficulties the qualitative data could have been analyzed using a software package, for example NUDIST or ATLAS. This could have provided flexibility and allowed me, the user, to make changes rapidly and easily. As the number of participants within the case study was small (26), I handled the task manually. Opie (2004) acknowledges this as being the method typically used by the qualitative researcher. During the analysis however I was aware that the words in the transcripts were not necessarily as solid as they were in the social setting. Different kinds of data recorded in the transcript of the audiotape supported this. For the listener-observer, words can have their meanings subtly altered, for example, by the attitude of the speaker, his tone, his facial expression or body language. When transcribing I could picture each participant and remember the tone and facial expression they had used. I was aware that people do not literally say what they mean and their body language often gives a clue to the meaning.

3.5.1 Trustworthiness

If intellectual inquiry is to add to the overall body of knowledge it must demonstrate some measure of credibility. For this to occur the inquiry must,

> '...demonstrate its truth value, provide basis for applying it, and allow for external judgements to be made about consistency of its procedures and the neutrality of its findings of decisions.'
>
> (Erlandson, Harris & Allen, 1993, p. 29)

Lincoln and Guba (1985) refer to these qualities as 'trustworthiness.' The basic question regarding trustworthiness is: "How can an inquirer persuade his or her audiences that the findings of an inquiry are worth paying attention to, worth taking account of?" (Lincoln & Guba, 1985, p. 301) Criteria for trustworthiness include credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

3.5.2 Credibility

Lincoln and Guba (1985) recommend a variety of strategies for improving the likelihood that findings and interpretations produced will be credible. Two of these strategies are peer debriefing and member checking. They define peer debriefing as,

> 'a process of exposing oneself to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind' (Lincoln & Guba, 1985, p. 308)

With this in mind, I met with two peers who would not be participating in the main study. The participants were asked to make comments on the questions asked in the interview schedule and I made the necessary amendments prior to commencing the interviews. Although few changes were made (one question was removed and another reworded), this helped me refine my data collection plans with respect to both the content of the data and the procedures to be followed (Yin, 1994).

Member checking is a process through which respondents verify data and the interpretations thereof (Lincoln & Guba, 1985). Participants were asked at interview if they would read and validate their transcript. Some participants

declined providing reasons such as they would not have time to look over the transcript or they did not want to read what they had said at interview. I returned to five of the interviewees with a copy of the interview transcript to review, clarify, and confirm accuracy of the transcript detail. Feedback was received from tutor nine who requested that I include a reference to 'Kolb' reflective cycle in his transcript, 'I feel slightly embarrassed I never mentioned Kolb in our interview.' The other participants confirmed that my interpretation was in keeping with what they had meant. An alternative way to validate the data is to ask other researchers to examine all or part of the transcripts. A senior lecturer from the School of Nursing validated part of the data (Appendix 6).

3.5.3 Transferability

The emergent theory is dependent on a specific context and interactive dynamics, necessarily lowering the possibility and desirability of a focus on external validity, as compared with positivistic inquiry (Lincoln and Guba, 1985). Instead, the case study depends on a presentation of "solid descriptive data," or "thick description" (Patton, 1990) to improve an analysis' transferability. In order to enable others wanting to apply the findings of this study to their own research to make an informed decision about whether to do so, thick description of the experiences and identity development of the participants, as well as the definitive account of the researcher is provided.

3.5.4 Dependability and Confirmability

According to Lincoln and Guba (1985), both dependability and confirmability can be determined through audit. To establish dependability, an audit trail was kept by which the various stages of the study, including analytic techniques, were conducted and to account for raw data such as transcripts, relevant documents, interview guides. To illustrate confirmability, a record of the process, as well as copies of all taped interviews, notes from interviews, and hard copies of all transcriptions have been maintained. These records are available upon request from the researcher. Another technique, triangulation dovetails with the audit process.

Thus, I collected documentary data in conjunction with interviews as a way to corroborate evidence in triangulation.

3.5.5 Reflexivity: Reflexivity is the continuous process of reflection by the researcher on anything in the research environment: his own values, preconceptions, behaviour or presence and those of the participants, which may affect responses. One of the dangers of insider research is the possibility of bias. Therefore, I reflected on Oppenheim's (1992) suggestion for eliminating bias in interviewing. 'In the course of ongoing decisions about the granting of trust and cooperation, research subjects are liable to observe and classify those who seek to research their lives.' (Agar, 1996, p.105) 'The results of this process may affect general willingness to participate and the quantity and quality of data that eventually are disclosed.' (Song & Parker, 1995, p. 253) Insider researchers are likely, to some degree, already to share with respondents an internalised language and a range of experiences. Thus, in the interests of maximising the usefulness of their interpretations, as an insider researcher I utilised my personal experience selectively, without being confined to it. I considered the rapport between myself and the interviewee, the way in which I prompted and probed during questioning and the sequence of the questions. I reappraised coding of the responses, interpreting the recording of the data/transcripts and the handling of difficult interviews. I was aware that my presence could have affected the situation as participants might have wished to impress, avoid or influence me as the researcher, particularly as I am a member of the teaching staff within the University. However, this effect was reduced by ensuring as much as possible a careful presentation of myself. Burns (2000) supports this and suggests that the researcher tries to mitigate any possible negative attitudes through good interpersonal behaviour and rapport, and tries not to use 'forced labour'. The effect I had on the case being studied was acknowledged and reflected upon. This meant I had to stand back and examine the effect of my preconceptions.

To verify the findings, I have described in detail all the steps taken so that others can follow what has been done. Through sharing these experiences a

degree of objectivity has been achieved. Whilst the same interview cannot be repeated, other researchers can study the same phenomenon in a different setting with the same or different methods and then compare the data.

3.6 Triangulation

Triangulation is defined as using more than one method of data collection within the study to explain more fully, the richness and complexity of human behaviour from more than one stand point (Burns, 2000). It is essentially a means of using different ways of looking at the same problem in order to strengthen and enhance the data. Greenhalgh (2005) supports the use of more than one method in combination as the validity of qualitative methods is greatly improved.

I considered Creswell's (1994) point that data collection procedures in qualitative research involve four basic types: observations, interviews, documents and visual images with each type having advantages and disadvantages. To ensure my confidence in the data that I had generated, I collected documentary data in conjunction with interviews as a way to corroborate evidence in triangulation. Due to the small number of participants, a combination of semi-structured interviews and documentary evidence was used. The main data source was the interview transcripts of the three participant groups: students, tutors and educators, but policy and university curriculum documents including assessment (knowledge, skills and attributes) records, the Record of Achievement, a portfolio which demonstrates the student's clinical experience and formal medical education documents were studied. These documents were examined for the same textual features, the words which have been recorded without the intervention of a researcher and some examples collected (Appendix 7). Obtaining data from the different groups; reporting of any personal bias by the investigator, authenticate how the data were obtained and decisions about the data and categories are documented in this report (Appendix 8).

3.7 Ethical considerations

Ethical considerations applied throughout the research. I considered the ethical implications of interviewing the participants before, during and after the interview. I considered respect for democracy, respect for truth, respect for persons and respect for educational research (Bassey, 1999). In order to adhere to all aspects of the process of conducting the research and to reach an ethically sound position I followed the British Educational Research Association (2004) ethical guidelines for educational research. I sought permission to conduct the research; collect and analyse the raw data; interpret the statements and report the research; arrange for the transfer of the ownership of the record of the account; conceal the individuals' identities and the setting of the research; publish the case report. Anonymity and confidentiality were considered so that the rights of the individuals were not compromised. Participants were given an introductory letter via email with the details of the study, why the study was being carried out and the format of the interview (Appendix 9). They accepted the email invitation for interview. Any further information was given as and when they required it. Prior to arranging a meeting for interview participants were advised that they may withdraw at any stage. Queries were answered verbally and written consent was obtained. Having participants sign a consent form provided a degree of proof that the person was aware of the nature of the study and they had consented to take part (Burns, 2000). Ethical approval at the University level was obtained before the research began (Appendix 10).

3.8 Assumptions

In conducting this research I made few assumptions. I assumed that the participants who were interviewed were adequately representative of other students, tutors and educators; the data collected from the participants were appropriately interpreted; thematic saturation was complete and I would stop data collection at an appropriate stage.

3.9 Limitations and delimitations

The study was limited to the extent that it did not interview a large number of individuals. The case study is not generalizable to similar populations or to all areas of medicine and may not be representative, typical or repeatable. However, it was not my intention to generalize but to understand the case in its complexity and its entirety, as well as its context. This will be discussed more fully in the next chapter. It is intended that the study will provide a rich description so that readers can see whether the study is applicable to their situation, or not.

4 PRESENTATION OF FINDINGS: PARTICIPANTS UNDERSTANDING AND EXPERIENCE OF REFLECTION

This chapter which is divided into three sections presents the data drawn from the interviews with students (seven), tutors (eleven) and educators (eight). All participants were asked about their understanding and experience of reflection in their programme of study. Reflection was examined in terms of their understanding of its meaning in context as 'reflection', 'reflective practice' and 'critical reflection'.

Much of the literature on reflective education is on the value and definitions of 'reflection' and reports of attempts to implement 'reflective practices.' It was evident from the literature that there is a scarcity of evidence in relation to undergraduate medical students', tutors' and educators' understanding and experience of reflection. However, there is an abundance of literature relating to teacher, nurse and other healthcare professional education. Issues identified from Chapter Two informed the main research question, 'What are the students', tutors' and the educators' understanding and experience of reflective practice and reflective learning within the MBChB undergraduate degree programme?' These issues were used to develop the interview questions:

Research Question 1: What do the student, tutor and educator understand by the terms 'reflection', 'critical reflection' and 'reflective practice'?

Research Question 2: What are the students', tutors' and educators' experience of 'reflection' in terms of teaching, learning and assessment?

Research Question 3: What support is offered by the Medical School to develop the students' and tutors' skill of 'reflection'?

Research Question 4: What, if anything, would the student, tutor and educator like to see change in how this support is effected?

These broad pre-formulated questions were used which allowed additional questions to be asked. The interim results were used to explore certain areas in greater depth. To generate meaning from the transcripts and interview data codes were assigned to recurrent themes representing a description of each

participant's experience, setting up a thematic framework within which material was examined. The codes defined categories which gave a wealth of material an order and structure. Coding the interview responses was a way of condensing data excess from the qualitative data. Creating meaning came from the transcribed interview data by: counting frequencies of occurrence of the ideas, themes, pieces of data, noting patterns, clusters, creation of similes. During the first round of coding patterns and themes emerged and generalisations were made for example by counting the frequencies of codes. Due to the number of codes data was re-coded on a second and third reading. The thematic framework was used to classify and organise the data according to themes subdivided by a succession of related sub topics. Minor themes from clusters of meaning determined dominant themes which expressed the essence of the combined clusters and minor themes.

Presentation of data

The data drawn from the interviews of the three groups of participants will be presented in turn using the sub headings drawn from the overall research question.

The data is organised under two main sub headings or 'dominant' themes:

- Educational issues
- Professional issues

Once judged to be comprehensive each dominant theme was charted by completing a table where each case has its own row and column representing the sub topics (Table one). The main source of data analysis came from the semi-structured interviews, literature and documentary sources. The dominant themes which emerged from the data analysis relate to the main issues identified within the literature review and documents, namely policy and curriculum documents. The minor themes were determined from the cluster of ideas which originated from the semi-structured interviews. Several of the combined clusters and themes were evident in the literature and documentary sources.

Dominant themes	**Minor themes and *cluster of ideas***	**Reference Code-Student**	**Reference Code-Tutor**	**Reference Code-Educator**	**Analytical sources-Semi-structured interviews, literature, policy documents**
Educational issues	**The term 'reflection'**	**4.1.1**	**4.2.1**	**4.3.1**	Semi-structured interview/ literature
	Understanding of the terms 'reflection', 'reflective practice' and 'critical reflection'	4.1.1.1	4.2.1.1	4.3.1.1	Semi-structured interview/ literature
	Teaching and learning	**4.1.2**	**4.2.2**	**4.3.2**	Semi-structured interview/literature/documents
	Preparing to reflect	4.1.2.1	--------	4.3.2.2	Semi-structured interview/literature
	Reflective skill development-strategies and resources	4.1.2.2 --------	4.2.2.4 --------	4.3.2.1 --------	Semi-structured interview/literature/documents
	Time	4.1.2.4	4.2.2.2	4.3.2.4	Semi-structured interview/literature
	Staff training and continuing professional development	--------	4.2.2.5	4.3.2.5	Semi-structured interview/literature
	Learning with others	4.1.2.3	4.2.2.3	--------	Semi-structured interview/literature
	Theory and practice	--------	4.2.2.1	--------	Semi-structured interview/literature
	Tutor guidance and resources	--------	--------	4.3.2.3	Semi-structured interview/literature
	Assessment	**4.1.3**	**4.2.3**	**4.3.3**	Semi-structured interview/literature/documents
	Perceived relevance	4.1.3.1	--------	4.3.3.1	Semi-structured interview/literature/documents
	Uncertainty	4.1.3.2	4.2.3.1	--------	Semi-structured interview/literature
Professional issues	**Policy and curriculum requirements**	**4.1.4**	**4.2.4**	**4.3.4**	Semi-structured interview/documents
	Perceived importance of reflection	**4.1.5**	**4.2.5**	**4.3.5**	Semi-structured interview/literature/documents
	Patient care	4.1.5.1	4.2.5.1	4.3.5.1	Semi-structured interview/literature/documents
	Professional context	--------	--------	4.3.5.2	Semi-structured interview/literature/documents
	The Facilitator	**4.1.6**	**4.2.6**	**4.3.6**	Semi-structured interview/literature
	Attributes	4.1.6.1	4.2.6.1	4.3.6.1	Semi-structured interview/literature
	Environment	--------	4.2.6.2	--------	Semi-structured interview/literature
	Self	--------	4.2.6.3	--------	Semi-structured interview/literature
	Role model	--------	---------	4.3.6.2	Semi-structured interview/literature

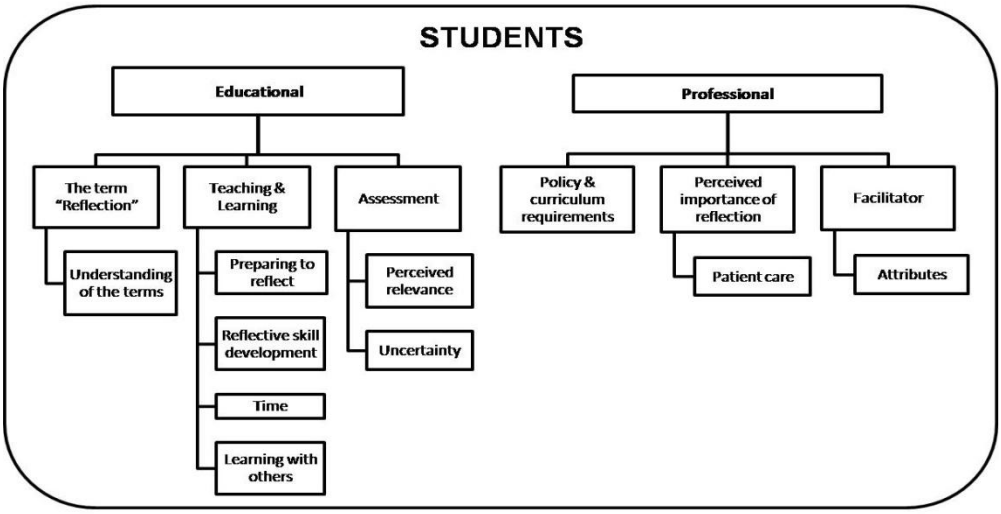
Table One: Classification of Emergent Themes and Analytical Sources

Data was collected from three participant groups to explain more fully, the richness and complexity of the participants' understanding and experience from more than one stand point, and to strengthen and enhance the data (Burns, 2000). The participant's perceptions of reflection are presented using the sub headings or 'minor' themes and clusters of ideas within each theme drawn from the research question. Each theme is important to the learning and development of the medical student and the teacher of medical education, and for the development of the medical curriculum.

Similarities or common themes emerged from the data which were significant to all three groups. Thus, the groups (student, tutor and educator) are presented in turn to illustrate each group response, the different sets of evidence and the commonality between groups.

The main issues will be drawn together to formulate the discussion in Chapter Five and the conclusions and recommendations in Chapter Six. The quotations are extracts from the transcripts.

SECTION 4.1: STUDENTS' UNDERSTANDING AND EXPERIENCE OF REFLECTION



The data to follow illustrates the students' understanding and experience of 'reflection'.

Educational issues

4.1.1 The term 'reflection'

4.1.1.1 Understanding of the terms 'reflection', 'reflective practice' and 'critical reflection'

From the outset of the interviews students raised concerns over the terms 'reflection', 'critical reflection' and 'reflective practice'. They identified a need for clarity in their understanding of the terms in order to support their education and personal and professional development.

The students' understanding of the terms 'reflection', 'critical reflection' and 'reflective practice' was varied. Three of the seven students indicated that the words either shared the same meaning or they did not know what the words implied (Appendix 11.1):

> 'I find there are lots of words and phrases like this that are bandied about... I'm not very sure what you mean. I don't understand the difference between these jargon terms...' (Student three)

Student one indicated that although he had not heard of the terms, he was aware of being asked to reflect on 'an' aspect of the course in the context of

looking back on the course and identifying any mistakes which were made. The student identified this as being of value to his education:

> 'I'm not 100% sure about what it means but it sounds ok...given the fact that a student would look back on what he's been taught and learn from his mistakes I guess that would be quite useful' (Student one)

The value of reflection for personal application was emphasised by three participants. They indicated that critical reflection would be used for evaluation purposes where more thought would be given to the evaluation or critique of a situation or the self (Appendix 11.2). Reflection, on the other hand, was an immediate response and an opportunity for improvement when something was wrong, although there was still doubt about its meaning, summarized as:

> 'I think the two could...overlap to some extent but to me critical reflection, you'd have to ...evaluate things...there would be a certain goal to get out of it. But I don't know...reflective practice means more of having a look at what's happened and what can be improved...Reflection to me ...it's something that you would have to do very quickly to sort out something that might be going wrong...I'm really guessing what that is...' (Student four)

Two participants also related the terminology to the course evaluation. They had been asked by Faculty and Doctors, Patients and Communities (DPaC) to complete a course evaluation form identifying areas for improvement and what they had gained from the course. However, another student was doubtful if that was what the terminology meant:

> 'I assume you are talking about reflecting and evaluating either my own performance or we're often asked to evaluate other elements of the course...I think' (Student three)

In some instances, the students had created a structure for reflection, relating to: areas for improvement and a desire for growth; what went well, what didn't go well and what can be done to improve things in the future, either by relating it to the self or to the performance of others.

Reflection was also considered to be a subconscious daily activity or occurrence, with an emphasis on the need for improving themselves, and the

cost to them personally if they did not. Four students referred to reflection as being a natural process in life (Appendix 11.3):

> 'I think it's just something that I do as part of my life...I reflect a lot in life... in my mind there's no sort of logical structure to it, it's something that I do naturally anyway' (Student four)

4.1.2 Teaching and learning

4.1.2.1 Preparing to reflect

Students gave varied replies when asked when they were first introduced to the term 'reflection'. Two students with a previous healthcare degree had some understanding of reflection and related this to their previous undergraduate education and experience. For one student this prior education was provided by nurse educators and nursing staff:

> '...It was quite an extensive component of my initial...degree. My first encounter...The first part was mainly taught by…nursing lecturers…It was throughout the entire three years of my degree so it wasn't just taught in a section and you were expected to get on with it, it was a continuous process through three years…'(Student six)

Three students who started the medical course directly from school, and one student with previous work experience out-with healthcare indicated that they had no formal education in reflection. Five students were doubtful if they had received any teaching of the subject whilst at Medical School (Appendix 11.4):

> 'Not in the main curriculum, there's not been. It's more teaching what you need to know rather than reflection. Clinical skills they…do something along those lines…but not really' (Student seven)

Five of the seven students indicated that since starting medicine only two parts of the programme, namely Clinical Skills and DPaC had incorporated 'reflection' within the teaching sessions although the term 'reflection' had not been referred to. However, one student did not agree:

> '...we have been introduced to it in DPaC but not clinical skills' (Student two)

4.1.2.2 Reflective skill development: strategies and resources

When asked what educational support is provided by educationalists to develop the reflective ability of the student, three students highlighted a lack of support. They indicated that unless the teacher was interested in teaching they did not seem to care, or their knowledge was not as developed as those who showed an interest in the subject (Appendix 11.5). Student six suggested:

> '…maybe in the natural history and progression of the profession of medicine doctors are not reflectors or reflective practitioners.'

One student spoke of the (ward) tutor looking at the students (patient) assessment records but not looking at any of the reflective elements. She also suggested that if the students had been given more support it would have prevented them from omitting aspects of their work pre-submission and then having to change their coursework post- submission:

> 'The consultants or the Specialist Registrars who take us for ward teaching don't especially concern themselves with reflection...I haven't heard them talk about reflective practice or anything like that... I think right from the start I was omitting a couple of points and I realized that later but I couldn't go through and change everything...I don't think my consultant is particularly interested in reflective practice' (Student three)

Three students considered that there are structures which can aid the process of reflection, if required. Two students could not remember the name of the model they had used and one referred to 'Gibb's' reflective cycle. Two students indicated that individuals reflect, whether or not they have been taught or have a structure to follow.

Four students with no previous higher education experience indicated that they were aware of educational frameworks and models to support reflection. However, with the exception of one student, they did not know of any process or structure within the Medical School which could or should be used to support their learning. One student relied on one of her student peer group's experience to educate her:

> ‘A peer mentioned some very easy framework: ‘what happened?’, ‘so what?’, ‘what now?’ something like that and he says he uses that...I think that’s a very good sort of framework’ (Student four)

The three students with a previous degree qualification summed up the value of their past experience and linked a sound reflective ability with experiential learning. Having a process or structure to follow was a useful aid for the students to structure their thoughts and gain meaning from the experience.

Students indicated a need for more education in the early years of medical education. Viewed as a continuum of learning five students suggested that taught reflection should commence in year one as it is a useful skill to have throughout life (Appendix 11.6). The perceived personal benefit and the need for extra education within the curriculum were seen as an important future development:

> ‘I would like to understand reflection more... try to get medical students to use reflective learning. It might be worthwhile having a lecture...how it can help within your profession and have concrete examples of it...One part of it is getting told how something works in practice and how someone’s found it very useful...I think a lot of people...prefer that’ (Student four)

Relating reflection to the completion of the RoA, students one and seven said respectively that it was better to get it ‘right’ from the start than getting it ‘wrong’, and then having to ‘change a habit’ or to ‘struggle with it’. Another student said:

> ‘First year is the place you’ll grasp it...you’ll then have the knowledge in first year and remember what reflection is... rather than having no teaching about it and then in your RoA having to reflect, or someone mentioning it and people saying what is reflection?’ (Student six)

Four students suggested various teaching styles which could be used by the tutors to develop their knowledge and skill. This included: a lecture with examples from practice; a taught module; learning with nurses; guidance on how to reflect. As there was uncertainty of the curriculum content in later years, an overarching aim would be to know what is expected in each year and at what level.

4.1.2.3 Learning with others

As there is a need to improve the reflective education of medical students, students four and six also indicated that medical students could learn from nursing staff which was summed up by:

> 'I don't think it has been that well taught at Dundee because it's not fixed clearly in my mind... I think there are better ways of learning... it's something that can be started in the earlier years in 1st year through to 3rd year. I don't know how the nurses do it or how it's taught but maybe we can learn from them' (Student four)

This student, a graduate, indicated that written reflection can be a barrier to learning. He was worried about its interpretation by others. Thus, there was an expectation that the teaching of reflection must be done sensitively and appropriately to be of any worth to the student. The implications of misinterpreting the student were seen as significant and a barrier to reflection:

> 'I think reflective practice is very personal…you know it feels a bit strange writing personal thoughts down…you don't know where it's going to go and who's going to see this, and will you be made fun of if anyone else finds it…that's a barrier to it' (Student four)

4.1.2.4 Time

Three students raised a point that students need time to reflect. They indicated that educationalists expect the student to reflect, 'we have to make time for it because we have to do it' (Student four); '...under time pressure you just have to reflect...' (Student one). Due to time constraints within the course one student acknowledged that the teacher may not have time to explain reflection to the student. The student may complete the Record of Achievement without guidance:

> '…maybe they [teachers] don't have time to convey to the students ... what reflective practice actually is' (Student six)

4.1.3 Assessment

4.1.3.1 Relevance of assessment

When asked if any assessment strategies within the curriculum require the student to reflect, two students related to reflection as part of the assessment for the Dundee Learning Outcomes. Another three students acknowledged

that the Record of Achievement (RoA) was a main aspect of the course and the main assessment in year five. One student suggested that there was a need to expand the opportunities for reflection within the curriculum by increasing the number of learning outcomes within the RoA which have a reflective statement:

> 'The RoA...there's only a very few reflective questions…at the end. You know personal development...I just think that there's room for [reflection] after every outcome to reflect on...what you've really learnt from every outcome. Maybe you do that in fifth yr have one really big exercise but I think it might be worthwhile putting a few more questions about reflective learning in the RoA' (Student four)

Despite its significance within the assessment structure students indicated that they had received little preparation, guidance or written instruction for the completion of the RoA in years one to three, summed up by:

> 'I don't know how it [RoA] is really assessed or not. It's supposed to show that we are reflecting, I think' (Student five)

They questioned the value of the RoA as they did not know what level or depth of reflection was required to demonstrate a critical approach to their learning. One student, insightful of this, was aware that his written work should have more detail and he questioned the level at which he was currently demonstrating his reflection:

> 'It's probably in relation to the RoA document because that's the main area we're being asked to reflect on. I was finding that when I was writing it I was putting statements like, I must improve my communication skills or I didn't think that I was asking the right questions. Lots of sweeping statements but not actually going into any detail as to what exactly didn't go to plan' (Student two)

Completion of the RoA in years one to three was viewed by four students as a 'fill/tick the box' exercise (Appendix 11.7):

> 'your issued guidelines this two page guideline of how to fill it [RoA] in but not anything specific …it's generally a document you have to fill it in as you go along sort of thing, and it's like filling in lots of boxes' (Student six)

4.1.3.2 Uncertainty of assessment

A similar approach to their learning was taken to be the norm, whereby seven students indicated that they made 'general' statements within the RoA based on what they did, what they observed, what is right, what is wrong and how to make improvements on their practice summed up by:

> 'We are asked to reflect in general on how well we do things and where we need to improve, and that's a large component of our Record of Achievement' (Student three)

Students spoke of the need for them to demonstrate their understanding of a situation within their RoA. However, they were uncertain as to whether or not the information they had provided was sufficient for the assessment purpose:

> 'Next year it's [RoA] made a bigger thing so certainly it would be helpful to put more meaningful information ...in our RoA document than we are. Maybe I'm being too superficial the way I am writing things down. We know a little bit about it [reflection and record of achievement] (Student two)

Although aware of an assessment marking key, three students indicated that they had not received any guidance on what the marker would be looking for. Thus, they could not ensure they had met the necessary assessment criteria. There were a variety of views on how the RoA should be completed and uncertainty about how it is assessed or graded (Appendix 11.8) summarized as:

> '...I think we should know what the overall target is ...and what to expect in each year and to know that we are improving...At the moment we're just trying our best but we don't know...if that is good enough or if we can improve on it' (Student two)

> 'You're issued guidelines, this two page guideline of how to fill it in [Record of Achievement] but not anything specific …it's generally a document you have to fill in as you go along… I think the reflective part of it is the sole part of the assessment for an outcome...so I find it strange that even though it's dedicated to a whole outcome there is no teaching around it, about the structure for critical reflection…our Record of Achievement is one of the biggest things that we have to do in the first three years... In second and third year there was always a couple of pages where it said reflect on this experience…chatting to a

> lot of my friends they didn't have a clue how to do that. They just thought of it as how did it go sort of thing...' (Student six)

Three students indicated that the facilitator would need to have knowledge of the practice area and know what the student is being asked to do for the completion of their assessment.

Professional issues

4.1.4 Policy and curriculum requirements

When asked where the course documents refer to 'reflection', 'critical reflection' or 'reflective practice', three students reported that they were not aware of any written information.

Three students recognised that the Medical School requires the student to have completed twelve learning outcomes by the end of the programme of study, and have the relevant attributes and people skills. However, there appeared to be little awareness, knowledge or understanding of reflection in the context of the actual General Medical Council (GMC) and *The Scottish Doctor* requirements (Appendix 11.9):

> 'I can't list the outcomes [Dundee Learning Outcomes] or what numbers they are but it's the structure that the course uses to identify the skills...and attributes they want us to have by the end of the course, something they want us to work towards…' (Student three)

4.1.5 Perceived importance of reflection

4.1.5.1 Patient care

The importance of reflection from the patient's perspective and to improve themselves as doctors for patient care was recognised by five students, summed up by:

> 'I think it is one of the essential things for today's doctors to be able to look back on what you do...at the end of the day it's that you improve for patient care' (Student two)

Four students related the importance of reflection within healthcare, namely nursing and the professions allied to medicine. From an interpersonal perspective, three students identified the importance of recognising the

emotional context, in particular the feelings and the discomfort some individuals might experience with reflection:

> '...if you've had a bad experience, that patient was awful, that consultant was awful, that experience was awful... I think they identify them... but don't do anything about it' (Student six)

4.1.6 The Facilitator

4.1.6.1 Attributes

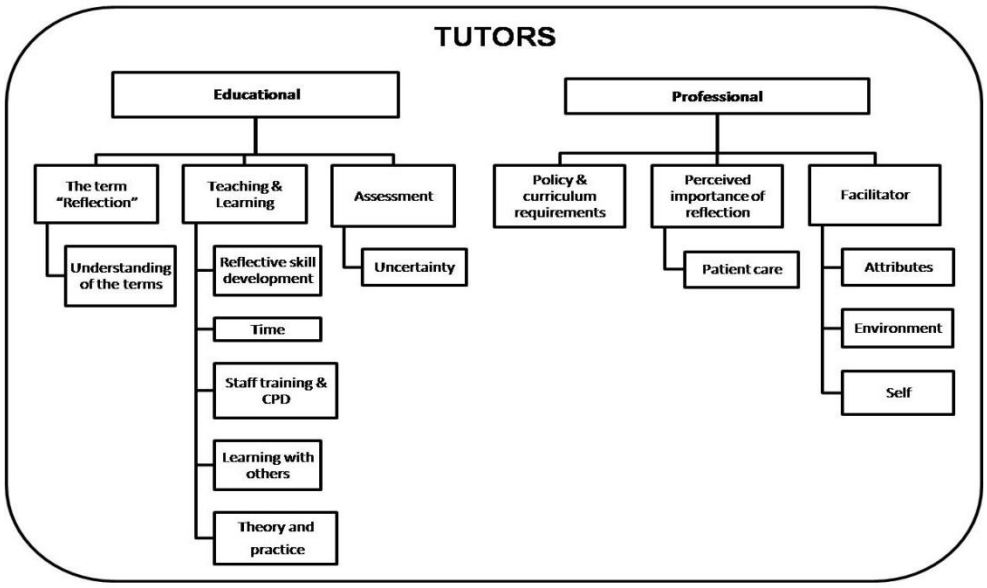
Three students suggested that a good facilitator should be a non judgmental, positive effective communicator with a personal approach. An effective communication style and being well informed were deemed essential to make the teaching and learning of reflection interesting. They also looked for enthusiasm and an awareness of interpersonal skills (Appendix 11.10):

> 'I think to be a good facilitator you would obviously have ...to allow them [student] to be free with their opinion …really probe deeper in what they are saying and what they mean by it and give examples... if they have a structure... get the details that we need, then it would help' (Student two)

However, although appreciating a neutral, unbiased approach from the facilitator, one student raised a concern about the teacher's lack of interest in teaching in particular, their lack of compassion:

> 'Someone ... impartial, they don't have really any views, someone who doesn't really know you... and you wouldn't have any worries on passing any information on, trustworthy, someone you can talk to no matter what, so someone open. Some of them [teachers] just want to get you in the door and out the door...they've got other things to do and they may not all be teaching, they may be part of the teaching...some people don't care so it's important to come across as if you're caring so that the other person can open up to them, say what they think' (Student seven)

SECTION 4.2: TUTORS' UNDERSTANDING AND EXPERIENCE OF REFLECTION



The data to follow illustrates the tutors' understanding and experience of 'reflection'.

Educational issues

4.2.1 The term 'reflection'

4.2.1.1 Understanding of the terms 'reflection', 'reflective practice' and 'critical reflection'

When asked what they understood by the term 'critical reflection' all tutors with the exception of two, indicated that it meant to analyse practice, to change or improve practice, a learning process or an experience (Appendix 12.1):

> '...it's not a term I have come across until you communicated with me' (Tutor five)

> '...critical reflection I haven't come across...critical reflection is a new term for me' (Tutor ten)

When asked what they understood by 'reflection' or 'reflective practice' six tutors stated that they did not know of a definition and could only guess what it meant. Four participants indicated that this was the first time they had tried to articulate their understanding (Appendix 12.2):

> ‘To be honest I wouldn’t know. The term is new to me...so there will be a definition behind that term but I would have to make something up now but I haven’t heard the definition of the term’ (Tutor two)

> ‘I don’t know that I can do that very quickly in one sentence. I have to say I would have to think about this...good question…I haven’t really ever thought about it’ (Tutor six)

Reflection was viewed as a learning aid in which a critical analysis of what has been done helps to improve future practice. When asked what the terms meant, tutor three laughed nervously recognising that her description was a guess. However, she said she thought it to be within the cognitive domain:

> ‘…to apply a thought process on…something that has happened but obviously you can reflect on the future as well so it isn’t necessarily…to do with the past. Reflect is to give your attention to, I don’t know [laugh] it’s a thought process. Reflection is to think about something...’ (Tutor three)

Tutor four suggested that the term ‘reflection’ is recognised. However, it may or may not be used in practice. Sometimes the term may be meaningless and the very word may be a barrier to reflecting. With respect to his own experience, this tutor viewed reflection as critically analysing a situation and acknowledging a future learning objective:

> ‘I feel that it’s a word we use but we don’t necessarily use in our practice and to me it would be looking at perhaps an event, being able to look at an event, being able to critically analyse that and from that taking that forward in terms of future planning’ (Tutor four)

Three tutors recognised the need for reflection to be part of a practitioner’s life, a part of demonstrating self development and a normal, ongoing part of what a practitioner is.

4.2.2 Teaching and learning

4.2.2.1 Theory and practice

Tutors made a reference to the relevance and importance of reflection as an integral core part of the medical degree programme and curriculum development, relating it to educational theory. Six tutors identified a need for reflection to be a core strand and a theme running through the course. This

would enable it to be developed throughout the students' medical education (Appendix 12.3):

> '...I think to have it delivered as a core skill would be good...it is a universal skill which should be universally applied in whatever part of medicine you end up...' (Tutor seven)

Two tutors identified a link between theory and practice, and its importance to students when they address, 'what' type questions from a position of their personal perspective. These tutors also attached importance to their own self reflection as a possible role model for the students:

> '…somebody who can reflect on what they do themselves…somebody who knows what it means not just in theory but who can actually do it …because we can't encourage the students to do it if we're not doing it or understand why we're doing it' (Tutor six)

However, it was also pointed out that the General Practitioner may not have the knowledge or skill to support the students learning or be the role model that the students require to support their development. Tutor six suggested that as tutors they may go with their experience or instinct rather than any theoretical basis. This tutor had a belief that there was no requirement to have a theoretical knowledge to teach:

> 'I am really working on instinct and the way I have learned and have related with people over the years rather than being any formal structure... I would need to have more of that formal structure coming back to the theories of why we are doing things and what works and what doesn't...' (Tutor six)

There was a concern that the lecturers may not know of a process to support the students learning:

> 'I don't think we are that clear about the whole process of reflection so I would imagine that there is room for improvement, to actually identify the process' (Tutor nine)

4.2.2.2 Time

Three tutors recognised the importance of having time to self-reflect and the need to undertake training to develop their knowledge and skill. However, tutors pointed out that they may not have the time to study within their work commitments (Appendix 12.4):

> ‘I think there’s not so much free time to sit back and work out what went well, what should I do now, having a look at how others are behaving...I’m sure there are courses available... it’s down to the fact of time to do the course’ (Tutor two)

4.2.2.3 Learning with others

Another view referred to nursing. A comparison was made between the training which medical and nursing students receive and the need for training in Medical School. Where medical tutors could not relate to any training in the topic, three tutors with previous nursing experience related to their past experience and education in nursing. This tutor related to her own experience in nursing and the experience of one of her medical students:

> ‘In nursing, reflective practice is much better taught and much more prevalent. It is a much better way of being very conscious of how you practice and when areas are highlighted, where an individual needs to improve their practice or learn more. It is a means of learning and keeping your knowledge and your skill up to date. There was one particular [medical] student [third year] and this was the student with the degree in nursing. He was quite annoyed about the poor training...that was given to the [medical] students ...he felt that his fellow students hadn’t had a proper training’ (Tutor seven)

There was a mutual respect for how the student can support a tutor’s development although not all tutors saw teaching as a significant part of their role:

> ‘Because this is just a small part of my job in a way I am reluctant to be taking on anything else ...’ (Tutor six)

4.2.2.4 Reflective skill development: strategies and resources

Tutors were asked what teaching and learning resources or strategies are provided by the University to support the students’ learning. The response indicated that the majority of tutors were unaware of any approaches to support the students’ learning, although tutor five had ideas from previous practice, which included reference to a bibliography and websites.

When asked what, if any, tools, models or frameworks they use to aid the students’ reflection, all but one tutor (tutor eight who referred to using the Gibbs reflective framework) indicated that they did not support the student in

this way. Tutor seven referred to the name 'Kolb' but indicated that she did not know anything about it. It was a name which a student had used. There was a lack of knowledge about the terms reflective 'model', 'framework' and 'cycle' which was summed up by:

> 'I don't know what you mean by model/framework... I don't use any tools to help the student reflect...' (Tutor nine)

Moreover, there was uncertainty of whether or not a 'reflective framework' was part of the curriculum. One tutor indicated that if reflection is a curriculum requirement then it could be taught as part of their training:

> '...one of the students pointed out that they [the students] did not have a lot of formal training...and that was an omission' (Tutor seven)

Experiential learning and the use of appropriate teaching and learning strategies were deemed significant to provide the student with some direction to their learning.

Participants gave a clear view of the need for developing the students' reflective skills within the early part of the programme to provide a framework and give meaning to their learning. When asked at what stage and where reflective skills should be integrated within the programme of study, seven participants indicated that they should be taught in year one, from the outset of their Medical School education (Appendix 12.5). It was recognised that in the early years students may not reflect well, but there is a need for them to understand the significance of reflection, and develop the skill of critical thinking:

> ''We all need to analyse what we are doing...we all need to be reflective practitioners...there's no point in teaching it to someone when they're in the third or fourth year of their course. They would be better learning it from the beginning and building upon that. I think it should start in first year...some of the students were unsure of what I was asking them to do and I think if they had understood reflection they would have been able to use it...' (Tutor eight)

Three participants suggested that students could be taught, in lectures, as part of the study guide or face to face meetings (Appendix 12.6):

> ‘I think it’s better introduced on a face to face level ...we could always introduce it and then maybe follow it up at another session or time...I think they need a verbal direction, face to face direction as to what they are actually expected to do’ (Tutor five)

4.2.2.5 Staff training and continuing professional development

Tutors identified variations in their preparation for teaching. When asked what teaching or educational qualifications the tutor had to support the students learning, one tutor had a formally recorded teaching certificate, but ten out of the eleven tutors had no formal training in education:

> ‘No I haven’t any formal training. It’s all just what I’ve picked as I’ve gone on through the years. It’s just intuitive rather than formal’ (Tutor six)

With the exception of the three tutors (i.e. two who came from a previous nursing background and one who related to the significant event analysis from general practice) eight of the eleven tutors had no previous training or education in reflective learning (Appendix 12.7).

There were varying views and uncertainty when asked what, if any, staff training is offered by the University to support and develop the tutors’ understanding of reflection. Nine tutors indicated that they had received minimal or no preparation from the University to support the students learning. Although some reference had been made to reflection within the DPaC sessions there was a concern that tutors may never have thought about reflection, especially those with no formal training. All tutors deemed it necessary to develop their knowledge base and understand how reflection facilitates the learning of others**.** This they said should be done in a standardised way which was indicated by tutor four as: ‘singing from the same song sheet.’

Reflective practice was recognised as a relatively new concept within the medical curriculum. This was evidenced by five tutors own perception of their lack of experience, knowledge and skills in teaching. Teaching reflection was a concern for these tutors and an opportunity for a staff

development session. Their concern arose from not knowing any theory and having no previous experience of reflecting. Thus, suggestions for a staff development session were considered by those tutors who had no formal teaching qualifications. These included: theory, workshops, tutor guide, teaching and learning resources (Appendix 12.8):

> '...we could get essential information about what is required... a tutor booklet so that you are supported...to improve your teaching...a teaching session where you as a tutor ...learn more about the theory and practice of reflection...I don't think we are that clear about the whole process of reflection ...there is room for improvement...it would be good to have some theories, some methods...' (Tutor nine)

They also suggested that a training day based around reflective practice should be offered to staff. The training should be facilitated by someone who has prior knowledge and the experience to teach it. This was succinctly addressed by tutors three and eleven:

> '...if this is something that we are going to be doing more with our students it would be useful to have a demonstration or some training sessions' (Tutor three)

> '...I don't know how you teach it. I've never been on a formal course of how to be reflective or how to teach someone on how to be reflective.... I don't know the best way you would get it across...' (Tutor eleven)

Five tutors said that reflection should be a collaborative and core element of the teaching sessions. Tutor education was necessary to support the students' learning. Supporting others to reflect was seen as an important aspect throughout education, summarised as:

> 'I suppose reflection takes place from the minute when you enter into any form of education system...to be able to discuss it with others...that's an important part of the reflection process...encouraging others to reflect on their own practice' (Tutor one)

When asked what, if any, continuing professional development requirements they had, three tutors indicated that sharing ideas and experiences with other tutors would be useful as part of their own appraisal process, summed up as:

> ‘I think the peer visit is good but I think we do need more on that. I think we could learn from other people’s ...ways. I believe the most important thing about the whole appraisal process is reflection and peer support’ (Tutor nine)

By participating in this research study five tutors indicated that it had provided them with an opportunity to consider their teaching in more detail. Emphasis was placed on staff training, continuing professional development and the need for educational theory. There is a need for a standardised and structured approach to education, a point which was matched by this tutor:

> ‘...if people are doing things in a similar fashion it allows consistency which could be applied to particular areas, so if we were to be reflecting in a more structured way in education it would allow you to deliver ...a core support...’ (Tutor two)

By standardising their approach to teaching and learning they could better support their students in achieving the learning outcomes, ‘to be ‘au fait’ with the curriculum and the changes’ (tutor four). They referred to the study as a ‘good introduction to the term’ (tutor five); ‘a stimulating and positive introduction’ to the use of reflection in education, (tutor two) and saw it as providing ‘an opportunity to incorporate the reflective cycle in a more recognisable way’ in their own learning, (tutor seven):

> ‘...it’s been quite interesting ...it starts to get you thinking...I should find out about what everybody’s expectations are of teaching reflective practice are and what it is that we are actually trying to achieve, what everybody’s definition is...it’s something that we definitely need to teach people’ (Tutor eleven)

4.2.3 Assessment

4.2.3.1 Uncertainty

When asked what assessment strategies refer to reflection or reflective practice within the curriculum documents**,** seven of the eleven tutors stated that they were unaware of any (Appendix 12.9). They recognised that the word ‘reflection’ is referred to. However, it was unclear how it is used in educational practice, and is assumed that students will learn it and know how to apply it to practice which was summed up by:

> ‘I assume they are in place but you know... I’ve not come across them or read them’ (Tutor five)

Tutor ten said that the less mature students need led by the hand. They want to do the bare minimum, just 'ticking the boxes' for assessment.

Professional issues

4.2.4 Policy and curriculum requirements

When asked where in the course and policy documents reflection is referred to, eight tutors were uncertain and said that they had not read any documents or were not familiar with the overall curriculum. Tutor two suggested that it was not his business to know of any documents. Three tutors were uncertain whether there were references to reflection in the tutor handbook, the student selected component (SSC) and the student guide. Two tutors questioned whether reflection was a part of the General Medical Council or the Dundee Learning Outcomes (Appendix 12.10):

> 'I haven't read any of the [GMC] documents in any detail so it would be unfair for me to say' (Tutor six)

> 'Well the only one I know of is the SSC you teach but I must admit I'm not familiar with the overall curriculum. There are Dundee learning outcomes. I have to admit I don't think that's actually mentioned in there but I couldn't say specifically that outcome seven says one of the things we're trying to do is make the students reflective...' (Tutor eleven)

Six tutors had little knowledge of where in the curriculum reflection is taught or referred to. There was a general lack of awareness of the curriculum although reflection was considered by tutor six to be a part of the Doctors, Patients and Communities (DPaC) programme.

4.2.5 Perceived importance of reflection

4.2.5.1 Patient care

The importance of reflection from the patient's perspective and for patient care was given:

> 'I think it's important to everybody who is dealing with a client base...it's all very well knowing how to do a procedure but if you don't know how it affects the person ...how they are feeling about it you can never change your practice...That might be different for different groups of people but you've always got to reflect back on the fact that this didn't go right, why didn't it go right this time, what

> was different about this person, and when you meet with that kind of person the next time that experience will be taken into that situation...' (Tutor six)
>
> '...we all need to analyse what we are doing to ensure that we are giving the best patient care' (Tutor eight)

Reference was made to reflection and the qualified doctor, and one tutor made a comparison between a significant event analysis in practice and reflection by:

> 'What we call in general practice a significant event analysis, for example if there is a particular event with a patient....how we can change practice in the future' (Tutor seven)

Although six tutors associated reflection with the most negative or challenging aspects of practice and teaching, one tutor suggested that it may also be used to critique good practice, sharing the outcome with colleagues to change something for future practice.

4.2.6 The Facilitator

4.2.6.1 Attributes

Tutors cast doubt on the students' understanding of the reflective process and recognised the need for students to have a facilitator to support their learning. Ten tutors made claims about the qualities they would expect in a facilitator. The most noticeable attributes were an encouraging approach, self awareness and an ability to be a role model. They should be sensitive to others, open and honest and able to recognise that students will be learning at various levels. A sound (theoretical) knowledge and education was expected. The facilitator would be self reflective, be a good communicator and facilitate the students learning by using reflective strategies. A good rapport, body language, non-verbal communication as well as verbal communication were also thought important:

> 'To feedback your knowledge to the person in a way that this person picks up things about their own way' (Tutor nine)

Recognising the discomfort a student might feel at the time of reflecting and the need for the tutor to be supportive was considered significantly

important; recognising people's feelings and allowing them to express their thoughts and feelings (Appendix 12.11):

> 'You should feel that the facilitators are approachable...Students shouldn't be frightened to ask their facilitator because reflection can often be very difficult which can evoke difficult feelings. If you are discussing it then you will want the facilitator to be sympathetic towards you and assist you to look at your feelings' (Tutor eight)

4.2.6.2 Environment

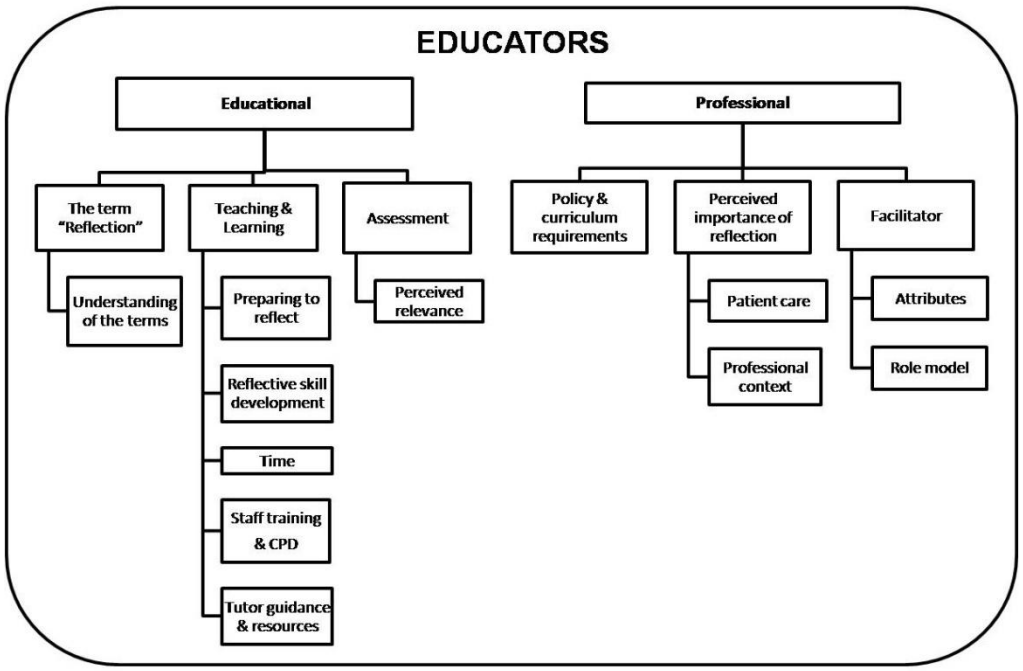
In order to support the students' learning two tutors had expectations about the teaching environment. Tutor four suggested that students should be encouraged to express their thoughts and feelings in a safe environment. It should be a supportive one whereby there is an opportunity for students to exchange ideas and share experiences:

> 'I think it's setting up an environment where that's [reflection] encouraged, where there's an expectation that we are all doing that, reflecting on our own practice but equally welcome our colleagues whether they are junior or senior to reflect on their practice... It's getting an environment where reflective practice is encouraged and supported...' (Tutor one)

4.2.6.3 The self

The importance of reflecting on events in one's own life was seen by six tutors as an essential part of self development and self awareness for personal and professional development. How you feel and what you would want to happen to yourself was generally seen by these tutors as catalysts for self improvement and the ability to think beyond yourself. Reflection also related to aspects of self appraisal and its importance in a formal appraisal.

SECTION 4.3: EDUCATORS' UNDERSTANDING AND EXPERIENCE OF REFLECTION



The data to follow illustrates the educators' understanding and experience of 'reflection'.

Educational issues

4.3.1 The term 'reflection'

4.3.1.1 Understanding of the terms 'reflection', 'reflective practice' and 'critical reflection'

At the outset of the interviews the educators indicated that they had 'assumed' educators, tutors and examiners were familiar with the process of reflection and they had the theoretical knowledge and experience to facilitate and assess the students' learning. They identified a need for a clear understanding of the terms to support the students' education and development. When asked if critical reflection and reflection shared the same meaning there was a mixed response.

Educators' understanding of the terms 'reflection', 'reflective practice' and 'critical reflection' indicated varied interpretations which included: the application of reflection to practice and for future practice; the application to life and relating to the self; and the application to education. Three educators made a connection between reflection and studying for their teaching certificate indicating that reflection was part of their course requirements. They related reflection to practice experience and the implications of that experience for their future understanding, or a change in their practice:

> '[Reflection is] when an individual considers an experience or an event and considers how having experienced that event either contributes to their learning or understanding, or how it may influence their practice' (Educator four)

Two educators were concerned about the terminology, indicating that 'reflection' is a misused term because of the differences in how it is interpreted: 'an abused term' (educator five); 'a term which is banded about, a problematic term' (educator seven).

There was a mixed response from six participants when they were asked if critical reflection and reflection shared the same meaning. Critical reflection was considered as a part of daily life, an ongoing part of what the practitioner does. It related to analysing an aspect of practice or education summed up as:

> 'analysing an aspect of practice in a way that is objective ...to make an appropriate judgment about that action or event' (Educator seven)

One participant repeated three times during the interview that it was essential for reflection to have a critical element otherwise it had no meaning for practice:

> '...If it's to mean anything it has to be critical, thinking through what went well, what went badly, being aware that things haven't gone as well as they should have done and then thinking about how you might do it differently next time. We all talk about critical reflection, but reflection has to be critical otherwise it's not reflection...it's meaningless' (Educator six)

Five of the eight educators related critical reflection to the cognitive ability of the person; the ability to think about a situation in order to change practice in the future (Appendix 13.1):

> '...critical reflection is more of a structured thing... the ability to reflect, to think about what you are saying, what you are doing, your actions whether that be in practice or through education...Think about why you did what you did or why you did what you said, what the impact that had on yourself and the others around you. Then think about the positives and negatives of it and how you might have changed it, how you might do it differently the next time, why did it go well, why did it not go well, what could I change in the future or what wouldn't I change in the future...That's my understanding of critical reflection' (Educator eight)

> 'My understanding is that it's the ability to take things that happen, things that you become involved in and to look back on them. Identify things that went well, things that went badly, identify any potential problems, consider how things could have been done differently and then put that into practice in similar situations in the future' (Educator three)

For two educators reflective practice related more generally to medicine and safe practice. In clinical practice it might relate to what you observe, what you do, and how you deal with the expected and unexpected now and in the future:

> '...Reflective practice I guess by that you are implying the practice of medicine so it is reflecting on your clinical practice' (Educator four)

> '... reflective practice is about the way you think and carry out your practice in terms of safety, in terms of your professional thing' (Educator five)

Three educators indicated that they had 'assumed' both educators and examiners were familiar with the process of reflection, and that they had the relevant theory and practice to assess and facilitate student learning. They also 'hoped' that teachers would spend time with the assessment documentation and talk to the students about their assessment.

The majority of educators assumed that the student would have an understanding of reflection believing that reflection is embedded within the curriculum.

4.3.2 Teaching and learning

4.3.2.1 Reflective skill development: strategies and resources

The majority of educators agreed that, to develop the students' knowledge and skill, reflection needs to be introduced early in the programme of study. Revisiting the topic throughout the programme of study was necessary (Appendix 13.2). This would enable the students to develop their knowledge and skill of reflection for the final year assessment. An integrated reflective approach throughout the degree programme was viewed as the best learning opportunity.

More than half of the educators perceived the following as opportunities within the curriculum. They suggested that the students' knowledge and skill of reflecting should be developed or consolidated through repeated exposure, being embedded within the programme, being valued as a lifelong learning skill and through formal teaching. They indicated that this ongoing programme would then support the completion of the students RoA assessment records and support for their continuing personal and professional development:

> '...that would be hugely useful [that reflection should be embedded within a curriculum as a core skill or as a module or lecture]...you can give them the framework which acts as a map...For some of them who have never had to think in that way, coming straight from school and sort of spoon fed their lessons...where they've had less opportunity to think for themselves it might actually be quite difficult to get in to that mindset. Although there are instructions to follow they may find it difficult to actually do that unless there are examples like seeing other people in action, being reflective and acting as role models' (Educator eight)

Educators were asked about the guidance given to students to help them reflect. They were also asked about teaching methods and levels of guidance within the course. Replies were varied (Appendix 13.3):

> ‘In semester one, tutors take in and comment on their [students] first attempt of their portfolio. There is no formal training in this. The tutors will react to what is submitted. As we said earlier this is in the student’s untutored state to how they do it. They are left to get on with it’ (Educator one)

Two educators agreed that there was a need for further education for those students who do not develop the skill readily and for students who have started medicine straight from school. They were doubtful of any teaching of reflection beyond a brief introduction in year one and concerned that students who do not demonstrate a reflective skill early will have problems later on in their course.

Five educators assumed that students were given instruction on how to develop the skill of reflection. There was uncertainty of what is taught, when it is taught and if it is linked to the Record of Achievement assessment summed up as:

> ‘Maybe it’s coming back to this assumption that students will pick it up. Again my assumption is that this is covered to a degree in their smaller groups, the RoA in first year...led by clinical skills. I’d be very surprised if it wasn’t part of... a more general approach to reflection’ (Educator three)

When asked what models or frameworks exist within the curriculum to support the student learning, educators were uncertain. Although some were aware of commonly used reflective cycles they did not know their names. One educator knew of the Kolb reflective cycle. Others knew of an information page within the Medical School which referred to reflective practice but questioned its value. Four educators acknowledged that the curriculum could support the students’ learning by referring to or using a reflective cycle or structured framework. Educational theory was needed as a basis on which to build the students’ knowledge and skill to enable the students to ‘train themselves’:

> ‘...for students to have a framework to hang things on is always useful... It’s basically like a map which is a way of guiding them through the process of reflection. For those...that aren’t naturally inclined to do that it gives them a starting point and there’s no reason

> that they can't learn to do that. It might not be natural from within them but if they have a map to follow then they can train themselves to think about things in that way...' (Educator eight)

Educator two indicated that there is a reflective framework at the beginning of the student study guide.

Four educators indicated that student guidance for reflecting is given in the format of 'what did I do today, what did I learn from this, what do I need to do further to think,' 'a structure in terms of looking backwards and looking forwards.' One educator also indicated that although he was unaware of any teaching relating to reflection there was an expectation that students would become reflective by using the written guidance which is provided within the Record of Achievement (RoA):

> '...they don't get any sort of reflective cycle...to use but I had assumed that probably came elsewhere in the course and therefore they would have access to that. I suspect that there isn't [a module or lecture to set the student up for the reflection process]. It's expected to be taken on by osmosis through the kind of structure which is in the RoA...a little bit in the 'Introduction to outcomes' at the beginning' (Educator six)

4.3.2.2 Preparing to reflect

When asked what preparation students receive in the earlier years of the curriculum to prepare their portfolio in year five this response was given:

> 'Well they are doing this basically for themselves and they have to refer back to five years of the course....to put together their five year portfolio' (Educator one)

For others, there was a lack of an awareness of any student guidance, teaching preparation or continuing professional development available to support staff development and teaching, although it was recognised that the year five portfolio exam provided staff with an opportunity to consider reflection:

> 'I don't think they [students] do it very well...I think they're told by a bunch of people who don't do it...what they see in practice is not people who have learnt good reflective skills because it wasn't part of their educational strategy when we grew up in medicine. I think they get this mismatch being told to be reflective but they don't see it in

> practice...they don't get their hand held by people who have a clear vision of what they are trying to convey' (Educator seven)

Preparation of the educationalist was deemed necessary by all educators to support the students' learning and completion of their coursework. Educators would develop their own knowledge and skill whilst supporting that of the students, and preparing for the examinations. The preparation offered to examiners was summed up by:

> 'For a couple of years now for the RoA in year 3 we have set up sessions for new examiners to go over in some detail what's expected of the examiner and what's being looked for...in terms of reflection. They're not supported by documentation but there is obviously some effort to acknowledge that it's not the kind of thing an examiner can walk in and do' (Educator four)

4.3.2.3 Tutor guidance and resources

Whilst appreciating the need for student support, educator five indicated that there is a need for tutor guidance via a handbook, or other support such as the internet:

> '...we probably need a handbook or something on line that people can actually go to...what we've been focussing on is delivering the curriculum and not actually thinking about what is it we're actually achieving, what is it we want to achieve and I don't think we've been particularly critically reflective about what we've been trying to do...that's...because we haven't had the people to deliver it...' (Educator five)

Six participants emphasised their uncertainty of any course documents relating to reflection and agreed that there is a need for information packs, theory to support practice, the definition of reflection and reflective cycles, the development of basic guidance material to support the teaching and delivery, and facilitation of student learning (Appendix 13.4). An exception to this view came from educator two who stated:

> ' ...you don't actually need a framework to hang it on its something that you do...that's common sense....if someone came to me with a framework I would find that quite insulting. It's because that's what I do all the time...someone giving me a framework and telling me this is what I should do, the assumption here is that I don't do that.'

This educator considered reflection to be a natural process, a skill which some individuals have.

4.3.2.4 Time

Six educators suggested that time to reflect was required but they were unaware of any time set aside in the programme to support the students' development (Appendix 13.5). Educator one suggested that it would be a challenge to get educators to devote significant time and energy to reflective practice.

It was also acknowledged that due to time constraints students may complete the Record of Achievement in their own time and late in the year instead of completing it throughout their studies:

> 'In terms of things like the RoA they are instructed and advised to be doing that in their own time through the course of the year. So again when there is a particular session they might be directed to reflect. It might be nice to think that it's after that session that they reflect but in practice it might well be at the end of the year when they are completing the RoA. That's when they realize they should be reflecting on the teaching session that happened two months ago... I suppose they're not given time...' (Educator seven)

In the following passage the educator described the value of reflection for him when handling problems of a complex nature. He strongly emphasised the need for time to reflect:

> '...I've been very aware of having to take time out to think about what's happening, to think about what I've done and said, to think about the situation to then reflect back on different options of how to move that forward. You know if it hadn't been for that time out I would not be able to come to the conclusions and solutions that I have done to enable the problem to be worked out to the best advantage for myself or the patient...' (Educator eight)

However, this was not supported by educator seven who saw difficulties in working out the appropriate amount of curriculum time required to help students become reflective practitioners.

4.3.2.5 Staff training and continuing professional development

When asked how the Medical School intends assisting the teacher develop their skill of reflection, a mixed response was given by three educators ranging from: if it's part of the job then it's up to the teacher to find out about it, (educator two); the Medical School not thinking about support until a couple of years ago when sessions were set up for new examiners of the ROA in year 3, (educator three); individual teaching sessions, (educator four). Educator three also said that there is an assumption that the examiners are familiar themselves with the content of reflection. Educator five indicated that motivating, engaging and steering staff to reflect were challenges in terms of staff development. However, he also indicated that doctors are interested in continuing professional development, patient safety and revalidation. Thus, suggesting that reflection could be incorporated from these perspectives within staff development.

When asked if any staff development sessions are available and how often they are delivered or offered to staff, there was uncertainty about what is currently available. Ten of the eleven educators did not know of any staff development programmes available to develop the skills. Educator two alone indicated that she had learned the previous week that:

> '...there is a specific module on reflective practice within the Centre for Medical Education.'

There was doubt about its value to those clinicians who deliver teaching as part of their [main] clinical role and not as a sole teaching role. The concept of reflection was new in medical education and few had an understanding of how it is applied to medicine:

> '...it's ...still a relatively new concept, in medicine. It's probably not a concept that is not well understood by the majority of our teachers...the vast majority are not medical educationalists in any sense. They are clinicians who do their teaching as a relatively small component of their job with really very little in the way of formal training...Continuing Professional Development for teaching appears to be very low on their list of priorities. ...It's perceived as a relatively small component of their job, it's not a component of their job which

> is particularly recognized. They're not appraised in any way or in a very limited way on their teaching' (Educator seven)

Five of the eight educators had teaching qualifications which were achieved through various routes: Post Graduate Certificate in Medical Education, Post Graduate Certificate in Higher Education: The Portfolio Route, Medical Doctorate. Two educators had no teaching qualification and one was studying for the Post Graduate Certificate in Medical Education.

When asked what specific education or training they had received to reflect on their practice, educators shared mixed experiences (Appendix 13.6). Four participants had not received any formal training. Educator one was uncertain:

> 'I don't think they mentioned reflection, not that I remember.'

In contrast, educator three who had studied a Post Graduate Certificate in Higher Education indicated that reflection had been a taught component of the course:

> '...the certificate in higher education had a major part of that and a major part was the completion of a reflective diary.'

Another educator reflected on his own knowledge of reflection, to facilitate the students' learning, and recognised that he needed to find out more about how to teach reflection:

> '...I hadn't thought about the mechanics of it, practically or passing it on to other people or how to do it in the best way. So I think to start with that it needs to come from me, and me having reflected on this today, going away and looking in to all that' (Educator eight)

4.3.3 Assessment

4.3.3.1 Perceived relevance

When asked what assessment strategies within the curriculum refer to 'reflective practice' or the 'reflective practitioner' educators gave a range of responses. The majority acknowledged the importance of the reflective assessment throughout the programme of study and within the range of

assessments used by the Medical School. Educators' views were varied as to where reflection is included within the assessment structure (Appendix 13.7). Five educators specifically referred to the RoA.

One educator pointed out that, students could potentially know more about reflection than the teachers however in his experience:

> '...few students understand what we are asking of them...we still send out lots of students who are clearly not gifted...they have just ticked the boxes' (Educator seven)

Educators were aware that students were expected to demonstrate higher levels of reflection by the time they reached year five. Two of the eight educators referred to three levels of reflection. Educator four referred to a framework which a colleague had developed. He related this framework to his experience of grading the year five portfolio assessment:

> '...three levels of reflection...the basic level, describing the experience at a very descriptive level...the next level thinking about the value of the experience and then the next level evaluating where you are at....thinking about your future development need' (Educator four)

However, one educator was uncertain as to whether or not students in years one-three would be expected to reflect at the same level:

> 'We are looking for a more advanced stage of reflection and the reflective abilities in year five are assessed at three different levels. We would be looking at progress from being very descriptive, 'this is what I did sort of thing' through to full reflection. If you look at the three levels...one, two, three you would really expect students in year five to be getting reasonable levels at the grade three. I'm not sure we could expect that necessarily of the younger students partly because of their experiences' (Educator eight)

Eight educators described how they judged the students' success in the portfolio assessment as being a form of assessment within the curriculum for some time and students should be aware of the requirements for completing it, summarised by:

> '...they will fail their portfolio if they are not [reflective] and that is highly significant for them and I think that now this has been going for a number of years [portfolio] I think it has become embedded in the students to accept that' (Educator one)

Whilst reflection was recognised by all educators as an important aspect of medicine and a central part of the year five portfolio assessment, there was a concern from three educators about the students' meta-cognition and how few students by the end of five years had the ability to critically reflect on their practice:

> 'I think by the end of year five our students ...I think they can only really do that [reflect], evaluate it at a sort of descriptive, they can pull out relevant information and I think they can evaluate it against standards of practice... In terms of their meta-cognitive ability to critically reflect on their own performance, I think there are very few of them who graduate able to do that' (Educator five)

> 'I think the jury's still out on what the benefits are, how much time to spend and in what way to ask and expect students and practitioners to reflect...I don't think it comes across well in the portfolio process. I think very few of them understand what we are asking them to do...' (Educator seven)

Three educators recognised that poor reflective ability may result in the student failing their final assessment suggesting that there may be a relationship between the failing or poorly performing student and the poor reflector:

> 'There are some who don't reflect and they come a cropper at the end…they don't know when they are in error...Someone who is going to accept things at face value is not going to learn from experience... is not going to be able to function as a doctor' (Educator six)

Similarly, another educator said:

> '...students in the final year.... they are not good reflectors, they have no insight as to why they're failing, poorly performing and why they're there doing remedial work. If they were able to reflect more on why things worked out the way they were they wouldn't be in the position they were in' (Educator eight)

This educator also deemed students who were 'good at reflecting' had good portfolios whereas those who gave a descriptive account were more likely to receive a poorer grade:

> '...in the final year for the portfolios the students have to write their outcome summaries which means they have to know the twelve Dundee Outcomes covering all the different parts of the curriculum, communication skills, professionalism.... They have to write a page of

> A4 reflection on how they've done in that outcome over the five years...From reading outcome summaries it's very obvious those that are good at reflecting ...and have done relatively well versus the ones that you know just haven't got it. It's a very descriptive sort of reflection so less thought, more description and they 'generally speaking' tend to be the ones whose portfolios are also perhaps more borderline' (Educator eight)

Educators referred to the students' perceived view of the importance of reflection whereby the students' reflective ability is assessed during years one, two and three. Educators one and five related to the importance of the students demonstrating reflection within their Record of Achievement in the early years and an expectation that reflection will be learned over time.

Educator five said if reflection is not learned then these students are often reviewed by the Fitness to Practice committee which has implications for their career progression:

> 'They have their Personal Development Plan in year one and then in year two, three, four...We've basically taken the instrument that we validated for year five portfolio personal development and adapted it for year three and year two. We pick up people before they get to the final year who are poor reflectors because I think that's often where people fail, in their final year in the portfolio process, or end up in front of the Fitness to Practice committee' (Educator five)

Professional issues

4.3.4 Policy and curriculum requirements

Five educators showed a lack of awareness or vague recognition of the General Medical Council requirements when asked what course or policy documents refer to reflection. There was also uncertainty about *The Scottish Doctor Outcomes* referred to within the Medical School as the Dundee learning outcomes, and an uncertainty of the course requirements (Appendix 13.8). One educator expressed a need for the term reflection to be made more explicit within these documents:

> 'I think it could be much more explicitly done…if you actually look at the Scottish Doctor Outcomes the ability to reflect comes under level four, under outcome twelve in a one and a half liner and yet the front of the document says a competent and reflective practitioner' (Educator five)

4.3.5 Perceived importance of reflection

4.3.5.1 Patient care

There was recognition of the importance of reflection from the student's perspective: 'how you have contributed, what your input has been, whether you had the skills', and for patient care and the significance of the student not reflecting:

> 'There are dire consequences if they don't reflect... and for their patients' (Educator one)

> 'If you're writing a case discussion based on a particular patient… you have to be a good reflector...because you are thinking was there a way that particular case was handled and how did that correlate with what I've read…what things went well and what things went badly…' (Educator six)

4.3.5.2 Professional context

Five educators indicated how important reflection is to the student and to the medical educator. They said that it is an important aspect of a student's professional development and a significantly recognised course component (Appendix 13.9):

> '…people hear about reflective practice. They think it's a bit of a trend … you've just got to be very explicit about how it, what it means…and how it can actually help them to develop professionally and individually' (Educator five)

In contrast, another point was raised by two educators:

> 'It's the sort of thing that's brushed aside by medical students, in my experience' (Educator one)

> 'I think [colleague x] would argue that the RoA is a reflective practice tool...I think it's more of a tick box tool to drive them to cover enough experience of different things...' Educator seven.

Similarly, another educator expressed a view that the relevance and importance of reflection may not be acknowledged by the student unless they are a certain personality type namely, a reflector:

> 'I don't think they seem to see the point of it, it's just an exercise, a hoop to jump through, a box to tick...I guess that must be true more of the reflective type, to see it more than those where it is less natural' (Educator three)

4.3.6 The Facilitator

4.3.6.1 Attributes

Four educators suggested that the facilitator of learning should have certain qualities to support the students learning, 'giving students time to think...and probing' (educator two); 'encourage and give examples...someone who you know uses reflective practice' (educator three); 'build up a rapport so you can start trying to encourage them to be a bit more self aware' (educator five); 'being prepared to find the time to do it' (educator six).

Looking back at his earlier years of teaching, educator one questioned his own ability to reflect then. Recognising a lack of self awareness at that time of his life he now had an appreciation of the difficulties a student might have in reflecting, and furthermore those which a teacher might encounter in supporting student development:

> '[A facilitator must be] good at putting themselves in someone else's position. We are asking these young people to do this. It's quite demanding. We're asking these twenty-one year old to do that. For most of the teachers, there is no question of them doing this [reflection] when they were twenty-one...' (Educator one)

This point was supported by educator five:

> 'I don't think they're very good at it....I think clinicians are not good at the sort of preparation bit, assessing the [student's] knowledge before going in to see the patient.'

4.3.6.2 Role model

Three educators spoke of the need for clinicians to be a good role model. A clinician demonstrating the use of reflection in his everyday work would help students to become reflective and look at ways of changing practice summarised by:

> '...it's hard to be a good clinician without being a reflective practitioner. That's what makes the difference between an expert and an apprentice. I suspect a lot of us are not particularly aware of that and therefore would not be consciously modelling it...if we are successfully helping our students learn about reflective practice, part of that can be learning from bad examples as well as good examples...' (Educator seven)

> '...see other people in action, being reflective...act as role models' (Educator eight)

The next chapter presents a discussion of the findings in which the findings of the three participants groups are drawn together and compared.

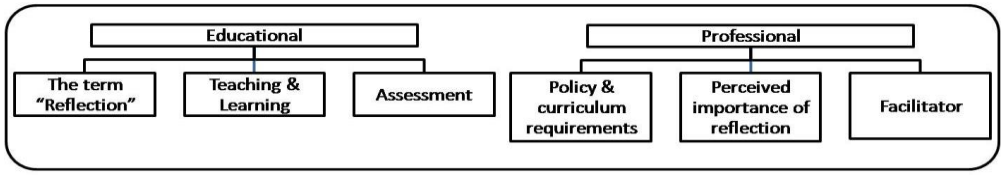
5 DISCUSSION OF RESEARCH FINDINGS

INTRODUCTION

This thesis explored the students', tutors' and the key faculty educators' understanding and experience of reflective practice and reflective learning within years one to three of the MBChB undergraduate degree programme, using a case study approach.

Based on the growing demand from professional bodies to enhance the development of professional competence, it is important to establish the degree to which reflective practice education aligns with the needs of the student, teacher and the curriculum.

The research data have led to dominant themes, minor themes and clusters of ideas. Each theme is important to the ongoing learning and professional development of the medical student, the teacher of medical education, and for the development of the medical curriculum.



The evidence suggests that students, tutors and educators have an incomplete understanding of reflection, the cause of which exists at several levels, not only at curriculum level but also at the level of the educator, tutor and student. Whilst the study presents information regarding curriculum deficits and individual needs it also signifies that policy documents are not clearly understood and suggests that there is a need for education.

Results emerging from this thesis further highlight that qualitative research methods using semi-structured questioning of undergraduate students', tutors' and educators' provide an understanding of the reflective process and education needs in medical education which has not been adequately

addressed by other research. The research findings are specific to the case study and the particular context described by the participants about their own experience of reflection in education.

The advantage of the case study, as previously cited, is that it allows for detail which describes 'what it is like' to be in a particular situation, the results are readily understood by a wider audience, they are real and may provide insight into other similar situations or cases. Thus, it is proposed that the case study approach was effective in this research context.

This chapter presents a discussion of the findings in which the findings of the three participants groups are drawn together and compared. A major strength of the research is the overlapping participant analysis and the assertions emerging from the case as a whole. This holistic analysis enables the researcher to acknowledge the complexity of the case (Creswell, 1998; Cohen *et al.,* 2005).

Examination of the literature was ongoing to compare the issues identified and support/justify the claims made. This integration provides a structure for the discussion chapter. In addition, a contrast will be made with other related literature and educational theory. The results of the study reflect many findings from previous studies exploring comparable variables. It was evident from the literature that there was a scarcity of evidence in relation to undergraduate medical students', tutors' and educators' understanding and experience of reflection, although there was an abundance of literature regarding nursing and other healthcare professionals. In the previous chapter the results from the semi-structured interviews indicated that while each group identified a variety of educational needs there were also similarities between the groups.

As indicated in Chapter Three the case study is not generalizable to similar populations or to all areas of medicine and may not be representative, typical

or repeatable. However, it is not my intention to generalize but to understand the case in its complexity and its entirety, as well as its context.

The limitations are intrinsic to the nature of the research, the case, the context of education and the nature of reflection as known by the three participant groups. It is intended that the study will provide a rich description, so that readers can see whether the study is applicable to their situation, or not.

Educational issues

5.1 The term 'reflection'

Previous research in terms of the students', tutors' and educators' understanding and experience of reflection in medical education does not appear to exist. This study identified that although there was some variation, participants had, in general, a similar understanding and experience of reflection, namely the application of reflection to practice and for future practice; the application to life and relating to the self; and the application to education. Although there was uncertainty about the meaning of the term 'reflection' and a need for clarity in their understanding, most participants knew of the significance of reflection. There was a concern that the term may be misused because of the different ways in which it is interpreted.

Many of the meanings of the terms 'reflection' which are used by the participants are comparable to those identified within the literature review, whereby they have been used loosely and interchangeably, and numerous definitions and common characteristics exist (Hancock, 1998; Teekman, 2000). Unlike other studies this case study findings shed light on 'reflection' in medical education. While educators and tutors suggest that reflection has a critical element there was evidence that the majority of students made general statements within the Record of Achievement (RoA) assessment. For others, there may or may not be a critical element, such as how well we do things and where we need to improve. One educator repeatedly indicated that reflection had to be critical otherwise it was meaningless. Thus, different

interpretations of reflection depend on the way that it is used, applied or demonstrated in practice. This draws on a study within a nursing context (Wong *et al.,* 1995) which used Mezirow's three categories of reflection: non-reflectors, reflectors and critical reflectors to classify reflective statements in nursing students' journals. The writing by non-reflectors is descriptive and impersonal, whereas the writing by the reflectors shows the ability to assess how they perceived, thought, felt or acted. The critical reflectors challenge the validity of the learning and explore the 'why' of their experiences, not just the 'how.' Students of medicine are required to put together a vast variety of cognitive skills, such as reasoning, concept formation, inquiry skills and translational skills. A goal of medical education is to help students develop reasoning skills which enable them to exercise good judgment and become better and safer practitioners (Mar *et al.*, 2007). Consequently, Mezirow's categories could also be used to illuminate the use of reflection in medicine.

Notably, this generalisation of the interpretation of the terms may be directly attributed to a lack of meta-cognitive development. It may be attributed to missing knowledge: the knowledge a student has either not retained or never learned; fragile knowledge: partly missing knowledge or inert knowledge which the student fails to retrieve but in fact possesses (Perkins & Martin, 1996). Thus, an understanding of the terminology may enable the student and the teacher of medicine to engage in broader cognitive processes. As evidenced in this study if people do not understand the terms, then a starting point would be in providing the definitions recommended. If learning is dependent upon the process of reflective thinking and progressive organisation of subject matter, the learner could be given some knowledge of the cognitive processes and strategies as well as opportunities to practice; a mix of theory and practice (Dewey, 1973; Bruner, 1975; Vygotsky, 1978, Boshuizen, 2004; McGuinness, 2005). Building up subject knowledge, in combination with learning the required skills, is essential (Boshuizen, 2004).

On the basis of this case study findings and drawing on the work of McGuinness (2005) the appropriate development of the students' cognitive skills required should be incorporated and supported within the medical degree programme. The achievement of expert-level performance in the workplace is determined on the subjects' ability to function smoothly in an environment in which the organisation of tasks, decisions and information is essential. In complex dynamic decision making environments, the situational and distributed aspects of expertise are emphasised- such as communication capabilities, the ability to convey plans and intentions, and the allocation of resources, not only for one's self, but for others (Patel *et al*., 2000, p. 259). Thus, medical education could consider the importance of reflective educational theory to inform and support practice. Students of medicine are required to be self directed learners, demonstrate better thinking skills, appraise critically evidence (GMC, 1993) which is informed by 'modern educational theory' (Brookfield, 1987; Knowles *et al.,* 2006). If, cognitive strategies help the student achieve a particular goal while meta-cognitive strategies are used to ensure that the goal has been reached, namely, the student can quiz him/herself to evaluate his/her own understanding, then more education is required in 'what is' reflection and 'how to be' reflective (Perkins & Martin, 1996). Direct or indirect encouragement of strategic self prompting, specifically meta-cognition could be applied to medical education. The participants were aware that before they could affect change they had to build on their knowledge to support practice. The comments made by the majority of participants illuminate the need for resources such as a handbook, course document, information pack and guidance. It is hoped that the Medical School will be encouraged to ensure resources are in place to support the students' learning.

Participants in this study most commonly associated reflection with the most 'negative' or 'challenging' aspects of practice. Problems or negative experiences are commonly spoken about in the context of reflection. This experiential learning of a 'problematic' experience is what Dewey considers

most effective to maintain learning and most likely to lead to behavioural change. He suggests that learning results from puzzling situations and uncertainty followed by deliberate inquiry to resolve the situation. Although the majority of participants related reflection to a negative experience, some tutors appreciated that it may also be used to critique good practice, sharing the outcome to change something for future practice. These findings are similar to the work of Dewey (1964) and Boyd and Fales (1983) whereby those principles which are applied to practice are tangible and where there is a change in conceptual perspective. It should be noted that no written guidance or reference was made to what the programme requirements are within the RoA in relation to the types of experiences. Thus, the types of experiences could be clearly identified.

5.2 Teaching and learning

5.2.1 Preparing to reflect

Within the case study, reflective education was not transparent. Indeed the preparation for reflective learning was found to be variable and inadequate. Despite the General Medical Council's responsibility for determining the extent of the knowledge and skill that is required for the granting of primary United Kingdom qualifications, the majority of students in this research were doubtful if they had received any formal education in reflection while in Medical School. Students indicated that they were 'expected' to reflect within their Record of Achievement portfolio but were doubtful of their level of knowledge. This was evidenced by the educators' expectation that students learn to reflect for themselves by using the written guidance provided. On examination there was little written guidance or preparation for the completion of the Record of Achievement.

Participants gave a clear view of the need for developing the student's reflective skill within the early part of the programme. This endorses the view of Burrows (1995) in nursing; Kidd and Nestle (2004) and Boshuizen (2004) in medicine who suggest, there is a need for reflection to be

incorporated early in the medical programme and to value reflective practice as a core professional skill. McGuinness (2005, p. 115) advocates that 'goals of topic understanding and developing reflective thinking are simultaneously and seamlessly pursued.' Developing meta-cognitive control requires knowledge and experience (Livingston, 1996). One without the other does not appear to be sufficient.

Some students cited the need to revisit reflection throughout the programme of study. However, in reality the support is limited. In defence of the students' requirements, nurturing and revisiting reflection throughout the curriculum may be more effective in developing the student's learning over time (Atkins & Murphy, 1993; King & Kitchener, 1994; McGuinness, 2005). For that reason, we must ask what can be done within Medical Education to support the students' cognitive development, especially when there is no sequence to the process of reflection.

5.2.2 Reflective skill development – strategies and resources

In terms of the participants' experience, there was little evidence of reflection as an educational feature within this programme of study. For some students and educators, they created a structure for reflection in terms of areas for improvement and a desire for growth. Broadly, reflective approaches to learning did not appear to be integrated as part of organisational learning, despite the fact that reflective learning did occur within some parts of the programme. Examples were provided of learning activities where guiding 'reflective' questions were evident within some areas of teaching; what went well, what didn't go well and what can be done to improve things in the future. These points are, in part, similar to that of Gibbs (1988) reflective cycle but do not include the following stages: feelings (what were you thinking and feeling?), analysis (what sense can you make of this situation?) and conclusion (what else could you have done?).

The guiding questions in this case study appear to be limited to the lower levels of reflective activity on Van Manen's model and do not extend the thinking to a consideration of the conditions which shape the reflective activity itself, the meta-cognitive dimension (Van Manen, 1977). The learning indicated by individuals through informal 'ad hoc' activities had no strategically devised framework. There was little evidence of systematic development of reflection from the educationalists (educators and tutors). This research also shows that educators' and tutors' assume that students are being given opportunities to develop the skill of critical reflection within the course. They expect students to become reflective by referring to the written information provided within the Record of Achievement portfolio. Indeed, the educational support for reflection was found to be inadequate by participants and the written information within the course documents was found to be minimal. Significantly students are also graded on their reflective abilities as indicated in the University's assessment of attributes form. However, they were given little or no preparation to reflect from the Medical School. Students accepted that there was an expectation from the Medical School that they could and would reflect as part of their course. This expectation did not lead to formalised learning because there was no formal 'modus operandi', in that the reflective learning was not organised or structured.

The goal of medical education is to guide students' development through different stages from novice to competent, eventually resulting in an expert clinician. Thus, there is a necessary relation between the process and the actual experience in education and it is the process and not merely the result which is important, a continuing reconstruction of experience (Dewey, 1964). Helping students develop the reasoning skills will enable them to exercise good judgment (Lipman, 1988). Boshuizen *et al.* (2004, p. 75-76) propose that there are four stages in the development of connected complex networks of memory derived from clinical experiences- textbook knowledge, the development of simplified cognitive models, illness scripts, the storage of

patient encounters as illness scripts and memory traces. If learning is dependent upon the process of reflective thinking and progressive organisation of subject matter, the facilitator of learning in medicine needs to consider the type of support which is offered during the different stages of development. A tutor working with year one students may focus on the developmental needs of the student, for example, technical skill and understanding practice, whereas the tutor of the year three student may focus on a different educational requirement, for example exploration of the underpinnings of practice including moral-ethical aspects (Van Manen, 1977). Despite this, there was lack of evidence in this case study to suggest that teachers were experienced and knowledgeable in the teaching of reflection as a part of educational practice. Thus, clarifying the teachers' role could assist in determining what knowledge needs to be accessed and organised for teaching at different stages in the students learning.

A key feature of this study was the need to standardise the teaching and learning of reflection and provide educational techniques such as a reflective model or a framework. This would guide the student to a more complete understanding of reflection. Few participants knew of any process or structure which could be used to support their learning, or were aware of any written information about reflection within the course documents. Participants indicated that there is no recommended reflective framework within the Medical School that incorporates the conceptual components for learning. This was unexpected as detail of the reflective framework by Kolb (1984) was included within the Doctors, Patients and Communities (DPaC) student and tutor guides in 2005. The University's curriculum developers, assumed that students and tutors would return to the guides and familiarise themselves with the framework so that it could be more readily recalled and used in practice. However, during the data collection it became evident that this was not the case.

Although there may be no general consensus regarding facilitative models in medical education, previous research in radiography, nursing, school, medicine and physiotherapy training support the development of reflection as a part of the curricula (Williams, 1998; Kidd & Nestle, 2004; McGuinness, 2005; Ward & Gracey, 2006; Roche & Coote, 2008). It would appear from the comments made by participants in this study that they concurred with these views. One educator commented that reflection as a core component in a medical education course is a pedagogical process that is undervalued and left to chance.

With the exception of Kolb's (1984) reflective framework which exists in only two curriculum documents, no other framework is referenced. Thus, in developing their understanding of reflection, participants require an understanding of the terms which describe reflective strategies and experience. Numerous strategies exist. In the study by Pee *et al.* (2002), three models of reflection were listed as possible strategies for reflection although only one exemplified a complex framework used to foster critical reflection (Johns, 1994). Given the students concerns of not knowing how to reflect in this study there may be value in a greater understanding of reflection through this model. In addition, participants indicated that the teacher should have a theoretical knowledge of reflection to support the student in applying the principles of reflection to practice. This indicates a need for education. Lipman (1988) suggests, by providing models we invite them to assume responsibility for their own thinking and for their own education. However, Perkins (1986) (as cited in Baron and Sternberg, 1987, p.49) cautions 'as people do not invent their frames reliably, instruction should either teach frames explicitly or make effort to promote frame invention. 'Actions speak louder than words' theory is not enough.' The development of expertise is characterised by a cumulative and regular improvement in knowledge and skills (Patel *et al*., 2000). Thus, efforts to develop thinking should either teach frames directly or do something beyond improvement in general and modelling in particular to provoke students to invent their own frames.

For some participants reflection is a 'natural' process of life: a part of their daily activity: a personality trait. This concurs with the literature reviewed in Chapter Two which shows that reflection is influenced by three factors: a general tendency to be reflective, varying levels of reflective skills; knowledge and experience (Boenink *et al.*, 2004). It may be something which individuals engage with intuitively; a tacit knowledge. The findings of this case study resemble that of Polyani (1969) as cited earlier, who observed that much of our knowledge is 'tacit' and which is often difficult to articulate. This may be a reason why some students, tutors and educators struggle with the concept. Initially, learning involves a significant degree of external support especially novices such as beginning medical students or new tutors. As competence is attained there is an increase in self regulation and a transition period with increasing opportunity through guided apprenticeship. As direct external support fades away learning occurs increasingly under the control of the learner (Patel *et al.*, 2000). As a consequence the educational system has to foster changes in the stages of learning.

5.2.3 Time

Interestingly all participant groups in this study indicated that they need time to reflect and this is as an area of concern. Time pressure in a busy educational and clinical environment was seen as a barrier to reflection. Having time to reflect was viewed as necessary, particularly for the more complex issues of practice, and for continuing education. Clearly the move towards protected time and formal guidance as advocated by Kuit, Reay and Freeman, (2001); Ward and Gracey (2006); Grant *et al.* (2007); Roche and Coote (2008) would need to be considered to enable students and staff to reflect effectively so that the context of the reflection is fundamental to the educational outcome. If the Medical School accepts the view that there is no time to reflect then they run the risk that students and teachers will have very little awareness of the potential which reflection has to offer for enhancing professional development. They may not be able to present a

coherent understanding of the concept or apply it in any meaningful way to practice. The Medical School could adopt the recommendations from previous studies and make time for shared questioning and continuous reinforcement, space for meeting and a safe environment in which reflective activity can occur.

5.2.4 Staff training and continuing professional development

There was little evidence of staff training relating to reflection. Similar to this case study's participants, previous research reports how physician teachers reflect on failures in their teaching to improve on their practice (Pinsky & Irby, 1997). In contrast, the role of reflection in the ongoing professional development of staff to support student learning in this case study is not transparent. Thus, it would seem that there is an opportunity for staff education, for example by focussing on the development needs of the student and tutor namely, reflective skill expertise. The educator may focus on different requirements whilst having to consider contextual issues beyond the needs of the tutor. In this study the majority of tutors cited in their role the importance of developing the students' reflective skill.

There was a mixed response when participants were asked how the University assists the teacher develop their skill of reflection. Although participants recognised the need for 'training', few educators and tutors in this study had either received any training on reflection or had a teaching qualification to support the student's development. In general, there appears to be an assumption that the qualified medical practitioner has the knowledge and skill to reflect and there is an assumption that students and tutors understand the concept of reflection. Notably, two educators referred to the support offered by the Medical School for new examiners of the year three RoA and examiners of the year five portfolio. The latter was introduced in 2006 as a briefing session for all examiners of the year five portfolio viva exemption examination. However, there was no mention of the training available for staff in the other years.

Tutors had either little or no knowledge of the programme requirements; did not perceive reflection as a part of their teaching remit; associate reflection with part of their role as a teacher, or know of the overall course outcomes. This aspect was brought to light by students, who received little support from tutors, particularly those who teach as a 'part of their role'. The findings from this case study can contribute to the role of the supervisor as being critical in supporting the student's education, and a key factor to promoting reflection in practice (Teekman, 2000; Gustafsson & Fagerberg 2004; Pearson & Heywood, 2004). Therefore, it will be important to consider the preparation and support which is offered to facilitators to develop their knowledge (Nicholl & Higgins, 2004). In reciprocal teaching, the teacher acts as a mediator or guide in two ways-as a model of expert performance as well as a scaffold or social support for the underdeveloped attempts of the novice (McGuinness, 2005, p.119).

The majority of tutors acknowledged that they were not aware of approaches to teaching and learning of reflection, unaware of the assessment structure although they were aware that the term 'reflection' was referred to but they did not know of policy or course documents. The lack of facilitator preparation to support medical students' learning, as gleaned from the tutors in this study, resembles components of the study by Ward and Gracey (2006). They point out that it cannot be assumed that students of physiotherapy training develop their skill of reflection, or use strategies for reflection, when facilitators lack these skills. The same could be said for the facilitator of medical education. This is a concerning position for a professional group that has a code of practice and statutory requirements for maintaining registration that necessitate ongoing professional development and lifelong learning. The GMC (2003) lay down that Medical Schools must make sure that every person involved in educating medical students has the necessary knowledge, skills and attitudes. Staff development programmes should promote teaching and assessment skills. All staff should take part in

such programmes. Future research needs to investigate why tutors, both medical and non-medical, lack the educational preparation required for teaching, and when they are in their teaching context what academic knowledge do they draw upon.

There were mixed teaching experiences expressed by educators and tutors. This may be attributed to staff members who are either clinicians who teach as part of their role, medical or non-medical part time staff or full time, permanent staff. This case study corroborates the view that little has advanced in the arena of medical education as facilitators still lack formal training (Harden, 1986), and few staff are members of the HEA. There is little awareness among staff of any staff development programme available to develop the skills. In light of these study findings and applying the HEA standards to medical education there is a need for employers to ensure that the employee of the future has adequate preparation for the role as facilitator of learning. Future research needs to investigate whether medical educationalists (educators and tutors) in the context of reflective education have academic knowledge which is relevant. Given the HEA refers to recommendations for 'full time' academic staff this study questions what (teaching) requirements are needed for staff who teach as part of their role? Further research needs to be carried out to examine how the facilitator of medicine reflects as a lifelong learning tool as part of their ongoing professional development and for the appraisal and revalidation process.

The findings indicate that reflection is a relatively new concept in medicine and there is a need for training in this area. While some participants lack a general awareness of reflection others suggest that it is incorporated within one or two parts of the undergraduate programme. This deficiency should be targeted in staff development sessions and include written material, a lecture, or a taught module. Participants shared the same opinion that there is a need for information packs, teaching resources, theory to support practice, the definition of reflection and reflective cycles, basic guidance material to be developed to support the teaching and delivery, and

facilitation of the student's learning. Simply providing knowledge without experience and vice versa does not seem to be sufficient for meta-cognitive development (Livingston, 1996). As a consequence tutors and educators of medical education need to have an organised understanding of the learning that they are endeavouring to promote.

Despite the recommendation by Dearing (1997) that all teachers in higher education should carry a professional teaching qualification achieved through accredited training or experience, this case study exposes the reality of medical education in that many experienced staff had little or no training for teaching. There was an acceptance from the Faculty educators that staff did not have a professional teaching qualification. They appear to know little about current teaching courses or the availability of continuing professional development. As the employer, the University/Medical School has an obligation to provide staff with the required knowledge and skill for teaching. Adey (as cited in McGuinness, 2005, p.114) suggests, not only does an intervention require an adequate theory base, curriculum materials and a well-developed pedagogy, but it also requires teacher development of sufficient length and intensity, in class teaching support (coaching) and within school communication networks. All parts of these conditions must be in place for professional development to be successful. Thus, staff training and continuing professional development are viewed as essential.

5.2.5 Learning with others

The case study exposes the need for learning with others to support reflective learning. The educational environment makes an impact on the students learning experiences and outcomes, influencing how, why and what students learn (Roff *et al.,* 2001). Shared thinking provides the opportunity to participate in a joint decision making process (Vygotsky, 1978, McGuinness, 2005). Thus, by setting up a community of enquiry and community of practice, experiences can be shared, knowledge is dispersed and an environment of shared support is formed.

Learning from others also emerged as an opportunity within medical education. Graduate students with previous healthcare experience referred to their prior educational experience and being taught by nurses. Students and tutors in this study recognised the value of reflective practice in nurse education. A personal and professional benefit from learning was identified. Therefore, there may be an opportunity for students both to learn from and learn with nurses. However, the graduate students did not see this as an advantage in terms of developing their reflective ability. Their focus was on knowing at what level or depth of reflection is required for completion of the RoA assessment in Medical School. With the wealth of literature on reflection in nursing medicine could adopt their teaching and learning strategies in support of the General Medical Council's requirements.

5.2.6 Theory and practice

Identification of the knowledge base that underpins any profession has been instrumental in establishing and bringing status to the profession. A theoretical underpinning dictates the direction of education and assists with the identification of ability within the profession. However, the majority of educationalists (educators and tutors) within this research neither had the knowledge, nor were familiar with the skill for teaching reflection. This is at odds with the emphasis given by educators who spoke of the need for the facilitator to be a good role model. They indicated that to be a good clinician the doctor must be a reflective practitioner using reflection as part of everyday life. Students indicated that unless teachers are interested in teaching there was a concern that they did not care, or their knowledge was not as developed as those who showed an interest in the subject. Support at the time of meeting with the tutor/mentor was deemed invaluable for their education. Similar to the research findings of Scanlan and Chernomas (1997) in nursing, few educationalists in this study use reflection as a teaching strategy and most did not engage in planned and/or orderly reflective practices themselves. Tutors indicated that sharing ideas and experiences with other tutors would be useful as part of their own appraisal process.

Students and educators in this study identified that the more experienced medical practitioner may not engage with reflection indicating that reflective practice tends to decrease with experience in medicine. This concurs with the study findings of Mamede & Schmidt (2005). This can be largely alleviated with educational measures that address learning skills, redesign of experiential learning (including teacher skills) and the use of authentic learning task with adequate cognitive load given the level of expertise of the student (Boshuizen, 2004). Patel *et al*. (2000, p. 257) suggest, 'while developing proficiency with attention-demanding tasks, some components become automatic, so that conscious processing can be devoted to reasoning and reflective thought with minimal interference in the overall performance.'

Until participating in the study the majority of tutors acknowledged that they had given little consideration to reflection. This study has encouraged them to consider the theoretical knowledge which is required to support their practice. Learning according to Dewey (1973) is dependent upon the process of reflective thinking. Therefore, the challenge for educationalists (educators and tutors) will be to develop an expert understanding of the learning characteristics and learning styles of their students, and to accumulate a repertoire of strategies that they can implement with different people.

5.3 Assessment

5.3.1 Perceived relevance

Students in this study receive little or no guidance while tutors and educators assume that students know how to complete the assessment. This case study illuminates an area of student concern in medicine as no specific assessment criteria, to assess reflection, is clearly articulated to students (MacKintosh, 1998; Pierson, 1998). Applying these findings to medicine Medical Faculty could decide which definitions of reflection are to be used and how the process of reflection should be engaged in throughout medical education. Closely interwoven with this confused understanding of reflection is a view of competence. Educators and students referred to the Record of

Achievement assessment as a 'tick the box' exercise, suggesting that students made generalised rather than specific statements. This would appear to contradict the university assessment document, Practice of Medicine 2005-06 which states that the RoA '...is structured to encourage 'reflection' rather than become a box filling exercise' (UoD, 2005-06, p.5). However, it does not indicate what is meant by the term 'reflection.' The approach taken by students was similar to surface learning which consists mainly of comprehension and reproducing knowledge equal to rote learning **(**Campbell, 1998). This approach does not match the requirements of the General Medical Council (2002a, p. 39) which imply, 'we need to encourage specific strategies in medical students, for example reflective practice and deep learning...'

Although the Record of Achievement was completed at a 'superficial' level by the students, as gleaned from the educators and students in this study, students were keen to know how to develop and demonstrate their level of understanding of reflection. Students in this study are intrinsically motivated to incorporate the new ideas they are learning with existing knowledge and personal experience **(**Campbell, 1998). They are likely to take up reflective learning even when it does not relate to the assessment. The data of this study is different to Grant *et al.* (2006) in as much as medical students in Grant's study were unlikely to take up voluntary reflective learning if they did not think it relates to the curriculum and assessment. Nevertheless, learning to reflect was not formalised in the teaching, learning and assessment despite its perceived value. No explicit detail or criteria exists for the completion of the RoA or for the student or tutor to know how to structure or 'scaffold' the learning process. Any area of practice should be able to cite the criteria by which that practice is guided. Relying upon sound criteria is one way of putting our thinking upon a more solid foundation (Lipman, 1988). The learning was not clear because there was no obvious process. This perhaps explains why some students pursued their own reflective skill development through peer support.

The case study findings concur with the study by Entwistle (1996) and Leung and Kember (2003) which suggests that a superficial learning correlates to habitual action, while a deeper learning correlates with understanding and a strategic approach to achieving the highest grades possible. Thus, building on or 'scaffolding' existing competence is needed in order to accomplish the next stage tasks. 'Enhancing learners' cognitive skills has a snowballing effect in that it gears them up for more complex learning and enables them to take advantage of the curriculum' (McGuinness, 2005, p. 112). Therefore, teachers need to advance understanding by facilitating the learning process through consultation, assisting collaborative interactions, and providing feedback (Wood, Bruner & Ross**,** 1976; McGuinness, 2005). Training in the use of portfolio based learning for learners, their mentors and assessors was seen to be needed. This is consistent with studies in portfolio preparation for postgraduate medical education (Challis, 1999; Pearson & Heywood, 2004).
While educators in this study assumed that students would know how to 'critically analyse' their work and despite the insistence by one educator that reflection had to be 'critical' students did not know how they were being assessed or know of an assessment criteria. The 'in-house' year five assessment criteria have three levels of reflection documented in the year five portfolio. However, there is a lack of any reflective guideline or assessment criteria pertaining to the different levels which would guide the student within the earlier years of the curriculum. This perhaps explains why students are confused by 'reflection', participants do not know of the specific criteria requirements for assessment and they view the assessment as a 'tick the box' exercise. Drawing on the work of Lipman (1988) medical education could provide models to encourage students to assume responsibility for their own thinking and for their own education.

Educators agreed that reflection is important in medicine, and a central part of the final year five portfolio assessment. Participants were concerned that, by the end of their five years at Medical School, few students have the ability to reflect critically on their practice. Educators associated a 'poor reflective

ability' with the 'poorly performing student' in the final year portfolio viva exemption examination. Students are expected to 'reflect in the course' while tutors and educators assume students know how to reflect by virtue of 'reflecting on the course' but not necessarily understanding why the assessment was being carried out in a certain way. For this reason there is a concern for the level at which the student has meta-cognitively developed. Returning to the study of Perkins and Martin (1986) this may be due to missing knowledge. As meta-cognition plays a critical role in successful learning, and as a concept, relates to reflection it is important for the Medical School to consider how it is taught and developed in medical education. Questioning what level of support is offered to the student to develop these higher order thinking skills, an understanding of the nature of the skills and the guidance required from educators is necessary to develop strategies to enable reflective thinking. De Corte (1999) (as cited in McGuinness, 1999, p.16) suggests that powerful learning environments are 'characterised by a good balance between discovery learning and personal exploration on the one hand, and systematic instruction and guidance on the other...'

Within this study, participants defined their learning needs but the process for reflecting as part of the programme assessment was not evident. In terms of developing the individual to the highest of their potential students in this study are concerned by their lack of reflective skill or ability. They believe they may be completing their Record of Achievement at a 'superficial' level. They have no way of knowing at what level they should demonstrate their learning now or in future years, and whether or not their attempt at the assessment is sufficiently detailed. Knowledge is considered to be meta-cognitive if it is actively used in a constructive manner thus the concern here is that the students' knowledge needs to be developed. Clearly Eraut's (1994) work can be contested, since it suggests that knowledge which is not perceived as professionally relevant is given low priority by students: they will acquire such knowledge to pass exams, but it will soon be forgotten.

Previous research suggests that medical students have been shown to enter Medical School with a deep approach to learning, but after a few months their deep scores decrease and surface scores increase significantly (Coles, as cited in Dacre & Fox, 2000, p. 662). Thus, there is a need to nurture and develop the individual's learning style from the start of the programme of study.

Professional issues

5.4 Policy and curriculum requirements

Despite the relevance and importance of the General Medical Council policy documents, as indicated in Chapter Two, some participants in this study lacked an awareness of the policy and the course requirements. Others recognised an association between reflection and the General Medical Council requirements, and the significance of reflection to medicine. Students indicated that they have to complete twelve learning outcomes by the end of the course and reflection is a major part of their assessment. To progress on the course they have to satisfactorily achieve this assessment. In contrast, almost half of the educators and the majority of the tutors showed a lack of awareness or vague recognition of the policy drivers or course documents which refer to reflection. This varied understanding sheds light on a gap in their knowledge and a need for education. Given the significance of the SDMEG and GMC documents it would seem that education providers can play a leading role in implementing policies for lifelong learning (DoH, 2003) and make clear how reflection fits in with these documents particularly when it is a requirement of the undergraduate medical programme, recognised as a lifelong learning tool and a requirement for appraisal and revalidation (GMC, 2000).

5.5 Perceived importance of reflection

5.5.1Patient care

The importance of reflection for patient care was recognised. All participant groups related the importance of reflection to 'best' patient care, how the

care provided by healthcare professionals affects the person, how the patient feels and in the event of a significant event with a patient how practice can be changed for the future. Interestingly, two out of the three tutors were nurses and one student who referred to reflection being an extensive component of his previous undergraduate degree indicated that the education he received was provided by nurses. This may be due to reflective practice being a central tenet of nurse education for the past two decades. This aspect of learning when linked to other attributes, such as communication are indicative of the personal process of learning that these individuals experienced, and are transferable skills.

Educators indicated that the revalidation process, by which licensed doctors across the UK demonstrate to the GMC on a regular basis that they remain up to date and fit to practise, is also associated with patient safety. However, the normal practice within this bounded system appears to be based on the variability of the teaching and learning standards across the study, the lack of evidence of structured, organisational reflective learning being undertaken and the absence of the development of resources. Thus, with such significance in the context of medical education students should be clearly informed of the benefits of reflection and the need to be critically reflective as part of ongoing professional development, lifelong learning, and for safe patient care (GMC, 2006a, 2006b).

5.6 The Facilitator

The previous chapter showed how the facilitators' attributes, and their teaching and learning approaches to support the students' reflective skill development, were important to the students in this study. All participant groups suggested that in order to support the students' learning the facilitator must be creative and use a standardised approach to their teaching. They had an expectation that the facilitator would be knowledgeable and interested in teaching. This connection between effective reflection and the knowledge required indicates that, at a

professional level, the facilitator is experienced, competent and has an appropriate attitude; should possess certain character traits or qualities (Dewey, 1964; Rogers, 1969; Reid, 1993; Andrews, 1996). Thus, by working alongside practitioners students will learn from experts in a safe, supportive and educationally stimulatory environment (Benner, 1984). The facilitation process is not only what knowledge the facilitator possesses, but, as importantly, how that knowledge is organised, so that it is relevant to the context, and easily accessible. Medical education could make thinking more explicit i.e. develop words for talking about the thinking so that all of the words suddenly become part and parcel of classroom vocabulary (McGuinness, 1999). This will be influenced by how the teacher perceives their role.

Students in this study received mixed educational support from the educationalists to develop their reflective ability. Significantly, both students and educators raised a concern that teachers of medicine may not be interested in teaching. They may lack the knowledge and skill and acknowledged teaching as a small part of their role. One student pointed out 'in the natural history and progression of the profession of medicine, doctors are not reflectors or reflective practitioners.'

This feature could be considered a weakness in educational practice as role models were identified as a requirement of their education by participants of this study. The case study findings do not align with the GMC requirements which show that practitioners are expected to keep their knowledge and skills up to date, and take part in educational activities that maintain and further develop competence and performance. The view that some medical practitioners never engage in reflective practice, and it is not clear why this is the case, is supported by previous research (Mamede & Schmidt, 2004). Literature across a number of professions for example, teaching, physiotherapy, nursing and medicine has supported the need for strong grounding in educational theory and knowledge of reflection (Kidd &

Nestle, 2004; Kahn, 2006; Ward & Gracey, 2006; Roche & Coote, 2008). The participants in the present study made clear the need for thorough preparation for their reflective skill development.

These findings corroborate the view of tutors' lack of knowing of the process and structure of how to reflect. It should be noted that for some participants the most influential elements in enabling the development of 'reflection' are: a supportive environment, both intellectually and emotionally; accommodation for individual differences in learning style; mentoring; group discussion; support and free expression of opinions. Additional enabling factors cited by these participants include perceptions of relevance; positive prior experience; organisational climate, including respect between professionals; time for reflection. Students identified the importance of the facilitator recognising the emotional context, in particular the feeling and discomfort some individuals experience with reflection. This aligns with the view from previous research in medicine and nursing that reflective practice should be undertaken by those with the appropriate skills and who can manage the strong emotions which can emerge (Holm & Stephenson, 1994 as cited in Moon, 2006, p. 9; Blase *et al.*, 2000; Paget, 2001). It also illuminates the essential elements of 'the doctor as professional' namely, the personal intelligences and personal attributes of the individual (Harden *et al.*, 1999). Thus, it is important for employers to consider the qualities of the facilitator and their reflexive ability to challenge learners to deepen their reflective processes throughout the curriculum.

Conclusion

This study identified that all participant groups are aware of the importance and relevance of reflection for the students personal and professional development within the study of medicine. However, although participants know about the need to reflect on their practice, they are unsure how to construct and develop their reflective skill.

The normal practice within the system appears to be based on an assumption that students will develop their reflective skill or reflect 'naturally'; there is variability of the teaching and learning standards across the study; lack of evidence of structured, deep learning or that reflective teaching is being undertaken; absence of tutor training. The move towards structured reflection as advocated by Pee *et al.* (2002) would need to be considered with mediation to develop these skills alongside the development of a system that recognises learning and the acquisition of knowledge as well as skill development.

A view widely expressed amongst student and tutor participants is that they have received minimal, if any, preparation in how to reflect. The students who entered medicine direct from school had no recollection of having received any training or education in reflection. They believe that education and training is necessary, with an emphasis on the educational theory to underpin practice. The need for teachers with prior knowledge and experience to develop and assess the students' reflective ability seems obvious. All groups indicated that they did not have much knowledge or understanding of where in the curriculum reflection is taught or referred to, nor of the curriculum requirements.

Although the students are unaware of any written information on 'reflection' within the course documents, they indicated that, on occasions, they had been asked to consider, 'how something went, what they thought worked well, what they enjoyed.' This indicates that although the term 'reflection' is not specifically referred to, these questions are in keeping with Gibb's (1988) framework for reflection. These questions along with 'why' type questions might help the student to think about the next step and make links to the previous task done. This point is relevant to medical education because students are expected to become self directed learners. It is anticipated that students will be critical reflectors by the time they complete year five of the medical course. There is also a need for them to demonstrate their reflective

ability using self prompting strategies during their year five portfolio viva examination. In order to support this development the Medical School could clearly state what the course requirements are at each level of reflection so that the student can meet the assessment criteria. Tutors have an expectation that the environment in which they are working should be a supportive one by using a criterion based approach. Students should have the opportunity to exchange ideas and share experiences to inform their practice. An association between the educational environment and the student's learning experiences and outcomes, influence how, why and what students learn (Roff *et al.*, 2001). Furthermore, the student's confidence and the ability to think reflectively about their practice developed only after some practice experience. Following some basic practice experience, learners might connect theory and practice with the assistance of a facilitator (Hallet, 1997).

Students in years one to three of this study, who have little clinical exposure, find reflection challenging. Similar to the study of Price (2005) in nursing, medical curriculum designers need to be challenged to explain when, where, why and how reflective practice is being developed in the programme, and provide answers to guide educational practice. If, as suggested within this study, students need to be critically reflective, then the implications for practice clearly emphasise the need to develop resources. These resources could support the student in their ability to reflect 'critically'. Therefore, there needs to be a review of the instructions which are given to the students and the examiners. The instructions could encompass questions specific to developing the students' meta-cognition. These instructions could be offered in the earlier years of the programme to inform the students of the assessment criteria.

From the accumulated data it is possible to engage in some interpretive analysis of the total findings and seek to reach a conclusion and some recommendations. Having collected and analysed the data it is necessary to

evaluate the extent to which the research aims were achieved. This will be discussed in the next chapter.

6 CONCLUSION AND RECOMMENDATIONS

Reflection in Medical Education: Students', tutors' and educators' understanding and experience of reflection.

6.1 Conclusion

The research aims were achieved to the extent that the results provide evidence for the Medical School to support the continuing professional development requirements of students and staff. The analysis shows a need for education and guidance on reflection. The concept of reflection is a developing area within medical education and there appears to be a need for developing reflective practice and reflective learning. The study concludes by considering its contribution and application to educational practice.

The policy documents clearly state that the student must be reflective. However, there is a need for guidance on how this develops during the programme of study. If learning is dependent upon the process of reflective thinking then why are students uninformed of the process, and if fundamental to curriculum theory then should this process not be made explicit? There is an opportunity here for the educational development of students and staff.

At present there is a lack of literature supporting the value of the concept of reflection in *medical* education, but evidence from other areas, such as nurse education amply promotes its value. Results and recommendations could be transferred to elucidate the process in medicine particularly when *The Scottish Doctor* learning outcomes and *Tomorrow's Doctor's* identify the need for students to be reflective.

Gaps exist between what the SDMEG document *The Scottish Doctor* learning outcomes identify, and what actually happens in practice with reference to assessment and assessment criteria. If, as the literature suggests

nurse educators must clearly articulate to their students the purpose and aims of reflection, then it could be argued that it should be the same for medical students. To allow students to reach the utmost of their potential, education should support this with clear guidelines; an early introduction to reflection and reflective practice; a clear and thorough orientation to self-reflection; and specific strategies such as journaling, portfolio, and reflective dialogue (Mitchell 1994; Snowball, Ross & Murphy, 1994; Paterson, 1995; Alsop, 1995 and Glen & Hight, 1992; Burrows 1995; Witmer 1997 as cited in Rideout, 2001, p. 130). The complex learning of the professional perspective and the scientific and analytic processes of medicine have to be integrated in competence building as a whole (Boshuizen, 2004, p92).

The aim of this study was to explore the students', tutors' and key faculty educators' understanding and experience of reflection during years one to three of the MBChB undergraduate programme. In order to develop the practice of reflection within the medical curriculum and to ensure an effective reflective system is in place, the Medical School needs to be informed of the students' and tutors' expectations and experiences. Thus, it was important to explore the students', tutors' and educators' perception of the current situation. Future developments can then be considered to address the issues identified in the study.

This was a small scale research project and larger scale research may lead to other conclusions. The study brought students', tutors' and educators' views together to examine their current levels of knowledge and experiences of reflection. It is not the intention to make generalizations about the data collected but to illuminate an area, perhaps setting down the basis for future work. It was my intention to explain what is happening without making a value judgment or trying to induce change, and to complete the enquiry without changing the situation. Others, however, may use the findings to initiate change. Thus, the research recommendations may be viewed as a catalyst for change. Some would argue that this study has not developed

hard evidence to show that the method changed or improved practice. However, it has produced valuable information regarding the education and continuing professional development of staff and students. Certain themes flowed through the study and having related these to existing literature it allowed conclusions to be made which were drawn from the data gathered. The research project's major findings have confirmed the following to be significant:

- Participants had similarly defined but variable understanding of the meaning of the terms reflection and critical reflection.
- Participants' perceptions were that the policy documents and the Medical School gave little explicit advice to support the student develop the skill of reflection, as part of the curriculum.
- There was strong evidence that reflective practice has an important role in assisting junior doctors to develop their skills as professionals.
- Assumptions were made that students and tutors alike had sufficient knowledge of the process of reflection to engage in deep or high levels of learning.

On the basis of their accounts, this research suggests that the participants' needs are more detailed than the way they are defined in policy. One interpretation of this is that students may or may not adopt reflective learning habits spontaneously. There is an obvious need for the Medical School to clearly articulate what is required of students and tutors in terms of reflection. Clarifying and expanding the written information of the terms used within the documentation would enlighten the student as to what is required of them to meet the standard set by the Medical School.

Drawing on the experiences of nursing and other professions, a number of general conclusions can be drawn from this study. On a day to day basis reflection is an important mechanism for supporting effective performance and for developing better thinking skills. Policy contexts require practitioners both as students and as qualified practitioners to reflect on

personal and professional development. However, the study questions the notion implied within the policy documentation (SDMEG, 2002, 2008; GMC, 2003) of the doctor as a competent and reflective practitioner. This research suggests that improvement at all levels could be achieved by a more detailed approach to reflective education than has been the case up to now.

6.1.1 Teaching preparation

The research points to the need for tutor preparation as the majority of staff have neither a teaching or educational qualification nor specific training in the teaching of reflection. It may be that tutors need to seek opportunities for staff training, continuing professional development and sourcing educational theory. Yet, at the same time it could be argued that the Medical School should provide greater opportunities for tutor and curriculum development. To merely refer to reflection is not enough particularly as the evidence of this research suggests that participants do not appear to have any depth to their understanding of the concept or what level of detail is required for its teaching, learning and assessment. Tutors have specific continuing professional development requirements which relate to their own appraisal process, and for their teaching sessions. This suggests that tutors need to be more proactive in the educational process and inform themselves better by taking advantage of the resources available and reading the literature to increase their understanding of reflection. For that reason, there should be negotiation for protected time within the programme for tutors to obtain training, with the importance of reflection for lifelong learning emphasised by the faculty educators.

Based on the data of this study, it appears that tutors need more preparation for teaching the skill of reflection while students require more preparation time to develop the skill. Understanding the nature of the skill and the required guidance for students and staff is vital. This will enable them to develop strategies to support reflective thinking. The study has clearly

identified that the thinking skills of students are variable. Appropriate support to develop the cognitive skills required should be implemented and integrated within the programme.

The study raises a number of important questions. Professional practice focuses on the relationship between knowledge and competence (Schön, 1983; 1987). Consequently, the role of the tutor/educator is to facilitate self directed learning, reflection, and critical thinking in learners. Nevertheless, there appears to be little preparation of the professional, for his role as teacher or facilitator of the student's learning in medicine. As reflection is considered an attribute necessary to practising medicine its development needs to be supported through teaching preparation, formal education, a core educational strand, resources and policy development.

There is scope for further research in this field: a study of student and tutor preparation across Scotland or within the United Kingdom could establish the variations in preparation for individuals undertaking the MBChB programme. This could support the development of, and standardise the approach to, reflective education and policy documents. Some would question if reflective learning produces good practice. However, it remains important to explore the impact of education on practice to investigate which, if any, methods or strategies help junior doctors learn and support their practice. This too, could be a future research study.

6.1.2 A core educational strand

The research asserts that reflection should be a core educational strand and evident throughout the course. It should be incorporated early within the programme of study, namely in year one and revisited throughout the five years of study. It is evident from the results that further questions need to be asked. Year five students are required to demonstrate the highest level of reflective ability. Therefore they could be asked to explain how they structure their portfolio of learning in preparation for the portfolio

exemption viva assessment in year five. In hindsight it may have been valuable to gain the perspective of the students from within years four and five of the Medical School programme. Examiners too, could be asked to explain how they make a judgement for the grade awarded to the student. This suggests another possible research study for the department.

6.1.3 Formal education

This study contributes to the current understanding of reflection from the students', tutors' and educators' perspective. Reflective thinking is not necessarily what the individual does naturally or automatically; rather it requires active involvement that supports the learner's needs. The study has implications for the formal education of students in medicine and for the continuing professional development of staff. Information on reflection and reflective education needs can be used to inform program curricula concerned with how tutors are educated to provide reflective education.

The research shows that we cannot assume that students will automatically know how to reflect on practice. Moreover, we cannot assume that tutors understand the process of reflection or that they have the knowledge and skill to facilitate learning in others. This suggests that the ways in which the tutor and student construct the meaning of reflection for practice within the medical curricula needs to be supported. A clear definition of reflection must be provided within the programme documents and valued as an integral core part of the medical degree programme. Emerging from the data and the discussion which followed is a suggestion that the Medical School should offer educational theory and practice in reflection so that the shortcomings of the present situation can be overcome. We cannot take it as read that both the educationalists and examiners are familiar with the process of reflection or that they have the educational theory and practice to assess and facilitate the students' learning during the clinical placements. Therefore, the lack of, or omission of educational theory within the

documentation requires to be rectified and opportunities for experiential learning created.

From the evidence it seems that the liaison between the student, tutor and Medical School should be reviewed. This would enable high standards of preparation and education for all those involved in the teaching of the students within the medical undergraduate programme. It appears that little is known about what the Medical School offers students in terms of study days or written documentation to support reflection. It is evident from the data that the communication between the groups requires review to ensure individuals involved in the programme are aware of the programme requirements. Criteria and standards are among the most valuable instruments of rational procedure. Teaching students to use them is an essential aspect of the teaching of critical thinking (Lipman, 1988).

6.1.4 Resources

This research shows that educators need to pay more attention to the idea of the reflective practitioner. The data suggests that there needs to be a review of the resources and the support which tutors have to ensure up-to-date information regarding the course aims, objectives and content. The Medical School needs to provide the resources which will facilitate the development of educational practice which integrates the notion of reflection as a core skill within the medical programme. This interpretation was made as the majority of tutors were unaware of any assessment strategies within the curriculum which refer to reflection or reflective practice thus identifying a need for education. This omission suggests that the communication between the Medical School and the tutors of the teaching, learning and assessment strategies need to be revised. Prior to the programme commencing the assessment and competency frameworks could also be discussed with tutors to enable them to have a better understanding of the course requirements.

Students too, need to think about the assessment more widely and have a better understanding of why reflection is relevant so that it is not seen as a

'tick the box' exercise. This suggests that clear assessment criteria could support the student's understanding of what is expected from the medical programme and that it should be made available to students in each year.

The evidence suggests that there is an opportunity within the curriculum to develop the students' knowledge and skill in reflecting. However, staff need to understand educational theory relating to the different levels of reflective learning and for both students and staff there should be a clear statement of what is expected in completing the Record of Achievement during years one, two and three. The lack of teaching support materials needs to be put right and there should be a recognition that time needs to be allotted to the practice of reflection.

6.1.5 Policy development

The study has implications for policy development within Medical School education in Scotland. If students have access to education that is aligned with their needs and goals, then reflection will make more sense to them and become part of everyday practice. Argyris and Schön (1974) acknowledge creating an environment that fosters reflective learning, whereby the gap between theory and practice may be reduced. If educators are more active and more informed in their teaching practice, then they may be more prepared to connect with the tutors to work together to make the best use of the reflective literature. This could significantly reduce student and tutor uncertainty.

6.2 RECOMMENDATIONS

Medicine is a complex knowledge-rich discipline encompassing a range of performance skills and knowledge. Thus, it is not likely that any one theory or approach to learning and pedagogy will adequately describe it in all its complexity. Considering the three components to a theory of learning and instruction: a theory of competent, skilled, knowledgeable performance as exemplified by domain experts; an acquisition theory concerning the process of learning and development; and a theory of intervention describing methods for enhancing teaching and learning (De Corte, 1996 as cited in Patel *et al*., 2000, p. 258; Patel, Kaufman & Arocha, 2000 as cited in Patel *et al*., 2000, p. 258), this thesis offers ways in which the medical programme can encourage the development of reflection within the curriculum.

As a result of the information which has emerged from this research the study makes the following recommendations:

1. The SDMEG, *The Scottish Doctor* and the GMC, *Tomorrow's Doctors* could provide the Medical School with explicit criteria which students must meet to be considered competent in the skill of reflection. The Medical School could provide a more clearly articulated meaning of reflection. I propose a wider definition of reflection so that it includes a range of different uses, approaches and outcomes:

   > Critical reflection is 'a meta-cognitive process within the context of the practitioner's own level of experience which enables him/her to better understand, evaluate and/or resolve an issue, examine practice and personal experience including beliefs, moral and ethical principles which leads to transformation of the self (including knowledge, skill and attitude) and which re-evaluates and validates previous learning whilst identifying future learning for personal and professional practice.'

2. There is a need to develop resources to facilitate reflection. There has been an increasing use of structured approaches to reflection to both encourage and assess reflective learning in postgraduate and continuing medical education (Rughani, 2001). Often these approaches are essential

components of training, certification or revalidation through appraisal. Reflection is an essential aspect of the process and this can be included in a structured approach. The Scottish Online Appraisal Resource follows the current, seven headings of Good Medical Practice as stated by the GMC (2006a).

Paperwork and guidance is available for the appraisal (NHS Education for Scotland, 2008) http://www.scottishappraisal.scot.nhs.uk/Paperwork.htm

Although the resource does not specifically refer to the reflective frameworks of Kolb (1984), Gibbs (1988) and Johns (1994), the structure of this resource is similar. Therefore, tutors and students could be guided to these most commonly referred to frameworks and to the educational theories of Schön and Dewey.

3. The Medical School could consider the role they have in assisting the student to develop skill in reflection from year one. Support and advice should be available and informed by learning resources, such as literature or a lecture.
4. There is a need for continuing professional development courses. The Medical School has a role to play in providing these courses. Staff development sessions must be available to support the tutor's needs and all teaching staff must be able to demonstrate understanding of (critical) reflection. Proposed changes would be feasible, and if time was made available through staff development sessions for tutors to engage with educational theory, reflective frameworks, support and guidance of how to reflect, sharing ideas and experience, peer support and mentoring.
5. There is a need to ensure students and tutors have explicit assessment criteria. This is necessary to ensure students are clear about how they are expected to demonstrate reflective ability. Criteria already exist for the assessment of the year five portfolio. To standardise the assessment criteria throughout the five year programme the same criteria could be used within the earlier years of the programme (Appendix 2). Students who are not taught to use criteria in a way that is both sensitive to context and self corrective are not being taught to think critically (Lipman, 1988). An

alternative is a pragmatic approach to categorising reflective material (Table one: Moon, 2004) and categorising reflective material based on stages of professional development (Table two: Niemi, 1997).

Table one

Grade A: Experiencing an event(s) has changed, or confirmed, how you experience an event(s). You may wish to change how you respond to similar event(s in the future. You provide an explanation, including references to other literature, eg articles or books.

Grade B: Involves judgement – what went well, or less well and why.

Grade C: Describing an event – recognising how it affects your feelings, attitudes and beliefs and/or questioning what has been learnt and comparing it to previous experience.

Grade D: Describing an event – recognising that something is important but not explaining why.

Grade E: Describing an event – repeating the details of an event without offering any interpretation.

Grade F: Describing an event – poor description of an event.

(Moon, 2004)

Table two

Committed reflection- There is a discussion of what has been learned, how it has affected the individual and how they feel that they have changed.
Some presentation of evidence to back this up should be provided.

Emotional exploration- There is evidence of the emotional impact of an experience and this includes insights and discussion about their own beliefs and values, including how these have been challenged.

Objective reporting- There is only a descriptive account of what happened during the experience with no evidence of reflection, or how the experience has affected them.

Diffuse reporting- The description is unfocused or disorganised and contains only a description of the experience.

(Niemi, 1997)

6. The support offered to students and staff and the information within the course resources should be of a set standard with protected time for reflection. Medicine involves the flexible application of principles to practice. Doctors recognize the importance of making good judgments in the carrying out of their practice. Thus, it remains for educators to design appropriate courses in critical thinking and to help teachers recognize the critical thinking elements in the present practice that need strengthened (Lipman, 1988).

   Drawing on the work of McGuinness (1999, 2005) there are similarities with medical education. Raising educational standards requires attention not only on what is to be learned but on how students learn and how educators intervene to achieve this. There is a need to make the skill of reflection explicit within the curriculum creating habits of reflection, collaborative learning and adopting teaching strategies which ensure learning transfers beyond the context in which it occurs. Developing the skill of critical reflection requires linking teaching methodologies with learning outcomes, embedding reflective skills within and across the curriculum. Students must be enabled to take charge of their own learning as learning by heart and rote learning are not sufficient. If students are to become better reflectors and make reasoned judgments then they must be taught explicitly how to do it. We cannot suppose that they will spontaneously learn how to reflect. It is a part of educational development which emphasises the quality of reflective processes and skills for preparing students for lifelong learning.

6.3 PERSONAL REFLECTION

After dedicating four years of my life to this Doctoral study I now reflect on my journey (Appendix 14).

'Follow effective action with quiet reflection. From the quiet reflection will come even more effective action'

Peter F. Drucker (1909)

BIBLIOGRAPHY

Adey, P. (2004). The professional development of teachers: practice and theory. In C. McGuinness. Pedagogy-Learning for Teaching. Teaching thinking: Theory and practice. *The British Psychological Society,* 1, 1, 107-126.

Agar, M. (1996). *The Professional Stranger.* (2nd ed.). San Diego: Academic Press.

Alavi, C. (1995). *Problem based learning in a health sciences curriculum.* London: Routledge.

Alfaro-LeFevre, R. (2007). *Critical thinking and clinical judgment. A practical approach to outcome-focused thinking.* (4th ed.). Canada: Saunders Elsevier.

Alsop, A. (1995). The British portfolio - purpose, process and practice. Part one: Portfolios and professional practice. *British Journal of Occupational Therapy*. 58. 7. 299-302.

Anderson, G., & Arsenault, N. (2001). *Fundamentals of Educational Research*. 2nd Ed. Great Britain: Routledge Falmer.

Anderson, A., & Soden, R. (2002). *The role of peer interaction in enhancing students argumentative reasoning skills.* Progress in education series. New York: Nova Science.

Anderson, A., Howe, C., Soden, R., Halliday, J., & Lowe, J. (2001. Peer interaction and the learning of critical thinking skills in further education students. *Instructional Science,* 29, 1-32

Andrews, M. (1996). Reflection as infiltration: Learning in the experiential domain. *Journal of Advanced Nursing.* 24, 391-399.

Argyris, C., & Schön , D. (1974). *Theory in practice: Increasing professional effectiveness.* San Fransisco: Jossey Bass.

Arseneau, R. (1995). Exit rounds: a reflective exercise. *Academic Medicine,* 70, 684-687.

Atkins, S., & Murphy, K. (1993). Reflection: a review of the literature. *Journal of Advanced Nursing*, 18, 1188-1192.

Baron, J., & Sternberg, R. (Eds). *Teaching thinking skills: Theory and practice.* (pp. 41-61). New York: Freeman and Company.

Barrows, H. S. (1993). Problem based, self directed learning. *Journal of the American Medical Association,* 250, 3077-3080.

Bassey, M. (1999). *Case study research in educational settings.* Great Britain: Biddles.

Bell, J., Bush, T., Fox, A., Goodey, J., & Goulding, S. (1984). (Eds). *Conducting small scale investigations in Educational management.* London: Harper and Row.

Benner, P. (1984). *From novice to expert*. Massachusettes: Addison Welsley.

Benner, P. (2001). *From novice to expert*. (2nd ed). New Jersey: Prentice Hall.

Bennet, I. (1996). *Teaching methods in colleges and universities.* London: Kogan Page.

Berg, B. (2007). *Qualitative research methods for the social sciences.* (6th ed.). Boston: Pearson Education.

Blase, J., Hekelman, F.P., & Rowe, M. (2000). Preceptors' use of reflection to teach in ambulatory settings: An exploratory study. *Academic Medicine, 75*, 9, 947-953.

Bloom, B.S. (1956). *Taxonomy of Educational Objectives Handbook I: The Cognitive Domain.* New York: David McKay Co Inc.

Boenink, A. D., Oderwald, P., de Jonge, W., & van Tilburg, W. (2004). Assessing student reflection in medical practice. The development of an observer-rated instrument: reliability, validity and initial experience. *Medical Education,* 38, 368-377.

Boshuizen, H.P.A. (2004). Does practice make perfect? A slow and discontinuous Process. In H.P.A. Boshuizen., R. Bromme & H. Gruber. *Professional learning: Gaps and transitions on the way from novice to expert.* USA: Kluwer Academic Publishers.

Boshuizen, H.P.A., & Schmidt, H.G. (1992). On the role of biomedical knowledge in clinical reasoning by experts, intermediates and novices. *Cognitive Science,* 16, 153-184.

Boshuizen, H.P.A., Bromme, R., & Gruber, H. (2004). Professional learning: Gaps and transitions on the way from novice to expert. USA: Kluwer Academic Publishers.

Boud, D. (1995). *Enhancing learning through self assessment*. London: Kogan Page.

Boud, D., Keogh, R., & Walker, D. (1985). *Reflection: turning experience into learning.* London: Kogan Page.

Boud, D., Keogh, R., & Walker, D. (1988). *Promoting reflection in learning: A model*. London: Kogan Page.

Boud, D., Keogh, R., & Walker, D. (2000). *Reflection: turning experience into learning.* (2nd ed.). London: Kogan Page.

Boud, D., & Knight, S. (1994). Designing courses to promote reflective practice. *Research and Development in Higher Education*, 16, 229-234.

Boyd, E.M., & Fales, A.W. (1983). 'Reflective learning: key to learning from experience.' *Journal of Humanistic Psychology.* 23, 2, 99-117.

British Educational Research Association Revised Ethical Guidelines for Research. (2004). Retrieved May 4, 2006 from http://www.bera.ac.uk/blog/category/publications/guidelines/

Brockbank, A., & McGill, I. (1998). *Facilitating reflective learning in higher education*. Society for Research into Higher Education. London: Open University Press.

Brookfield, S. D. (1987). *Developing critical thinkers*. San Fransisco: Jossey Bass.

Brookfield, S. D. (1995). *Becoming a critically reflective teacher*. San Fransisco: Jossey Bass.

Brookfield, S. D. (2000). The concept of critically reflective practice. In A. L. Wilson & E. R. Hayes (Eds.), *Handbook of adult and continuing education* (pp. 33-49). San Francisco: Jossey-Bass.

Brown, A., & Dowling, P. (2001). *Doing research/reading research. A mode of interrogation for education*. London: Routledge.

Bruner, J. S. (1975). The ontogenesis of speech acts. *Journal of Child Language*, 2, 1-40.

Bryce, T., & Humes, W. (2003) (Eds.), *Scottish Education*. Edinburgh: Edinburgh University Press.

Burnard, P. (1995). Nurse educators perceptions of reflection and reflective practice: a report of a descriptive study. *Journal of Advanced Nursing*. 21, 6, 1167-1174.

Burns, R. (2000). *Introduction to research methods*. (4th ed.). London: Sage.

Burns, S., & Bulman, C. (Ed.). (2000). *Reflective practice in nursing. The growth of the professional practitioner*. Oxford: Blackwell Science.

Burrrell, G., & Morgan, G. (1979). *Sociological paradigms and organisational analysis.* London: Heinemann Educational Books.

Burrows, D.E. (1995). The nurse teacher's role in the promotion of reflective practice. *Nurse Education Today,* 15, 346-350.

Campbell, E. (1998). Teaching strategies to foster. 'Deep' versus 'Surface' learning. 'www.uottawa.ca/ academic/cut/options/Nov_98/TeachingStrategies_en.htm (accessed 7 August 2007).

Carper, B. (1978). Fundamental patterns of knowing in nursing. *Advances in Nursing Science,* 1, 1, 13-23.

Challis, M. (1999). Portfolio-based learning and assessment in medical education. *Medical Teacher,* 21, 370-386.

Chi, M.T., Glaser, R., & Farr, M.J. (1988). *The nature of expertise.* Hillsdale (NJ): Lawrence Erlbaum.

Clark, D. (1996). *Schools as learning communities*. London: Cassell.

Cohen, L., & Manion, L. (1989). *Research Methods in Education,* (3rd ed.). London: Routledge Falmer.

Cohen, L., Manion, L., & Morrison, K. (2005). *Research methods in education.* (5th ed.). London: Routledge Falmer.

Cole, K., Barker, L., Kolodner, K., Williamson, P., Wright, S., & Kern, D. (2004). Faculty. development in teaching skills: an intensive longitudinal model. *Academic Medicine,* 79, 5, 469-480.

Creedy, D., & Hand, B. (1994).The implementation of problem based learning: changing pedagogy in nurse education. *Journal of Advanced Nursing*, 20, 696-702.

Creswell, J. (1994). *Research design: Qualitative, quantitative and mixed method approach*. California: Sage.

Dacre, J. & Fox, R. (2000). How should we be teaching our undergraduates? *Annal Rheumatology Diseases.* 59. 662-667.

Davis, M.H., Friedman, Ben-David M., Harden, R.M., Howie, J.G.R., Ker, J., McGhee, M.J., Pippard, M.J., & Snadden, D. (2001). Portfolio assessments in medical students' final examinations. *Medical Teacher,* 23, 357–66.

De Corte, E. (1996). *Learning theory and instructional science.* In V. L. Patel, R. Glaser & J. F.Arocha. Cognition and expertise: acquisition of medical competence. *Clinical Investigative Medicine*, 23, 4, 256-260.

Dearing, R. (1997). *Report of the National Committee of Inquiry into Higher Education.* (London, DfEE Publications centre**)**. Retrieved online on 3rd March 2009 from http://www.leeds.ac.uk/educol/ncihe/

Department of Health. (2001). *Learning from Bristol: The report for the public inquiry into Children's heart Surgery at the Bristol Royal Infirmary 1984-1995*. London: TSO.

Department of Health. (2003). *The NHS Plan- a progress report.* London: HMSO.

Dewey, J. (1916). *Essays in experimental logic*. New York: Denver.

Dewey, J. (1933). *How we think*. Boston: Health.

Dewey, J. (1938). (Ed). *Experience and education.* New York: Touchstone.

Dewey, J. (1938). *Logic: The theory of inquiry.* Troy: Holt, Rinehart, & Winston.

Dewey, J. (1964). *John Dewey selected writings.* New York: Modern Library.

Dewey, J. (1973). (Ed). *The philosophy of John Dewey. (Volumes 1 and 2).* John McDermott Editor. New York: G.P. Putnams Sons.

Dewey, J. (1974). (Ed). *John Dewey on Education. Selected Writings.* Chicago: University of Chicago.

Dewing, J. (1990). Reflective practice. *Senior Nurse*, 10, 10, 26-28.

Driessen, E.W., Van Tartwijk, J., Vermunt, J.D., & Van der Vleuten, C.P.M. (2003). Use of portfolios in early undergraduate medical training. *Medical Teacher*, 25, 18–23.

Duke, S., & Appleton, J. (2000). The use of reflection in a palliative care programme: a quantitative study of the development of reflective skills over an academic year. *Journal of Advanced Nursing*, 32, 6, 1557-1568.

Dukes, S. (1984). Phenomenological methodology in human sciences. In J. Creswell. *Research design: Qualitative and Quantitative Approaches.* (p. 12). California: Sage.

Durgahee, T. (1998). 'Facilitating reflection: from a sage on stage to a guide on the side'. *Nurse Education Today,* 18, 1, 346-350.

Entwistle, N. (1996). *The impact of teaching on learning outcomes in higher education: a literature review*. Sheffield: Universities Staff Development Unit.

Eraut, M. (1994). *Developing professional knowledge and competence.* London: Routledge Falmer.

Ericsson, K.A. (1996). (Ed). *The road to excellence: the acquisition of expert performance in the arts and sciences, sports and games.* Hillsdale (NJ): Lawrence Erlbaum.

Erlandson, D., Harris, E., Skipper, B. & Allen, S. (1993). *Doing naturalistic inquiry: a guide to methods.* Newbury Park, Ca: Sage.

Evans, A., McKenna, C., & Oliver, M. (2002). Self assessment in medical. practice. *Journal of the Royal Society of Medicine,* 95, 511.

Feltovich, P.J., Ford, K.M., & Hoffman, R.R. (1997). *Expertise in context.* California: AAA1/MIT Press.

Flavell, J. (1963). *The developmental psychology of Jean Piaget.* New York: Van Nostrand Reinhold.

Flavell, J. (1971). Stage related properties of cognitive development. *Cognitive Psychology*, 2, 4, 421-453.

Flavell, J. (1977). *Cognitive development.* Englewood Cliffs, NJ: Prentice-Hall.

Flavell, J. (1979). Metacognition and Cognitive Monitoring. A new area for cognitive –developmental inquiry. *American Psychologist*, 34, 10, 906-911.

Flick, U. (2002). *An Introduction to Qualitative Research*. (2nd ed.). London: Sage.

Freese, A. (1999).The role of reflection on pre-service teachers' development in the context of a professional development school. *Teaching and Teacher Education*, 15, 895-909.

Freire, P. (1972) *Pedagogy of the Oppressed*. Harmondsworth: Penguin.

Freshwater, D. (Ed.). (2002). *Therapeutic nursing: Improving patient care through reflection*. London: Sage.

Freshwater, D. (Ed.). (2005). Reflection: a tool for developing clinical leadership. *Reflections on Nursing Leadership,* 20-26.

Fry, H., Ketteridge, S., & Marshall, S. (1999). *A handbook for teaching and learning in higher education. Enhancing academic practice.* London: Kogan Page.

Gabel, D. (1995). Presidential address. In B. Berg. *Qualitative research methods*. (5th ed.). (p. 223). Boston: Pearson Education.

Geertz, C. (Ed.). (1973). *The interpretation of cultures.* New York: Basic Books.

General Medical Council. (1983).*Medical Act. To ensure that students will be fit to practice as doctors when they graduate.* Amendment order 2002. London: General Medical Council.

General Medical Council. (1993). *Tomorrow's Doctors*. London: General Medical Council.

General Medical Council. (2000). *Revalidation for doctors. Ensuring standards, securing the future.* London: General Medical Council.

General Medical Council. (2002). *Quality assurance process document.* London: General Medical Council.

General Medical Council. (2003). *Tomorrow's Doctors: Recommendations on Undergraduate Medical Education.* (2nd ed.). London: General Medical Council.

General Medical Council. (2004). *Annual review*. London: General Medical Council.

General Medical Council. (2006a). *Good Medical Practice*. London: General Medical Council.

General Medical Council. (2006b). *Good doctors, safer patients.* Retrieved online on 3rd March 2009 from http://www.gmc-uk.org/about/reform/Revalidation.asp

Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods.* Further Education Unit. Oxford: Oxford Brookes University.

Gibbs, G. (1992). *Improving the quality of student learning*. Bristol: Technical & Educational Services Ltd.

Glaze, J. (2000). Reflection as a transforming process: student advanced nurse practitioners' experiences of developing reflective skills as part of an MSc programme. *Journal of Advanced Nursing,* 34, 5, 639-647.

Glen, S., Clarke, A., & Nichol. M. (1995).Reflecting on reflection: A personal encounter. *Nurse Education Today*, 15, 1, 61-68.

Glen, S., & Hight, N. F. (1992). An examination of the use of reflection in the assessment of practice for undergraduate nursing students. In E, Rideout. *Transforming nurse education through problem based learning*, (pp. 119-164). Canada: Jones and Bartlett.

Grant, A., Kinnersley, P., Metcalf, E., Pill, R., & Houston, H. (2006). Students' view of reflective learning techniques: an efficacy study at a UK Medical School. *Medical Education*, 40, 379-388.

Grant, A., Vermunt, J. D., Kinnersley, P., & Houston, H. (2007). Exploring students' perceptions on the use of significant event analysis, as part of a portfolio assessment process in general practice, as a tool for learning how to use reflection in learning. *BMC Medical Education*, 7, 5.

Greenhalgh, T. (2005). *How to read a paper. The basics of evidence based medicine.* (9th ed.). London: BMJ.

Greeno, J. (1998). The situativity of knowing, learning and research. *American Psychology*, 53, 5-26.

Guest, C. B., Regehr, G., & Tiberius, R.G. (2001). The lifelong challenge of expertise. *Medical Education*, 35, 78-81.

Gustafsson, C., & Fagerberg, I. (2004). Reflection, the way to professional development? *Journal of Clinical Nursing*, 13, 217-280.

Hallet, C. (1997). Learning through reflection in the community: The relevance of Schön's theories of coaching to nursing education. *International Journal of Nursing Studies*, 34, 103-110.

Hancock, P. (1998). Reflective practice-using a learning journal. *Nursing Standard*, 13, 17, 37-40.

Harden, R.M. (1986). Ten questions to ask when planning a course or curriculum. *Medical Teacher*, 20, 356-365.

Harden, R.M. (2002). Developments in outcomes based education. *Medical Teacher*, 24, 117-120.

Harden, R., Grant, J., Buckley, G., & Hart, I. (1999). BEME Guide no. 1. Best evidence in medical education. *Medical Teacher*, 21, 553-562.

Hatton, N., & Smith, D. (1995). Reflection in teacher education: toward definition and implementation. *Teacher and Teacher Education*, 11, 1, 33-49.

Heidenreich, C., Lye, P., Simpson, D., & Lourich, B. A. (2000).The search for effective and efficient ambulatory teaching methods through the literature. *Paediatrics*, 105, 231-237.

Hewson, M. (2000). A theory based faculty development program for clinician-educators. *Academic Medicine,* 75, 5, 498-501.

Higher Education Academy. (2005). *Professional standards*. Retrieved online on 16th November 2006 from www.uclan.ac.uk/other/hr/content/staff_dev/learnteach/hea/hea.htm

Hofer, B. K., & Pintrich, P.R. (2002). (Eds.). *Personal epistemology: The psychology of beliefs about knowledge and knowing*. Mahway, NJ: Lawrence Erlbaum, Publisher.

Holm, D., & Stephenson, S. (1994). Reflection-a student's perspective. Reflective Practice in nursing. The growth of the professional. In Moon, J. *Reflection in learning and professional development. Theory and practice*. (3rd ed.). (p.9). London: Kogan.

Howe, A. (2002). Professional development in undergraduate medical curricula- the key to the door of a new culture. *Medical Education*, 36, 353-341.

Hughes, C. (1992). Ethnography-what's in a word process? Product? Promise? *Qualitative Health Research*, 2, 4, 439-50.

Humes, W.M. (2004). The Discourse of Community in Educational Policy, *Education in the North*, New Series, No. 12, 6-13.

Jarvis, P. (1992). Reflective practice and nursing. *Nurse Education Today,* 12, 3-181.

Jarvis, P., Holford, J., & Griffin, C. (1998). *The theory and practice of learning.* London: Kogan Page.

Johns, C. (1994). 'Nuances of reflection'. *Journal of Clinical Nursing*, 3, 71-75.

Johns, C. (1995). The value of reflective practice for nursing. *Journal of Clinical Nursing,* 4, 23-30.

Johns, C. (1998). Opening the doors of perception. In C. Johns & D. Freshwater. *Transforming Nursing Through Reflective Practice* (pp.1-20). Oxford: Blackwell Science.

Johns, C. (2000). Reflective practice: Revealing the (he) art of caring. *International Journal of Nursing Practice*, 7, 4, 237-24.

Johns, C., & Freshwater, D. (1998). *Transforming nursing through reflective practice.* Oxford: Blackwell Science.

Kahn, P. (2006). *The role and effectiveness of reflective practices in programmes for new academic staff: a grounded practitioner review of the research literature.* Manchester: Higher Education Academy.

Kataoka-Yohiro, M., & Saylor, C. (1996). A critical thinking model for nursing judgment. *Journal of Nursing Education*, 33, 8, 351-356.

Kegan, R. (1982) *The evolving self.* In King (n.d). *Reflective Judgment.* Retrieved September 16, 2009, from http://www.umich.edu/~refjudg/index.html

Ker, J. (2003). Developing professional clinical skills for practice- the results of a feasibility study using a reflective approach to intimate examination. *Medical Education*, 371, 34-41.

Kidd, J., & Nestle, D. (2004). Facilitating reflection in an undergraduate medical curriculum. *Medical Teacher*, 26, 5, 481-486.

King, P. (n.d). *Reflective Judgment.* Retrieved September 16, 2009, from http://www.umich.edu/~refjudg/index.html

King, P. M., & Kitchener, K. S. (1994) *Developing reflective judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults*. San Francisco, Jossey-Bass.

King, P.M., & Kitchener, K.S. (2002). The reflective judgment model: Twenty years of research on epistemic cognition. In B. K. Hofer and P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing*, (pp. 37-61). Mahway, NJ: Lawrence Erlbaum, Publisher.

Kinsella, E. (2007). Embodied reflection and the epistemology of reflective practice. *Journal of Philosophy of Education*, 41, 3, 395-409.

Knowles, Z., Tyler, G., Gilbourne, D., & Eubank, M. (2006). Reflecting on reflection: exploring the practice of sports coaching graduates. *Reflective Practice*, 7, 2, 163-179.

Kohner, N. (1994). *Clinical supervision in practice.* London: Kings Fund Centre.

Kolb, D. A. (1984). *Experiential learning: experience as the source of learning and development.* New Jersey: Prentice-Hall.

Kreber, C. (2004). 'An analysis of two models of reflection and their implications for educational development.' *International Journal for Academic Development.* 9, 1, 29-49.

Kuit, J., Reay, G., & Freeman, R. (2001). *Experiences of reflective teaching. The institute for learning and teaching in higher education*. London: Sage Publication.

Kvale, S. (1996). *Interviews*. London: Sage Publication.

Lansing, J. B., Ginsberg, G. P., & Braaten, K. (1961). An investigation of response error. In L. Cohen, L. Manion. & K. Morrison. *Research methods in education*. (5th ed.). (p.120). London: Routledge Falmer.

Lashway, L. (1998). *Creating a learning organization. Eric database.* Retrieved online. 10 November 2006 from http://www.vtaide.com/png/ERIC/Learning-Org.htm

Learning and Teaching Scotland. (2007). *Learning about learning. Teaching for effective learning: How we learn.* Glasgow: Learning and Teaching Scotland.

Leung, D., & Kember, D. (2003). The relationship between the approaches to learning and reflection upon practice. *Educational Psychology*, 23, 61-71.

Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic Inquiry*. Newbury Park California: Sage.

Lipman, M. (1988). Critical thinking: What can it be? *Institute for Critical Thinking Resource Publication. Series 1. No. 1*. New Jersey: Montclair College, Upper Montclair.

Livingston, J. A. (1996). Effects of metacognitive instruction on strategy use of college students. *Unpublished manuscript.* New York: State University. Retrieved January 8, 2009, from http://www.gse.buffalo.edu/fas/shuell/cep564/Metacog.htm

Mackintosh, C. (1998). Reflection: A flawed strategy for the nursing profession. *Nurse Education Today,* 18, 553-557.

Mamede, S., & Schmidt, H. (2004). The structure of reflective practice in medicine. *Medical Education,* 38, 1302-1308.

Mamede, S., & Schmidt, H. (2005). Correlates of reflective practice in medicine. *Advances in Health Education,* 10, 327-337.

Mamede, S., & Schmidt, H. (2008). Effects of reflective practice on the accuracy of medical diagnoses. *Medical Education,* 42, 468-475.

Mar, C., Doust, J., & Glasziou, P. (2007). *Clinical Thinking: Evidence, Communication and Decisions Making.* Oxford: Blackwell Publishing.

Marshall, C., & Rossman, G. (1999). *Designing qualitative research.* Newbury Park: Sage.

Maudsley, G., & Striven, J. (2000). 'Science', 'critical thinking' and 'competence' for Tomorrow's Doctors. A review of terms and concepts. *Medical Education,* 34, 53-60.

McGuinness, C. (1999). *From thinking skills to thinking classrooms: a review and evaluation of approaches for developing pupils' thinking.* London: HMSO. (DfEE *Research Report 115).*

McGuinness, C. (2005). Pedagogy-Learning for Teaching. Teaching thinking: Theory and practice. *The British Psychological Society,* 1, 1, 107-126.

Mezirow, J. (1981). A critical theory of adult learning and education. *Adult Education,* 32, 3-24.

Mezirow, J. (1990). *Fostering critical reflection in adulthood.* USA: Jossey Bass.

Mezirow, J. (1991). *Transformative dimensions of adult learning*. San Fransisco: Jossey Bass.

Miles, M., & Huberman, M. A. (1994). *Qualitative Data Analysis.* (2nd ed.). California: Sage Publications.

Mitchell, M. (1994). The views of students and teachers on the use of portfolios as a learning strategy and assessment tool in midwifery education. *Nurse Education Today,* 14, 38-43.

Moon, J. (1999). *Reflection in learning and professional development. Theory and practice*. (2nd ed.). London: Kogan.

Moon, J.A. (2004). *A handbook of reflective and experiential learning: Theory and practice.* Abingdon: Routledge Falmer.

Moon, J. (2006). *Reflection in learning and professional development. Theory and practice*. (3rd ed.). London: Kogan.

Muir, F. (2006). *The reflective practitioner. Student selected component.* Dundee: University of Dundee.

National Health Service Careers - Entry requirements for Medical School – (2009). Retrieved 19th March, 2009, from http://www.nhscareers.nhs.uk/index.shtml

NHS Education for Scotland. (2008). *Scottish Online Appraisal Resource. Paperwork and Guidance for your Appraisal.* Retrieved September 7, 2009, from http://www.scottishappraisal.scot.nhs.uk/Paperwork.htm

Nicholl, H., & Higgins, A. (2004). Reflection in pre registration nursing curricula. *Journal of Advanced Nursing*, 46, 6, 578-585.

Niemi, P.M. (1997). Medical students' professional identity: Self-reflection during the pre-clinical years. *Medical Education*, 31, 408–415.

Nisbet, J., & Watt, J. (1984). Case Study. In J. Bell., T Bush., A. Fox., J. Goodey & S. Goulding. (Eds). *Conducting small scale investigations in educational management.* (pp. 79-92). London: Harper & Row.

Nojnuis, A. (2001). *Reflection on experience by using trigger movies.* Poster presented at AMEE, Berlin.

Nursing & Midwifery Council. (2002). *Standards for the preparation of teachers of nursing and midwifery.* London: Nursing & Midwifery Council.

Nursing & Midwifery Council. (2009). *Revalidation.* Retrieved online on February 9, 2009, From http://www.nmc-uk.org/aArticle.aspx?ArticleID=3590

O'Connor, A., Hyde, A., & Treacy, M. (2003). Nurse teachers' constructions of reflection and reflective practice. *Reflective Practice*, 4, 2, 107-119.

Oiler, C. (1986). Phenomenology: The method. In J. Creswell, *Research design: Qualitative and quantitative Approaches.* (p.12) California: Sage.

Opie, C. (2004). (Eds.). *Doing educational research. A guide to first time researchers.* London: Sage.

Oppenheim, A.N. (1992). Questionnaire design, interviewing and attitude measurement. (2nd ed.). London: Continuum.

Osterman, K., & Kottkamp, R. (1993). *Reflective practice for educators. Improving schooling through professional development*. London: Sage.

Paget, T. (2001). Reflective practice and clinical outcomes: practitioners' views on how reflective practice has influenced their clinical practice. *Journal of Clinical Nursing,* 10, 2, 204-214.

Palmer, A., Burns, S., & Bulman, C. (1994). *Reflective practice in nursing*. Oxford: Blackwell.

Parahoo, K. (1997). Nursing research. Principles, process and issues. Great Britain: Palgrave.

Patel, V.L., Arocha, J.F., & Kaufman, D.R. (1994). *Diagnostic reasoning and expertise. Psychology Learn Motivation.* In V. L. Patel, R. Glaser & J. F.Arocha. Cognition and expertise: acquisition of medical competence. *Clinical Investigative Medicine*, 23, 4, 256-260.

Patel, V.L., Glaser, R., & Arocha, J.F. (2000). Cognition and expertise: acquisition of medical competence. *Clinical Investigative Medicine*, 23, 4, 256-260.

Paterson, B. L. (1995). Developing and maintaining reflection in clinical journals. *Nurse Education Today*, 15, 211-220.

Paton, A., & Peters, T. (2001). *A biographical-reflective approach to supporting PhD students in a school of medicine and dentistry.* Poster presented at ASME, Dublin.

Patton, M. (1990). Qualitative evaluation and research methods (2nd ed.). Thousand Oaks, CA: Sage Publications.

Paul, R. (1992). *Critical Thinking.* (2nd ed). Santa Rosa, California: Foundation for Critical Thinking.

Pearson, D. J., & Heywood, P. (2004). Portfolio use in general practice vocational training: A survey of GP registrars. *Medical Education*, 38, 87-95.

Pee, B., Woodman, T., Fry, H., & Davenport, E. (2002). Appraising and assessing reflection in student's writing on a structured worksheet. *Medical Education*, 36, 575-585.

Perkins, D. N. (1987). Thinking frames: An integrative perspective on teaching cognitive skills. In J. Baron & R. Sternberg. (Eds). *Teaching thinking skills: Theory and practice.* (pp. 41-61). New York: Freeman and Company.

Perkins, D.N., & Martin, F. (1986). Fragile Knowledge and neglected strategies in novice programmers. In E. Soloway & S. Iyengaris, (Eds.). *Empirical studies of programmers*. (pp. 213-229). Norwood, New Jersey: Ablex Publishing Corporation.

Perry, W.G. Jnr. (1998). Patterns of development in thought and values of students in liberal arts college. A validation of a scheme. In King (n.d). *Reflective Judgment.* Retrieved September 16, 2009, from http://www.umich.edu/~refjudg/index.html

Pierson, W. (1998). Reflection and nursing education. *Advanced Journal of Nursing,* 27, 165-170.

Pinsky, L., & Irby, D. (1997). If at first you don't succeed: Using failure to improve teaching. *Academic Medicine,* 72, 973-976.

Pithers, R & Soden, R. (1999). Assessing Vocational Tutors' Thinking Skills. *Journal of Vocational Education and Training, 51, 1.*

Plazer, H., Blake, D., & Ashford, D. (2000). An evaluation of process and outcomes from learning reflective practice groups on a post-registration nursing course. *Journal of Advanced Nursing,* 31, 3, 689-696.

Polyani, M. (1967). *The tacit dimension*. London: Routledge.

Pope, C., & Mays, N. (1995). Qualitative research: reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *BMJ*, 311, 42–5.

Price, B. (2005). Self assessment and reflection in nurse education. *Nursing Standard,* 19, 29, 33-37.

Ramsden, P. (1992). *Learning to teach in higher education.* London: Routledge.

Reed, J., & Proctor, S. (1993). *Nurse education: A reflective approach.* London: Edward Arnold.

Rees, C., & Garrud, P. (2001). *Encouraging medical students' reflective practice in communication skills learning: an evaluation of a new course.* Poster presented at ASME, Dublin.

Reid, B. (1993). 'But we're doing it already!' Exploring a response to the concept of reflective practice in order to improve its facilitation. *Nurse Education Today*, 13, 4, 305-309.

Rideout, E. (2001). *Transforming nurse education through problem based learning.* Canada: Jones and Bartlett.

Roche, A., & Coote, S. (2008). Focus group study of student physiotherapists' perceptions of reflection. *Medical Education*, 42, 1064-1070.

Roff, S., McAleer, S., Ifere, O.S., & Battacharya, S. (2001). A global diagnostic tool for measuring educational environment: comparing Nigeria and Nepal. *Medical Teacher*, 23, 4, 378-382.

Rogers, C. (1969). *Freedom to Learn*. Ohio: Merrill.

Ross, D. D. (1989). First steps in developing a reflective approach. *Journal of Teacher Education*, 40, 2, 22-30.

Routledge, J., Wilson, M., McArthur, M., Richardson, B., & Stephenson, R. (1997). Reflection on the development of a reflective assessment. *Medical Teacher*, 19, 122-128.

Royal College of General Practitioners. (1993). *Portfolio based learning in General Practice*. London: Royal College of General Practitioners.

Rubin, H. J., & Rubin, I. S. (1995). *Qualitative interviewing: The art of hearing data*. California: Sage Publications.

Rubin, P., & Franchi-Christopher, D. (2002). *New Edition of Tomorrow's Doctors.* In SDMEG. *The Scottish Doctor*. (3rd ed.). (p.7). London: General Medical Council.

Rughani, A. (2001). *The GP's guide to personal development plans.* (2nd ed.). Abingdon: Radcliffe Medical Press.

Russel, T. (2005). 'Can reflective practice be taught?' *Reflective Practice*, 6, 2, 199-204.

Scanlon, J., & Chernomas, W. (1997). Developing the reflective practitioner. *Journal of Advanced Nursing*, 25, 1138-1143.

Schön, D.A. (1983). *The reflective practitioner. How practitioners think in action.* New York: Basic Books.

Schön, D.A. (1987). *Educating the reflective practitioner: Towards a new design for teaching and learning in the professions.* San Francisco: Jossey Bass.

Schön, D. (1990). *Educating the reflective practitioner*. San Francisco: Jossey-Bass.

Scott, C., & Irby, D. (1997). The roles of experience and reflection in ambulatory care education. *Academic Medicine,* 72, 169-88.

Scottish Deans Medical Education Group. (2002). *The Scottish Doctor Learning Outcomes.* (2nd ed). Aberdeen: University of Aberdeen Central Printing Service.

Scottish Deans Medical Education Group. (2008). *The Scottish Doctor Learning Outcomes.* (3rd ed.) Dundee: Association for Medical Education in Europe (AMEE).

Scottish Executive Health Department. (1999). *Learning together: A strategy for education, training and lifelong learning for all staff in the National Health Service in Scotland.* Edinburgh: The Stationery Office.

Smyth, J. (1989). Developing and sustaining critical reflection in teacher education. *Journal of Teacher Education,* 40, 2, 2-9.

Snadden, D., Thomas, ML., Griffin, EM., & Hudson, H. (1996). Portfolio based learning and general practice vocational training. *Medical Education,* 30, 148-152.

Snowball, J., Ross, K., & Murphy, K. (1994). Illuminating dissertation supervision through reflection. *Journal of Advanced Nursing,* 19, 1234-1240.

Soloway, E & Iyengaris, S. (1986). (Ed.). *Empirical studies of programmers*. Norwood, New Jersey: Ablex Publishing Corporation.

Song, M., & Parker, D. (1995). 'Commonality, difference and the dynamics of discourse in in-depth interviewing.' *Sociology,* 29, 2, 241-256.

St Andrews, Dundee, Edinburgh and Glasgow. ADEG. (2006). Conference workshop. Carnoustie, Scotland.

Stern, P. (1980). Grounded theory methodology: its uses and processes. *Image,* 12, 1, 20-33.

Strauss, R. (2003). Reflective learning in community-based dental education. *Journal of Dental Education,* 67, 11.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative: techniques for developing grounded theory.* (2nd ed.). California: Sage Publications.

Taylor, B. (2001). *Reflective practice: A guide for nurses and midwives.* (3rd ed.). Buckingham: University Press.

Teekman, B. (2000). Exploring reflective thinking in nursing practice. *Journal of Advanced Nursing*, 31, 5, 1125-1135.

Thorpe, K. (2004). Reflective learning journals: from concept to reflective practice. *Reflective Practice*, 5, 3, 409-423.

University of Dundee. (2005/06). *Record of Achievement.* Dundee: University of Dundee.

University of Dundee. (2006/07). *Record of Achievement.* Dundee: University of Dundee.

University of Dundee. (2005). *Post graduate certificate teaching in higher education.* Dundee: University of Dundee.

University of Dundee. (2007). *Record of Achievement. Final year assessment.* Dundee: University of Dundee.

Van Manen, M. (1977). *The tact of teaching*. New York: New York University Press.

Vygotsky, L. (1978). *The mind in society.* Cambridge: Harvard University Press.

Wadsworth, Y. (1998). What is participatory action research? In B. Berg. *Qualitative research methods.* (6th ed.). (p. 223). Boston: Pearson Education.

Wallen, N., & Fraenkel, J.R. (1991). Educational Research: A guide to the process. In J. Creswell, *Research design*: *Qualitative and Quantitative Approaches.* (p. 11). California: Sage.

Wanda, P. (1998). Reflection and nurse education. *Journal of Advanced Nursing*, 27, 165-170.

Ward, A., & Gracey, J. (2006). Reflective practice in physiotherapy curricula: a survey of UK university based professional practice coordinators. *Medical Teacher*, 28, 1, e32-e39.

Wellington, J. (2000). Educational Research. Contemporary Issues and Practical Approaches. London: Continuum.

Williams, P. L. (1998). Using theories of professional knowledge and reflective practice to influence educational change. *Medical Teacher*, 20, 28-34.

Wilson, A. L., & Hayes, E. R. (2000). (Eds.), *Handbook of adult and continuing education.* San Francisco: Jossey-Bass.

Witmer, D. (1997). Making the choice. What reflective practice option is best for me? In E, Rideout. *Transforming nurse education through problem based learning.* (pp. 119-164). Canada: Jones and Bartlett.

Wong, F., Kember, D., & Yan, L. (1995). Assessing the levels of student reflection from reflective journals. *Journal of Advanced Nursing*, 22, 48-57.

Wood, D.J. Bruner, J., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, 17, 89-100.

Yin, R. (1993). *Applications of case study research.* London: Sage.

Yin, R. (1994). *Case study research. Design and methods.* (2nd ed.). London: Sage.

Appendices

Appendix 1

Appendix 1

Gibbs (1992) and Ramsden (1992) summarise the difference between surface and deep learning:

Surface learning	Deep learning
Intention to recall/reproduce lecture notes	Relating to concepts to existing knowledge and understanding, and to everyday life
Sole aim to pass assessments	Organising and structuring new information
Passively accepting teachers ideas/notes	An interest in understanding new materials
No reflection	Challenging new concepts and reading widely
No concept of overall pattern or themes – focus on elements only	Examining the logic of development
Treating assignments and reading as a burden	Determining what is significant

Appendix 2

Appendix 2

Year 5 Final Year Test of Reflective Ability – a Measure of Professionalism
Instructions to Examiners

The ability to reflect in the context of medical practice is concerned with the way doctors think and act. This involves:

 accessing relevant knowledge and experience (thinking) and gathering relevant new information (doing)

 evaluating all relevant information and decision making in relation to patient management (doing)

 identifying and re-evaluating own knowledge and experience (thinking) and addressing own learning needs (doing)

Students' approach to reflect on (both 'thinking' and 'doing') can be assessed in the context of a Portfolio by using written evidence from their clinical practice

Pre oral Grading of Reflective Ability
This instrument has been developed to assess the students' ability to reflect and to give a pre-oral grading based on the evidence presented in the Portfolio.

The student's ability to reflect can be assessed on three levels of increasing complexity.

Please use the instrument to inform your pre-oral grading for outcome 12 in relation to the three levels:

 Level 1 Describes relevant evidence of progress from experience (should be achievable by the majority of students)

 Level 2 Evaluates relevant experience as evidence of progress (demonstrates a more complex level of achievement)

 Level 3 Identifies and re-evaluates own learning needs (is the highest level of complexity of reflective ability)

You will need to read through the 12 outcome summary sheets to assess each level.

Oral Grading of Reflective Ability
In the oral Portfolio assessment it should be possible to accept or refute the pre-oral grades in relation to the student's reflective ability.

Test of Reflective Ability – a Measure of Professionalism

Level 1 Describes relevant evidence of progress from experience

In reading through the student's 12 reflective summary sheets, identify whether the student is able to describe relevant experiences which provide evidence of their progress towards the outcome.

Given below are some indicator statements of written evidence you would expect to find in the outcome summaries of an excellent reflector and a poor reflector at level 1.

Evidence of excellent reflector	**Evidence of poor reflector**
Describes relevant experiences in context of outcome *e.g "My orthopaedic attachment gave me the opportunity to develop…… "*	Absence of detail in summary (too generalised) *e.g. "The doctor has certain attributes important for the practice of medicine"*
Summarises experience of progress in relation to outcome *e.g. "Over year 4 my history taking skills progressed ….as shown by...*	Evidence given based on authority *e.g. "The grades I achieved demonstrate how well I have done"*
Personalises the descriptions of their evidence *e.g "The way I remedied this problem…."*	Emphasis on quantity- how much they have done *e.g. "The 12 clerkings and number of clinics I have attended show how well I have progressed"*
Links experiences *e.g. " During my psychiatry and general practice attachments…."*	No evidence of linking between specific examples *e.g. provides a list of activities done*

Appendix 3

Appendix 3

Search strategy of critical reflection/reflective practice in medical education

The first task of the literature review process involved identifying the key concepts and establishing criteria for the selection of studies. As there is a vast literature on critical reflection and reflective practice, the search strategy for this paper was set up to identify research papers on critical reflection/reflective practice with particular reference to medical education. This revealed that there is a relatively small body of work related to reflective practice in medical education and an abundance of information in terms of general education, teacher and nurse education. Therefore, a set of boundaries, to limit the type of articles and review that would be examined, was identified. Key terms were selected because of their relevance to the present study:

Critical reflection
Reflective practice
Medical education
Self assessment

Electronic databases: Cinhal, Cross search, Google (ordinary search engine), Google Scholar (educational search engine), Ingenta Connect, Medline (medical research), Ovid, Pubmed, Scopus and Timelit (research in medical education), ERIC (educational research) were used for the searches. The searches were undertaken using the following keywords in combination:

1/ “reflective practice” and medic* education*
2/ “reflective practice” and self assess*
3/ “reflective practice” and teach*
4/ “medical education” and reflect* practice*

A number of abstracts were identified using the key words via the electronic searches. A set of criteria was established to identify articles and reviews from the abstracts that were relevant to the study.

All suitable abstracts identified through the database searches were reviewed using the selection criteria, additionally judgements were made about the relevance and quality of the studies i.e. is there clear evidence of evaluation, systematically conducted? Is the work theoretically grounded? For studies conducted in settings out with medical education, is it translatable to medical education?

Key requirements for including a study:

- In English
- Has been subjected to peer review
- Has strong implications for reflective practice
- Published primarily between 1980-present day
- Policy documents and papers
- In prominent journals

Key criteria for excluding a study:

- Letters, editorials and reviews
- Articles not written in English.

Titles and abstracts identified by each of the searches were read. Papers that were easily identifiable as outside the scope of this study were excluded. The remaining papers were passed on to the next stage. The full version of the paper was then read to determine its suitability based on the aims of the review and the methodological quality.

In addition to the electronic sources, hard copies including published books were obtained from the library. The reference section of the university library provided other materials including theses and conference papers. A variety of other relevant documents were explored, for example curriculum documents i.e. Record of achievement (RoA) : a portfolio based learning which recognises the 'centrality of reflection as a learning (UoD, 2005/06), Quality assurance process document (GMC, 2002), Annual review (GMC, 2004), Post graduate certificate teaching in higher education (PG Cert THE, 2005).

Initially the search was undertaken with the term 'self assessment' included within the keyword combination. However, whilst writing the literature review it became evident, due

to the word limitation, that, the focus would need to be narrowed. The term ‘self assessment’ was eliminated and articles relating to ‘reflective practice’ were reviewed.

Appendix 4

Appendix 4

Reflective practice in medical education

INTERVIEW GUIDE

State: 'The concept of reflective practice is a developing area within medical education and there appears to be a necessity for maintaining reflective practice/reflective learning. Part of a major review undertaken by the Scottish Executive, is in the provision of educating individuals within higher education to reflect on their personal and professional skills, and reflect on their ways of learning as well as the learning itself (Scottish Executive, 1999). This is referred to within the wider national policy contexts of the Government's Lifelong Learning agenda, 'Learning Together', the General Medical Council: Scottish Doctor Learning Outcomes (SDMEG, 2002) and the Tomorrows Doctors: Recommendations on Undergraduate Medical Education (GMC, 2003).

Emphasise : I am making no judgment about your statements.

Research questions to be addressed

1/ State for students: Can you tell me about your understanding and experiences of reflection? If it helps you may want to think about the different areas you have been taught within your programme of study i.e. Doctors, Patients and Communities (DPaC), clinical skills, integrated teaching area, ward based teaching.
• What, if anything do you understand by the term critical reflection? Is this the same as reflective practice?
• What education/teaching/support or any formal or informal sessions, if anything, have you received to reflect on practice? Can you tell me some more about the education you received? How do you use this information?
• To what extent and in what way, if any, do you feel that the curriculum could prepare you to critically reflect on practice?
• To what extent and in what way, if any, do you feel the support offered to you can facilitate your preparation to critically reflect on practice?
• What would you like to see happen differently, if anything, in how you become educated about critical reflection? How can we help you develop skills to become a reflective practitioner?

2/ State for DPaC tutors: Can you tell me about your understanding and experiences of reflection? If it helps you may want to think about your teaching in the Doctors, Patients and Communities (DPaC) programme.
• What do you understand by the term critical reflection? Is this the same as reflective practice? What kinds of things, if anything, do you need to reflect on?
• What education/training, if anything, have you received to reflect on practice? Can you tell me some more about the education you received? How do you use this information?
• To what extent and in what way, if any, do you feel that the medical school or teaching staff could prepare you to critically reflect on practice?
• How necessary is it for your professional development that you understand what is meant by critical reflection?
• What kind of Continuing Professional Development (CPD) do you think will be best for you as a tutor in the future? How should these be decided?
• What concerns, if any, regarding CPD do you have at this time?
• How does the University intend to assist you to have the required skills of critical reflection, (that you are aware of)?
• What would you like to see happen differently, if anything, in how you become educated about critical reflection?

3/ State for key university informants/key medical educators: Can you tell me about your understanding and experiences of reflection? If it helps you may want to think about the different areas you teach within your programme of study i.e. Doctors, Patients and Communities (DPaC), clinical skills, integrated teaching area, ward based teaching.
• What do you understand by the term critical reflection? Is this the same as reflective practice? What kinds of things, if anything, do students and tutors need to reflect on?
• How does the university (intend to) support students in developing the required skills of critical reflection?
• Is there anything that the medical school can do differently to educate students about critical reflection?
• How does the university (intend to) assist tutors have the required skills of critical reflection?

• Is there anything that the medical school can do differently to educate tutors about critical reflection?
• What kind of Continuing Professional Development (CPD) is available for students?
• What kind of Continuing Professional Development (CPD) is available for teaching staff?
• What would you like to see happen differently, if anything, in how you educate students and teaching staff about critical reflection?

Closing question

Is there anything I have not covered that you feel I need to know, for me to understand your needs about critical reflection and how educators can best meet this need?

Appendix 5

Appendix 5

Themes and *clusters of ideas*

Dominant Themes	**Minor themes and *cluster of ideas***
Educational issues	**The term 'reflection'** *Understanding of the terms 'reflection', 'reflective practice' and 'critical reflection'* **Teaching and learning** *Preparing to reflect* *Reflective skill development- strategies and resources* *Time* *Staff training and continuing professional development* *Learning with others* *Theory and practice* *Tutor guidance and resources* **Assessment** *Perceived relevance* *Uncertainty*
Professional issues	**Policy and curriculum requirements** **Perceived importance of reflection** *Patient care* *Professional context* **The Facilitator** *Attributes* *Environment* *Self* *Role model*

Appendix 6

Appendix 6

From: Isabella McLafferty [i.h.r.mclafferty@dundee.ac.uk]
Sent: 13 April 2009 16:19
To: Fiona Muir
Subject: thesis

Dear Fiona

I have read the chapter and the discussion, isn't it fascinating?

It reflects our last discussion where tutors and educators are expecting medical students to learn by osmosis and most of the students seem to feel that they should be taught formally how to reflect. It is also surprising that tutors lack knowledge about their curriculum. The tutors and educators also seem to be willing to learn which is important. It looks like there is a willingness to teach reflection after training and preparation.

The thesis flows well and makes good sense. You are using the quotes well to support your discussions. I can't see any problems with the organisation or the content and I really appreciate the opportunity of reading it.

Best Wishes

Ella

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Appendix 7

Appendix 7 Curriculum Outcomes

What are the 3 key things you have learnt today?

Please describe the skills you have practiced and comment at the end on how well you did?

What are you going to review and how will you prepare for next week?

(Exemplar from Clinical Skills)

Outcome 12 Aptitude for personal development

Please include your DPaC self appraisal forms in this section. You can also include the appraisal forms from the DPaC tutors.

(1) Self-awareness

Identify your own strengths and weaknesses, giving examples as appropriate, in relation to your clinical practice at the end of the year.

Self-awareness

How a doctor approaches their practice-

As a professional you need to be a reflective practitioner and consider after each clinical encounter how it will influence your future practice.

(Exemplar from Record of Achievement)

Appendix 7 **Scottish Doctor (SDMEG, 2002)**	**Tomorrow's Doctor (GMC, 2003)**	**Dundee University** **Practice of Medicine Programme 2005/06, 2006/07**
Title: The Scottish Doctor. Undergraduate learning outcomes and their assessment: A foundation for competent and *reflective* practitioners. Scottish Deans Medical Group May 2002. The Learning Outcomes: The outcomes are based on the following essential elements of a *competent and reflective* practitioner (first level): • What the doctor is able to do • How the doctor approaches their practice • The doctor as professional (SDMEG, 2002, p. 1)	----------	----------
Learning outcome 11: **Assessment of learning outcomes for the role of the doctor within the health service** Level 1-The role of the doctor Level 2- Outcomes for the role of the doctor within the health service Level 3 The doctor as mentor and teacher Level 4 'The importance of *reflecting on and analysing own experience* of mentors and teachers identifying 'positive' and negative' and how to use this in one's own practice as a teacher of others' (SDMEG, 2002, p. 33) **Modes of assessment** Essays (SDMEG, 2002, p. 34) Portfolio cases and *reflective writing* (SDMEG, 2002, p. 34) These modes of assessment also require tutors to....; mark several pieces of written work for the portfolio often including *reflective writing* where the tutor needs to be familiar with the whole portfolio... (SDMEG, 2002, p. 34) 'The recommended assessment methods test attitudes and behaviour and *depend on reflection and synthesis* rather than reproduction of factual information' (SDMEG, 2002, p. 35)	***General skills:*** Graduates must be able to 26c-'*reflect on practice, be self critical…*'(GMC, 2003, p.8) ***Student support, guidance and feedback*** 61 Student support, guidance and feedback 'Students must receive regular and consistent information about their development and progress. Clinical log books and personal portfolios, which allow the students to identify their *strengths and weaknesses* and to focus their learning appropriately, can provide such information' (GMC, 2003, p13) ***Assessing student performance and competence*** 62 '...assessments must allow students to demonstrate the *breadth and depth of their knowledge,* and show what they can do' (GMC, 2003, p.14)	**Phase one Record of Achievement (RoA) 2005-06** **Year one-Semester 1** **Practice of Medicine: Patient Safety Ward Activities** 'The educational underpinning of the programme is based on a cognitive apprenticeship model which recognises the use of both *constructivist and reflective approaches'* **3 The learning record and case summaries-'**the PDP case summaries again follow a template provided and they are there to formally enable *student's to reflect on* the principles, the outcomes, systems and core clinical problems. *It is structured to encourage reflection* rather than become a *box filling exercise'* (UoD, 2005-06, p.5-6) **Year one –Semester 2** **Practice of Medicine: Learning record and case summaries** **3 The learning record and case summaries-'**the PDP case summaries again follow a template provided and they are there to formally *enable student's to reflect on* the principles, the outcomes, systems and core clinical problems. It is structured to encourage reflection rather than become *a box filling exercise'* (UoD, 2005-06, p.5-6)
Learning outcome 12: Assessment of learning outcomes for personal development Level 1 The doctor as a professional Level 2 Outcomes for personal development Level 3 *Self awareness*		**Phase two - Years two and three** **Record of Achievement 2005-06** **'What will be achieved in Phase 2-** The experiences of the Phase 2 teaching programme will begin to prepare you for Phase 3. You will develop your

Level 4 The ability to conduct oneself *as a reflective* and accountable practitioner including seeking out sources of informed criticism and valuing, *reflecting* and responding to them appropriately (SDMEG, 2002, p. 36)

Modes of assessment
Reflective essays
Portfolio case studies and *reflective writing* (SDMEG, 2002, p.38)

'Assessment methods and tools must be selected which will motivate medical students to adopt attitudes, skills and knowledge for professional practice and not merely for examinations. In particular we need to encourage specific strategies in medical students e.g. *reflective practice, deep learning* and skills in team working' (SDMEG, 2002, p. 39)

'These modes of assessment also require tutors to find more time to gather information about students...often including *reflective writing* where the tutor need to be familiar with the whole portfolio, and to offer appraisal and mentoring to few students twice in the academic year...' (SDMEG, 2002, p. 39)

skills in *self-learning, reflective practice*, efficient use of time and taking responsibility for your own development.'

Keeping a Record of your Achievements in Phase 2

You should build up your clinical experience during Phase 2. This may be in formal learning sessions, such as in the Clinical Skills Centre, Ambulatory Care Teaching Centre and Ward teaching, or it may be in your own personal study time. There are examinations at the end of Years 2 and 3 that assess your clinical competence, but you are also required to demonstrate each year that you have undertaken this work in clinical practice related to the learning outcomes. This will assist you in the development of your portfolio in Phase 3. Evidence of this work will be by:

- the submission of a record of 17 patients seen in Phase 2

Year 2 – 5 selected patient records with analysis of relevant outcomes

Year 3 – 12 selected patient records with analysis of relevant outcomes

- the completion of activities related to the learning outcomes for patients other than those included in your Patient Records.' (UoD, 2005-06, p.16)

UOD, ROA 2005/06
'2) *Write a reflective analysis* of what you have learnt from the Ward Simulation Exercise in each of Years 2 and 3. This should focus on issues related to the Management outcome.'

'Reflective Analysis Year 2 Ward Simulation Exercise' (UoD, 2005-06, p.16)

'Outcome 12 Aptitude for personal development
(1)Self-awareness
Identify your own strengths and weaknesses, giving examples as appropriate, in relation to your clinical practice at the end of each year

(2)Career Choice
Briefly describe any current thoughts on career choice (these may not change from year to year).
(3) Include your Learning Styles Questionnaire from the first block in Year 2. *Reflect on how* you have used the

		various learning opportunities presented to you each year and how this relates to your individual results on the Learning Styles Questionnaire. Give examples to illustrate the points that you make.' (UoD, 2005-06, p.42-43) **Phase 2** **Year two & three** **Record of Achievement 2006/07** **Outcome 12 Aptitude for personal development** The experiences of the Phase 2 teaching will prepare you for Phase 3 'you will develop your skills in self learning, *reflective practice*, efficient use of time and taking responsibility for your own development' ' (UoD, 2006-07, p.6) The record of achievement has 3 components: 'Towards the end of the year, you should *reflect on your progress* in the 12 curricular outcomes and complete the outcome summary sheets using the evidence presented in the first 2 components of the record of achievement (RoA)' (UoD, 2006-07, p.7) **Assessment**-the ROA is part of the OSCE exam Structured therapeutic report - ' It is likely that most outcomes will be relevant to most patients but try to describe what you have actually learnt rather than writing the same, or very similar general comments on each of the patients e.g. '*seeing this patient helped me practice my clinical skills' is not really what reflection is about.* If however, when seeing one patient, there is a specific learning point e.g. I performed a chest examination and all the clinical signs (dullness on percussion and bronchial breath sounds) pointed to an area of consolidation. This is the first time that I have been able to recognise these clinical signs and use them to help identify the underlying pathology' this is what you should write about under the clinical skills outcome. *If you find that you are doing a lot of copying and pasting from one form to another then you are probably not doing much reflection*. (UoD, 2006-07, p.16) **DPaC** **Student A-Z Study Guide** 'You are asked to provide evidence of having *reflected* on what you learnt *rather than give a purely descriptive account.'* (UoD, 2006, p.36)

		RoA (2006/07) **Outcome 9 Appropriate attitudes and ethical understanding, and legal responsibilities** '1/ *Write a reflective paragraph* on what you learnt from the inter-professional ethics session in Year 2. This should focus on ethical or attitudinal issues.' (UoD, 2006/07, p. 18) **Record of Clinical Experience 2007/08** 'What are the 3 key things you have learnt today? Please describe the skills you have practised and comment at the end on how well you did? What are you going to review and how will you prepare for next week?' (UoD, 2007/08, appendix one)
		Phase 3-eRecord of Clinical Experience (2007/08) **Year 4** **Outcome 12 The Doctor as a Professional** 'Part of being a doctor is that for your professional life you are able to *reflect* on experiences that you have had and how these contribute towards your continued development... 1/What has been the value of this attachment? 2/How will this influence your professional practice? 3/How you have managed your learning during this attachment, any difficulties encountered and solutions proposed.' (UoD, 2007/08. p.108)
		Phase 3 -Final Year Assessment (2007) **Year 5** ***Test of Reflective Ability* – a Measure of Professionalism** **Instructions to Examiners** The *ability to reflect* in the context of medical practice is concerned with the way doctors think and act. This involves: *accessing relevant knowledge and experience (thinking) and gathering relevant new information (doing)* *evaluating all relevant information and decision making in relation to patient management (doing)*

		identifying and re-evaluating own knowledge and experience (thinking) and addressing own learning needs (doing) Students' *approach to reflect on* (both 'thinking' and 'doing') can be assessed in the context of a Portfolio by using written evidence from their clinical practice- **Pre oral Grading of *Reflective Ability*** This instrument has been developed to assess the *students' ability to reflect* and to give a pre-oral grading based on the evidence presented in the Portfolio. The *student's ability to reflect* can be assessed on three levels of increasing complexity. Please use the instrument to inform your pre-oral grading for outcome 12 in relation to the three levels: Level 1 Describes relevant evidence of progress from experience (should be achievable by the majority of students) Level 2 Evaluates relevant experience as evidence of progress (demonstrates a more complex level of achievement) Level 3 Identifies and re-evaluates own learning needs (is the highest level of complexity of reflective ability) (UoD, 2007, p. 19-20) 2 1 You will need to read through the 12 outcome summary sheets to assess each level. **Oral Grading of Reflective Ability** In the oral Portfolio assessment it should be possible to accept or refute the pre-oral grades in relation to the *student's reflective ability.* 2 2 **Test of Reflective Ability – a Measure of Professionalism** **Level 1 Describes relevant evidence of progress from experience** In reading through the *student's 12 reflective summary* sheets, identify whether the student is able to describe relevant experiences which provide evidence of their progress towards the outcome. Given below are some indicator statements of written evidence you would expect to find in the outcome

summaries of an *excellent reflector* and *a poor reflector* at level 1.

Evidence of excellent reflector	**Evidence of poor reflector**
Describes relevant experiences in context of outcome *e.g "My orthopaedic attachment gave me the opportunity to develop…… "*	Absence of detail in summary (too generalised) *e.g. "The doctor has certain attributes important for the practice of medicine"*
Summarises experience of progress in relation to outcome *e.g. "Over year 4 my history taking skills progressed ….as shown by...*	Evidence given based on authority *e.g. "The grades I achieved demonstrate how well I have done"*
Personalises the descriptions of their evidence *e.g "The way I remedied this problem…."*	Emphasis on quantity- how much they have done *e.g. "The 12 clerkings and number of clinics I have attended show how well I have progressed"*
Links experiences *e.g. " During my psychiatry and general practice attachments…."*	No evidence of linking between specific examples *e.g. provides a list of activities done* (UoD, 2007, p.21)

Appendix 8

Appendix 8

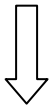
Claims that this enquiry meets the criteria of an educational case study

1/What kind of an educational case study is this?	A theory-seeking case study
2/ Is this an empirical enquiry conducted within a localized boundary of space and time?	Yes. 26 participants. Male (13) and female (13) including 8 educators; 7 medical students; 11 tutors from within the undergraduate medical degree programme at Dundee in 2007.
3/Does it examine interesting aspects of an educational activity, or programme, or institution, or system?	Yes, because of the educational belief in the value of reflective practice in healthcare.
4/ Is it set mainly in its natural context and with an ethic of respect for persons?	Yes. Students interviewed at the university or their place of choice and recorded with their permission.
5/ Does it inform the judgments and decisions of practitioners, policy makers, and/or theoreticians?	Yes. Education policy makers, teacher continuing professional development, student learning.
6-12/ Were sufficient data collected for the researcher to be able to…	26 participants interviewed: each for in excess of 40 minutes.
6/ …to explore significant features of a case?	Yes.
7/ …to create plausible interpretations?	Yes.
8/ …to test trustworthiness of these interpretations?	Yes.
9/ …to construct a worthwhile argument or story?	Yes.
10/…to relate the argument to the literature?	Yes.
11/ …to convey convincingly to an audience this argument or story?	Yes. Tested out on two colleagues.
12/ Is there a case record which could provide an audit trail that other researchers could use to validate or challenge the findings, or construct alternative arguments?	Yes. In the author's possession.

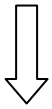
(Bassey, 1999, p. 20)

Coding-a systematic approach

26 semi-structured interviews

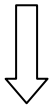


Collated data transcribed, then listened to again for accuracy

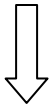


1st round of codes assigned

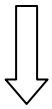
Transcriptions read line by line. A descriptive code assigned to recurrent themes in response to the data collected)



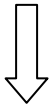
Themes, patterns, counting frequencies detected to make generalisations



Group codes into clusters



2nd reading - Recode data and group into more general clusters/refine codes
(coded categories cut and paste into categories (Greenhalgh, 2005, p174)



3rd reading –statements compared to one another

(Miles and Huberman, 1994)

Appendix 9

Appendix 9

INFORMED CONSENT FORM

REFLECTIVE PRACTICE IN MEDICAL EDUCATION

Dear ……

I am a Teaching Fellow at the Tayside Centre for General Practice at the University of Dundee, undertaking the Doctor of Education programme with Strathclyde University. My supervisor is Dr Margaret Kirkwood, Reader for Educational and Professional Studies at the University of Strathclyde.

As part of my thesis for these studies I would welcome interviewing you, with respect to your experience of reflective practice/reflective learning during the MBCHB undergraduate programme. It is hoped that the research will benefit medical education and students of the future.

A semi-structured, informal interview will be used and I intend to tape record the interviews for transcribing and analysis at a later date. The tape recordings will be kept in a locked drawer and kept for the duration of the study. The interview will last approximately 45-60 minutes and will be completed within one visit. I will be pleased to meet with you at a time which is convenient to you. There are no known risks for you in this study.

Complete confidentiality will be maintained. The data I collect will not contain any personal information about you. A summary of the findings will be produced which you will be able to access. The collated findings from the research will be circulated to you and the medical school faculty. It is hoped that the results will be disseminated at academic conferences and published in an academic journal, however, no-one will be able to link the data you provide to your identity and name.

Your participation in this study is voluntary. You may withdraw consent and discontinue participation in the research at any time, without prejudice to you.

Should you require any further information please contact me on 01382 420002 or f.e.muir@chs.dundee.ac.uk

Kind regards

Fiona Muir…….

Please complete:

By signing below you are agreeing that you have read and understood the Participant Information Sheet and that you agree to take part in this research study.

I am aware that I can withdraw consent and discontinue participation in the research at any time without prejudice to me.

Participant's signature……Date……..

Printed name of person obtaining consent - FIONA MUIR

Signature of person obtaining consent.....

From: Fiona Muir
Sent: 23 April 2007 13:14
To: Tutor 2
Subject: re research

Dear Tutor 2

Re: Professional Doctorate in Education

As part of my thesis for the Professional Doctorate which I am studying at the University of Strathclyde I would welcome interviewing you, with respect to your experience of reflective practice/reflective learning during the MBChB undergraduate programme. It is hoped that the research will benefit medical education and students of the future.

Please find attached information relating to my studies. If you are in agreement to take part please let me know of your availability over the next few weeks so that I can arrange a mutually suitable date and time for us to meet. I will be pleased to meet at a place which is convenient to you. You do not have to prepare anything in advance of us meeting.

I hope that you can support my studies and thank you in anticipation.

Please contact me if you wish to discuss further.

Kind regards
Fiona

Fiona Muir
Teaching Fellow
Tayside Centre for General Practice
The Mackenzie Building
Kirsty Semple Way
Dundee DD2 4BF
Tel No 01382 420022
01382 420002 (direct dial)
Fax No 01382 420010

Appendix 10

Appendix 10

Tayside Centre for General Practice
The Mackenzie Building
Kirsty Semple Way
Dundee DD2 4BF
Tel No 01382 420022
01382 420002 (direct dial)

Dr June Mitchell
Director Educational and Professional Studies
Jordanhill Campus
University of Strathclyde
76 Southbrae Drive
Glasgow
G13 1PP

20th March 2007

Dear June

Re: Ethics Forms for approval

Please find enclosed the revised Dundee University UREC forms as per Professor Harley's email dated 16th March 2007 (copy enclosed).

I would be grateful if you would forward these to Strathclyde University ethics for approval.

Yours sincerely

Fiona Muir

From: Trevor Harley [t.a.harley@dundee.ac.uk]
Sent: 19 March 2007 11:00
To: Fiona Muir
Subject: Re: Ethics application UREC 07008

We don't have a rule, although it has been discussed. I don't think the NHS LREC has come to any conclusion, either.

It partly depends on your professional body or the journal to which you plan to submit - do they ask you to store raw data for any minimum period of time?

If the answer is no, I think a good rule of thumb is five years.

Trevor

On 19 Mar 2007, at 09:41, Fiona Muir wrote:

Dear Trevor

I have revised the forms but unsure about the time for keeping tapes. A colleague has suggested 7 years for health service research.

Can you advise me how long UREC expect tapes to be kept? I have looked at literature and asked colleagues but no-one appears to have a clear idea of the timescale.

I would appreciate your opinion.

Kind regards
Fiona

-----Original Message-----
From: Trevor Harley [mailto:t.a.harley@dundee.ac.uk]
Sent: 16 March 2007 12:43
To: Fiona Muir
Cc: Elizabeth Evans
Subject: Ethics application UREC 07008

Dear Fiona,

I am pleased that we can approve the application subject to the following conditions:

An explicit time limit for storage of the tapes should be given, along with information about their disposal. More detailed information about how and where you intend to disseminate the findings is also required. Your stated aim is to produce a journal article. That can take some time. In the interim, do you intend you produce a summary of your findings which your participants will be able to access?

In section 3 of your structured interview schedule, the wording of bullet point 2 was not clear. We wondered if it should read 'assure' rather than 'assist' or 'assist students to'.

Good luck with the research,

Trevor

Professor Trevor Harley
Dean of the School of Psychology
University of Dundee
Dundee DD1 4HN
01382 384622

Appendix 11

Appendix 11.1

Students' had varied understanding of the terms reflection and critical reflection:

'Well it's the first I've heard of it to be honest. I'm not really sure to be honest. I guess it's like to explain something. No, I haven't come across them before. We definately haven't been told reflective practice' Student 1

'I don't really know enough of it [the terms reflection and critical reflection] to say exactly what the difference is. My idea of reflection is as I said what went well and what didn't and what can we do in the future to make things better. I guess I take the two to be the same thing, they may be different' Student 2

Appendix 11.2

Although uncertain of its meaning, students indicated that critical reflection would be used for self evaluation purposes where more thought would be given to the evaluation or critique of a situation:

'My understanding is that you would reflect on anything that occurred or happened within your education or your personal circumstances and critically appraise maybe your actions' Student 4

'Critical reflection is when you think and talk... how you criticise, how you critique yourself'. Student 5

'..critical reflection would be the use of a tool, a structured tool to enable you to appraise your own practice and compare that against others...experience would be the key thing around reflection...Critical reflection may be used more by professionals' Student 6

Appendix 11.3

The students' perception of reflection:

'It becomes sort of a habit...natural' Student 2

'...it's just natural...reflect on what you've done, haven't done, what's bad, what's good, how you can improve on it' Student 5

'I think it is something everyone does without really knowing about it' Student 6

Appendix 11.4

Students were doubtful if they had received any teaching of the subject whilst at medical school:

‘We’ve been offered a few lectures but I don’t think it’s been about that [reflection]’ Student 1

‘I don’t think reflection is taught, not unless it’s taught informally as part of the DPaC course. It’s not a lecture as such’ Student 3

‘Nothing has stuck in my mind...’ Student 4

‘I find it strange that even though it’s dedicated to a whole outcome there is no teaching around it, about the structure for critical reflection’ Student 6

Appendix 11.5

Students indicated a concern about the educational support which is offered to them by their tutors and the tutors' interest in teaching:

'I'm just trying to think of the ward tutors that we've had. They haven't specifically mentioned reflective learning that I can remember' Student 2

'If it's tutor x, then yes but the rest of the tutors don't seem to be quite so hot on it... The majority of teachers are clinicians who teach as part of their clinical role...not every lecturer is up to speed on what we are doing at each level and I think the reflective element is sometimes the hardest...We do have tutors. He's a consultant for the RoA and I've seen mine twice for about five minutes and his main concern was whether I was doing it...was I actually completing the thing and as I obviously was that was about it! He didn't look at all at any of the reflective elements of it. He looked only at the patients records and I think it would have been useful having somebody look at reflection and consider this or have I interpreted what that outcome means correctly...'Student 3

' ...I don't think we have any tutors who see us through the whole curriculum, we have our primary care tutor but they don't see us anywhere else. They don't see our RoA...no-one sees the whole' Student 5

'...because they [the teachers] have other things to do, they may not all be part of the teaching, some people don't care' Student 7

Appendix 11.6

Viewed as a continuum of learning students suggested that the teaching of reflection should commence in year one and it is a useful skill to have throughout their life:

'I think it is quite useful to get it right, right from the start rather than getting use to the wrong thing then it would be sort of difficult to change your habit then, but I think it would be better to introduce it in first year' Student 1

'...a requirement to know what is expected as an 'overall target' and know what is expected in each year...it would be good to know what level we are aiming towards by the end [of the course]' Student 2

'...it's a useful skill to have throughout life' Student 3

'...a lecture with concrete examples from practice...reinforcing it every year especially in 4th year...you're dealing with patients every day' Student 4

'...guidance on how to do it [reflect]' Student 5

'First year is the place where you can grasp it...and then you'll have the knowledge throughout...a taught module...learning with nurses' Student 6

'It's very important that you feel confident...so I think right from the start' Student 7

Appendix 11.7

Student viewed the completion of the Record of Achievement as a 'tick the box' exercise:

'...they just ask us to sort of write it down briefly like 6 or 7 histories and then they ask us to...just fill out the boxes' Student 1

'...we tick the boxes for reflective practice' Student 3

'I think RoA is quite good for reflection, there's a lot of good reflective boxes' Student 4

'I had a look at the RoA for 4th yr which in a sense is very tick a box …you have to see an MRI scan, you have to see a CT scan and then you get a signature and you're suppose to have a short story about it or why did the patient have a CT scan and that's it sort of. …you don't reflect on what you do' Student 5

Appendix 11.8

There were varied views of how the Record of Achievement should be completed and uncertainty about how it is assessed or graded:

'I think there are areas I could improve on but there is very little advice available... I don't think my consultant is particularly interested in reflective practice...he didn't ask about it at all in the session...' Student 3

'The RoA...there's only a very few reflective questions kind of at the end. You know personal development...I just think that there's room for [reflection] after every outcome.... Maybe you do that in 5th yr have one really big exercise but I think it might be worthwhile putting a few more questions about reflective learning in the RoA' Student 4

'I don't know how it [RoA] is really assessed or not. It's supposed to show that we are reflecting, I think' Student 5

Appendix 11.9

Students appeared to have little awareness, knowledge or understanding of the General Medical Council (GMC) requirements, the Dundee Learning Outcomes and the course requirements as indicated by:

'The Dundee outcomes...I know there is 12. I can remember only a few...like I said I don't really remember them' Student 1

'No [when asked about knowing of any policy documents]' Student 2

'...I'm not aware of anything' Student 4

'Not that I'm aware of, not written down, no...I haven't read it or anything like that. I know that GP's have to be continually assessed... there is the Dundee outcomes...the role as a doctor and ...there's things like communication skills...' Student 7

Appendix 11.10

To facilitate the student's learning the following attributes were seen as essential for a facilitator of learning role:

'...not lead the student in any way but to allow them to you know be free with their opinion..' Student 2

'Firstly to seem interested in what we're doing...wishing you to achieve a certain standard...enthusiasm, a good knowledge of what we're being ask to do...being well informed' Student 3

'I think being good at prompting the right questions and discussion, valuing everyone's opinion...making it fun...relaxed...an atmosphere where students can experience what they are feeling...' Student 4

'It is very important that there is good communication...an open relationship...support' Student 5

'Coming back to the nurses that taught me, a really good communicator' Student 6

Appendix 12

Appendix 12.1

When asked what they understood by the term 'critical reflection' tutors indicated that it meant to change practice, to improve on practice or an experience:

'critical reflection, anything that reflects almost anything we do in this life, whether it's working situation, personal situation. To reflect on how things are going, what our practice is like, what underpins them I suppose' Tutor 1

'...you look critically at what you've done during your teaching...try to improve your teaching' Tutor 2

'...to think about how an event can be perceived as a learning process' Tutor 3

'I'm always thinking...how it could have been done a bit better' Tutor 5

'My understanding is that you are looking at a question or a topic and reflecting it back on how you feel...you would want to happen to you and then bringing that back around to the practice that you would then want to achieve for your ... client' Tutor 6

'...to look at that, what has happened, what have we learned from that experience and how can we change practice in the future' Tutor 7

'...analysing a situation and then deciding how you would behave the next time, so you're looking at something critically to improve on your practice or improve on an experience' Tutor 8

'From my point of view part of reflecting is reflecting for a reason and that reason is to change something' Tutor 9

'...what you could have done better, what went well, what didn't go well and try to improve your teaching on the basis of the experience from the previous year or previous sessions' Tutor 11

Appendix 12.2

When asked what they understood by 'reflection or reflective practice' tutors stated that they did not know of a definition, thus guessing what it meant:

'Ah I don't know I've never been asked that question before. I think the process would be the same or very similar if not identical' Tutor 3

'Just off the top of my head, it's not a term I have come across until you communicated with me about your study' Tutor 5

'I wouldn't know the difference between the two [reflection and critical reflection]. I would probably, yes, call the two the same' Tutor 7

'I'm unclear what you mean by that...' Tutor 11

Appendix 12.3

Tutors identified a need for reflection to be a common strand and a theme running through the course:

'...it would be a core component in their curriculum...so through every module there was a reflection... maybe from day one ...get them use to the words' Tutor 4

'I think it always has to be revisited because we all fall into a pattern of thinking that we are doing it and not necessarily doing it and I don't just mean the students, I think we are all guilty of that' Tutor 6

'I think it might be more interesting and they would learn better if it was a common strand and a theme running through the course so that they could build upon it. I think reflective practice is something that you, that you build upon' Tutor 8

'Absolutely, I have no doubt in my mind [reflection should be a core skill]' Tutor 9

'I think it is important and should be a common theme running through the whole course' Tutor 10

Appendix 12.4

Tutors recognised the importance of time to self-reflect and the need for education in order to reflect:

‘...perhaps as tutors we should all be going through a short course on reflective practice ...but the issue you have there are time constraints in trying to get everybody together’ Tutor 6

‘...one of the students pointed out that they did not have a lot of formal training [for reflecting]...they hadn’t had enough formal training and that was an omission and...it is really something that we should spend more time with’ Tutor 7

Appendix 12.5

Participants gave a clear view of the need for developing the student's reflective skills within the early part of the programme to provide a framework and create meaning to their learning:

'Year one, at the very beginning. Because it's something you need to successfully learn and if you've learned for a year not knowing the best tools then it could be a waste of time...I think a module where they learn about the theory behind it...' Tutor 2

'First year, definitely. I think it would be an ongoing thing' Tutor 5

'From day one.... it's really important right from the start. It's really important that they are thinking about the implications and the effect they might have on that person. I do think they have to have some sort of introduction just to try and explain what we mean by reflective thinking and reflective practice. I think it always has to be revisited because we all fall into a pattern of thinking that we are doing it and not necessarily doing it and I don't just mean the students, I think we are all guilty of that' Tutor 6

'...one of the students pointed out that they did not have a lot of formal training. He felt he didn't and they hadn't had enough formal training. That was an omission and that it is really something that we should spend more time with. I think it is something that the students find very helpful and again because it is something that we all have to do. It is so important that they get taught this early in their training... As early as possible! First year...' Tutor 7

'You probably buy into the idea more readily as it's there from day one...some get it straight off and that probably applies more to the mature student, you see that more in post graduate they get the idea of why that is relevant whereas the less mature ones need led by the hand a bit more, I suppose. I think it is important and should be a common theme running through the whole course' Tutor 10

'To be honest I think that should be done at the very early stage... so the earlier you give intellectual people the process I think it's going to make them better students and better doctors...it's something that you should be trying to use across the whole curriculum so it would certainly make sense if each part of the curriculum highlights the requirement, the necessity for it so that you can reflect' Tutor 11

Appendix 12.6

The ways in which tutors believed students could be taught about reflection:

‘...something more concrete in their study guide’ Tutor 10

‘...discussing all the theories behind reflective practice... lecture format with discussion at the end might be quite useful. Training days would be an ideal opportunity’ Tutor 11

Appendix 12.7

Few tutors had received training or education in reflective practice, or reflection:

‘No official training, no’ Tutor 2

‘...I’m not sure training is the right word. I have used models of reflective cycles. I’m not sure that we have received any training in that actually.’ Tutor 3

‘No’ Tutor 5

‘No I haven’t. Not any formal training. It’s all just what I’ve picked as I’ve gone on through the years. It’s just intuitive rather than formal’ Tutor 6

‘As part of my portfolio [nursing] we had some sessions on reflective practice. We had to write an essay on reflective practice and within our portfolio we had to reflect on our learning outcomes...’ Tutor 8

‘I think there has been some sessions discussing it....but I don’t think that’s necessarily training...if there are more effective ways of doing it then I haven’t come across them’ Tutor 9

‘Nothing specifically about that... I can’t think that we have done any particular tasks as tutors that would help us deliver that any better’ Tutor 10

‘...no, not at all actually. I don’t know how to teach it. I’ve never been on a formal course’ Tutor 11

Appendix 12.8

Tutors made reference to the relevance and importance of reflection as an integral core part of the medical degree programme and curriculum development. They identified a need for staff development and educational theory to support their teaching:

'it would be good to have some theories, some methods to present to them...' Tutor 2

'Well perhaps as tutors we should all be going through a short course on reflective, practice ourselves. I would design it around the training day based around reflective practice and having different elements on that day and different group work...it would be good to have some theories' Tutor 6

'...the other opportunity for us as tutors might be the staff development days and possibly the annual conference to make it part of one of the workshops. I think it could be part of the tutor info pack, perhaps a bit of the background, the reasoning behind it, give us a strategy, a format in which it is, you're expected to do reflective thinking and make it a very recognizable part of the DPaC course of one of the sessions' Tutor 7

'...a staff development day if all we discuss is reflective practice...and if there is a theory behind it then we might be able to use it...' Tutor 9

'I think a tutor guide is fairly helpful' Tutor 10

'...seminars or workshop sessions...lecture format with discussion at the end...tutor and training days...I'd quite like to learn about the theory' Tutor 11

Appendix 12.9

Tutors were unaware of the assessment strategies within the curriculum which refer to reflection or reflective practice:

'No, sorry' Tutor 2

'Nothing that I've heard of, again talking with the students I don't think they do anything like this anywhere else within the curriculum. I could be wrong but that's the impression I get' Tutor 6

'Apart from what we did in the DPaC course I am not aware of any assessment strategies' Tutor 7

'.....I can't think of any, I'm trying to think other than the DPaC I just know we've just mentioned reflective essays and we haven't touched on the reflective practitioner. I don't think so' Tutor 8

'No, I don't know it well enough. It does, there are definite references to it [reflection] but I have no idea of where it is or what it refers to' Tutor 9

'...formally, I'm not sure...we ask them to put an A4 document to reflect on the teamwork exercise and we expect them to show some reflective practice but that's not formally assessed...I don't know if it's formally assessed... In the attitudes sheet we're looking for students ...who are reflective about their learning' Tutor 11

Appendix 12.10

Tutors had little or no knowledge of where in the course and programme documents reflection is referred to.

'I don't know where else. I presume someone else does it, it's not my business to know that really' Tutor 2

'The tutor guide (the tutor guide), the student guide?' Tutor 4

'I haven't read them so hands up' Tutor 5

'I haven't read any of the [GMC] documents in any detail so it would be unfair for me to say' Tutor 6

'No, I'm not aware' Tutor 7

'No, I don't. No, because I'm more nursing based I can't think of anything and I'm not sure. The GMC? I don't know' Tutor 8

'I think there is some information in the tutor handbook but I couldn't quote exactly where it is highlighted but I think it is quoted in there that they need to be reflective' Tutor 9

'I don't know' Tutor 10

Appendix 12.11

Tutors cast doubt on the student's understanding and insight of the process for reflection, and the need for students to have a facilitator to support their learning:

'I would hope that they [facilitators] have got some sensitivity... and hope that they have some training in it as well' Tutor 1

'I think it's actually recognising people's feelings and allowing them to express their thoughts and feelings in a safe environment... enabling people to actually function within their own level' Tutor 4

'I think open mindedness, tolerance, humility, an ability to step back and step down from one's own views which may be very firmly held because of personal experience, just an ability to raise a more youthful, usually a more youthful, exuberant and perhaps more enthusiastic and positive approach... Being able to compromise perhaps because there may not be a unity of minds because there may not be an a sharing of views at all and one may just have to keep working away, so persistence, patience' Tutor 5

'Somebody who can reflect on what they do themselves so you have to have somebody who knows what it means but not just in theory but who can actually do it for their own self because we can't encourage the students to do it if we're not doing it or understand why we're doing it. I think you have to have a really good rapport with the students and an ability to pick on certain things that are said and not pass them by' Tutor 6

'Someone who knows a lot about the, the theory behind it or knows sufficient about the theory behind it, has got some experience and is able to bring across to the students the importance of it possibly supported by their own experience' Tutor 7

'Someone who's able to listen, listen, be critical, ...be able to, I suppose, offer suggestions or information...You should feel that the facilitators are approachable...reflection can often be very difficult and can evoke difficult feelings so if you are discussing it then you will want to feel that the facilitator can be sympathetic towards you and assist you to look at your feelings' Tutor 8

'Probably the people that you have trying to get this idea across are probably the creative, innovative people anyway...I suppose being organised, knowing what the opportunities are for reflective practice, having some background knowledge of these core skills which are being talked about. Being able to actually interpret what the students are actually doing and meaning... A good facilitator has to be a good communicator I suppose, having an understanding of what people are achieving or not achieving, communication issues' Tutor 9

'...you want people to think for themselves and then decide for themselves so I suppose you ideally want someone who can get the individual to start thinking about things and push them in the right direction' Tutor 11

Appendix 13

Appendix 13.1

Educators' understanding of the terms reflection, reflective practice and critical reflection indicated varied interpretations which included:

'critical reflection... it's what the students are reflecting on, what they're doing and if they do it in a critical sort of way...considering are they doing the right thing, the right time and are they doing things well within their capabilities or are they doing things out with their capability...'Educator 1

'Someone who thinks about what they are doing... it's thinking about why has that happened, did it work, did it not work, is it a good or a bad outcome... that's my understanding of critical reflection.' Educator 2

'I guess critical reflection could/would apply to anything you do in everyday life…*Reflective practice*, I guess...reflecting on your clinical practice...how you would do something differently in the future so it's learning from experiences to develop yourself' Educator 4

'...critical reflection is the ability of an individual to analyse an aspect of their practice in a way that is sufficiently kind of objective and far sighted to make an appropriate judgment about that action or event and the needs that it has to change...' Educator 7

'Reflective practice is to use those skills in you day to day working environment... You've got to be able to reflect first before you can critically reflect on things and then be able to use that in practice and be able to move things forward and also reflect... I suppose reflective practice comes at the beginning and the end. The actual critical reflection is sort of the bit in the middle' Educator 8

Appendix 13.2

Educators suggested that in order to develop the student's knowledge and skill reflection needs to be introduced early in the programme of study:

'Throughout the curriculum' Educator 1

'Early, first year' Educator 4

'I'd like to see safety and reflection as integral' Educator 5

'I think it really has to start right at the beginning' Educator 6

'As early as possible because what you want is to make it second nature for students to be able to do that throughout their work...my gut feeling is first year' Educator 8

Appendix 13.3

Replies were varied when asked what, if any structure and/or guidance is given to the student to help them reflect, the level of guidance which is provided and the educator's awareness of the teaching methods used within the course:

'My assumption is that this is covered to a degree in their smaller groups...I'd be amazed if there wasn't a beginning bit when they are taught something about what they are expected to do' Educator 3

'...maybe it's coming back to the assumption that students will pick it up...' Educator 4

'... in the first semester they will keep a reflective log...one of the tutors will facilitate them through writing up their reflective log to try and help them' Educator 5

'the year one 'Introductions to outcomes' is beginning to introduce the concept of reflection in terms of thinking about outcome twelve' Educator 6.

'I know a staff member talks about it a lot but I don't know what she does with it... I'm not even sure I know what they are [reflective skill]' Educator 7

'I assumed they get some sort of instruction but I have to be honest I don't know what that is' Educator 8

Appendix 13.4

When asked what teaching support material is available for teachers, educators replied that they were aware of few specific resources. They indicated that there is a need to have some developed:

'I cannot give details...well if there are not materials available then clearly such will be required when it is such an important component' Educator 1

'...for the RoA in year 3 there are sessions for new examiners to go over in some detail what's expected of the examiner and what's being looked for which would include some degree of, this is what we're expecting in terms of reflection. They're not supported by documentation' Educator 3

'...we need, one to be more explicit, and two maybe we need some structured sessions on reflective practice' Educator 5

'I think there will be at the front just like there is with the outcomes. There is a page on reflective practice but I don't know if it does much' Educator 7

'I couldn't tell you the name of it ...I do know that there are, very commonly used and some very respective reflective cycles but I couldn't name those... I think we need guidance materials, basic guidance materials talking about you know the definition of reflection. Reflective cycles that sort of thing, the basic theory.' Educator 8

Appendix 13.5

Educators raised a point that time to reflect was required:

‘Probably it would be an uphill job ...to devote significant time and energies to reflective practice’ Tutor 1

‘Giving students time to think, giving them time to think and hopefully sort of probing them... getting them get to the stage that the students start doing that for themselves...It’s highly variable. It does depend upon individual consultants doing that. Clearly from a purely organisational point of view is trying to... the amount of time that...I mean it is a continual battle and it’s something we are going to have to continually remind people’ Educator 2

‘...Research and teaching is the poor cousin, so the pressure of having lots to do and little time, it’s (teaching) going to lose out’ Educator 3

‘I guess it’s just being prepared to find the time to do it. There is so much that the students do have in their, the material that they are collecting on their attachments, that is the raw material for reflection. Provided someone is there to provide the time and to ask the student what they have learnt from that experience. That is the important thing’ Educator 6

‘10-12 people who sit around the table at those various meetings hold control over the way the curriculum sways. I think they’d really struggle to have a conversation about how much time to put into reflective training, training people properly to be reflective practitioners’ Educator 7

‘I don’t think it would have to be a huge amount of time, but you know some sort of time set aside to go through examples. That would be a useful thing to get them to go away and do a reflective piece of work to get them to try it out, you know and then have someone say to them, yes that’s what we mean or you’ve missed the point completely, and be able to support them in that way’ Educator 8

Appendix 13.6

Educators shared mixed experiences of education or training to reflect on their practice:

‘I don’t think they mentioned reflection. Not that I remember’ Educator 1

‘...we’ve got to do several significant event analysis a year. The Royal College has a framework that you can use. Post graduate training has a framework that you can use as well’ Educator 2

‘...well certainly the certificate course in higher education had reflection as a major part of that and the major part of assessment was completing a reflective diary’ Educator 3

‘None’ Educator 4

‘MD’ Educator 5

‘...only a scientific training’ Educator 6

‘No, not any formal training’ Educator 7

‘No, a short answer to that... I’m not up on medical education and the theory and as part of the department I should be’ Educator 8

Appendix 13.7

When asked what assessment strategies within the curriculum refer to 'reflective practice' or the 'reflective practitioner' educators gave a range of responses:

'The portfolio is built around reflection, but I cannot give details...first year and last year examination and I couldn't really tell you in between that' Educator 1

' I think written papers, written essays...I would say the exam is getting them to reflect a little bit...those are the only two that would get them to truly reflect' Educator 2

'The RoA is the main one...they are now introduced in first year to a few examples of reflection...but then more so in the more formal RoA in 2nd and 3rd year' Educator 3

' ...they have the Record of Achievement which is part of the portfolio process' Educator 4

'they have their PDP in year one...year 2,3,4...they have their RoA in year 3' Educator 5

' ...within the RoA the assessment bit. It's during the OSCE's...I think the reflective sheets within the portfolio...' Tutor 7

'The main one is the portfolio... RoA which appears in year 2 and year 3 and as part of the OSCE... and then in the exam and viva... and portfolio in year 5' Educator 8

Appendix 13.8

When asked what course or policy documents refer to reflection, there was a general lack of awareness of the General Medical Council requirements, the Dundee Learning Outcomes, which are based upon The Scottish Doctor Outcomes, and an uncertainty of the course requirements:

'...the documents in preparation for fifth year and their reflections? It is constantly referred to but I couldn't tell you' Educator 1

'Well medical programmes talk about reflection quite a lot. I'm not quite sure whether they are using it appropriately...' Educator 2

'I suppose the GMC documentation and Tomorrow's Doctors would be what's driven most of this...I can't think we have developed our own policy on reflective practice' Educator 3

'...we talk about them having to be competent and reflective, that is the Scottish Doctor Outcomes...' Educator 5

'I think there will be...There is a page on reflective practice but I don't know if it does much...I don't think we make much of it [reflection]...I think there is something in the record of achievement in the sense of the way it's built in to second year, third year, fourth year and final year exams' Educator 7

'I know it's something that the GMC have put forward...I have to be honest I don't know where or how that [reflection] has been pulled in to the medical school curriculum. I don't know of any documents' Educator 8

Appendix 13.9

Educators indicated how important reflection is to the student and to the educator of medicine:

'...for professionals working towards a professional registration...it's absolutely vital...they won't get through the course if they don't' Educator 1

'I can't understand anyone who has got through medicine without reflecting on what they do' Educator 2

'...reflection is important to students because they are expected to do it and to some degree they are assessed on their reflective ability...to begin with I don't think they seem to get the point, it's just an exercise, a hoop to jump through, a box to tick...' Educator 3

'...well it would be very strange if they didn't get that message in this curriculum...reflection underpins all of these things' Educator 6

'reflection is a huge part of ...their finals so that's really important for them so there's an incentive to do it because it helps them towards...their finals' Educator 8

Appendix 14

Appendix 14

REFLECTIONS OF MY JOURNEY

'Reflective practice is like a pool of blue inviting water. The pool has a shallow end where the bottom is visible and a deep end where the blue is deep and the bottom unknown'

Christopher Johns (1994)

Following the five stages of John's reflective framework I now reflect on my journey of the Doctorate in Education.

1.0 Description of the experience

- Phenomenon – Describe the 'here and now' experience
- Causal – What essential factors contributed to this experience?
- Context - What are the significant background factors to this experience?
- Clarifying- What are the key processes (for reflection) in this experience?

2.0 Reflection

- What was I trying to achieve?
- Why did I intervene as I did?
- What were the consequences of my actions for:
  Myself?
  For the people I work with?
- How did I feel about this experience when it was happening?
- How did the participants feel about it?
- How do I know what the participants felt about it?

3.0 Influencing factors: internal, external, sources of knowledge

- What internal factors (e.g. beliefs, knowledge, ideas, expectations) influenced my decision making?
- What external factors (e.g. environment, resources, people) influenced my decision making?
- What sources of knowledge did/should have influenced my decision making?

4.0 Could I have dealt better with the situation?

- What other choices did I have?
- What would be the consequences of these choices?

5.0 Learning

- How do I feel about this experience?
- How have I made sense of this experience in light of past experience and future practice?
- How has the experience changed my ways of knowing ie my practical experience, visual, beliefs or moral principles, personal perspective?

(Johns, 1994)

1.0 Description of the experience

> The Professional Doctorate course aims to promote knowledge, understanding and scholarship in the field of education through professional development. It provides the means through which Doctorate students can demonstrate the specialist, advanced knowledge, and understanding they have gained through their enquiry into their chosen topics and the contribution this has made to issues at the 'cutting edge' of their own professional area.
>
> (University of Strathclyde, 2008-09, p.34)

The main objective of this research is to add significantly to knowledge in a specific area of medical education. Therefore, its aim is to explore the students', tutors' and key faculty educators' understanding and experience of reflection as it relates to their learning and practice during years one to three of a combined Medicine and Bachelor of Surgery (MBChB) undergraduate degree programme.

> Critical reflection is a window, through which the practitioner can view and focus the self within the context of his/her own level of experience in ways that enable him/her to confront, understand and work towards resolving the contradictions within his/her practice between what is desirable and actual practice.
>
> (Johns, 2000, p. 34)

My research interests and preferred methodology are influenced by my personal and professional background. My personal experience in nursing and nurse education where reflection is integrated as a core component of a nursing curriculum placed me in the position of an observer to the value of reflection for personal and professional development. This thesis is the result of my personal interest in the use of reflection to support teaching and learning. In a professional sense, the completion of the thesis has allowed me to develop as an independent researcher and to contribute to professional practice.

2.0 Reflection

This research study was embarked upon in recognition of the argument that the teacher as researcher can make a valuable contribution to the debate in education. A main purpose of this work is to make such a contribution.
In 2005 I accepted a Teaching Fellow position in medical education at the University of Dundee. This experience has resulted in a transition from nurse-based education to medical education which frames my interest and methodology in ways that are reflected in this thesis.

Shortly after starting my post in medical education it became evident that there was much spoken on the need for the doctor to be reflective. Regardless of this, there was little awareness among staff within the Medical School of how reflection could help staff and students develop their knowledge for practice. Furthermore, within an 'airing and sharing' medical conference workshop reflection was discussed with medical educators from the five Scottish Medical Schools (F. Muir personal communication, ADEG Conference January 2006) and anecdotal evidence emerged to suggest that medical teachers support the view that there is a lack of understanding of how and where, if at all, reflection is integrated and aligned within the curriculum. Other questions arose. What, if any, educational techniques such as reflective models or frameworks are used or should be used to structure the process of reflection? If reflection is a taught element of the programme who should teach and assess it? What experience and knowledge do tutors require to facilitate the process? The concerns voiced at the conference replicate those of the GMC (GMC, 1993) and Maudsley & Striven (2000) whereby the doctor's preparedness to practise in a reflective fashion was questioned.

In 2006 I developed and delivered a Student Selected Component SSC in Reflective Practice for students in years two and three of the medical school programme as a contribution to the curriculum development (Muir, 2006). SSC's support the core curriculum and make up one third of the overall

degree programme. The SSC was facilitated by me using a problem based and reflective learning approach. During the two week module the student participant group expressed concern about their lack of knowledge of reflection. This sparked my curiosity and I wondered what students knew about reflection and what teaching they had been given within the medical programme in order to reflect.

The concern to be addressed is that the educational needs of the students and tutors are not being met by a Scottish Medical School curriculum provided by medical educationalists. To fill this gap and to gain a more comprehensive understanding of the situation a case study design is used to explore the participants' level of knowledge, their experiences of reflective learning and teaching, and how these relate to their educational requirements.

3.0 Influencing factors

3.1 Career development and lifelong learning

As a consequence of my interest in reflection I commenced the Doctorate in Education programme in September 2005.

3.2 Medical education

The subject of the research is important because in the past twenty years the term 'reflection' has increasingly appeared in education. A major goal of medical education is to teach or help students learn how to be professionals and lifelong learners. Graduates are expected to have the motivation and technical skill for safe practice, to maintain existing competencies, acquire new ones, and to remain dedicated in their commitment to professional values. As individuals, they are required to keep themselves as competent professionals as they cross the threshold of their medical education programme. While Medical Schools and other healthcare professions refer to the term 'reflection', the perception of reflective practice has widespread application. Additionally reflective practice discourse has become an integral feature of the professional standards for teachers in the UK. In Higher

Education it is seen as a transferable skill, evidence of which is required by the Quality Assurance Agency QAA.

4.0 Could I have dealt better with the situation?

4.1Research design

In considering the research design I took into account the two broad camps which are referred to as qualitative or quantitative. How the researcher views the social world has implications for the sort of methodology that she is likely to consider. From both an epistemological perspective and a subjective perspective I wanted to have involvement with my participants. I placed emphasis on the accounts given by participants verbally in interviews, believing each account to be a personal, subjective and unique experience (Burrrell & Morgan, 1979). As a deeper understanding of the social/human phenomena was sought, a qualitative research paradigm was used in an attempt to understand the meaning or nature of the individual's personal experience through interpreting his experience.

One of the main reasons for conducting a qualitative study is that the study is exploratory. I sought to listen to the participants and to build a picture based on their ideas. This thesis is about explaining what is happening without making a value judgment or trying to induce change.

I commenced this study with a view to understanding what participants know about reflection, how they define it and how, if at all, they use it in learning and in practice. Finally, how do they value reflection in their personal and professional development? Answers to these questions could then inform policy and practice in the teaching, learning and assessment to promote the process of reflection. The findings from this study will provide feedback to teaching staff and those involved in curriculum design as to the extent to which the aims, examined in this study are achieved. It will also enable the development of resources which can be directed to meet the needs of the tutors and students.

Before deciding on the research design I reflected on the various options: ethnography, grounded theory, phenomenology and action research. These designs were considered and rejected as discussed in chapter 3.

To develop a full understanding of individuals within one organisation and to find out their experiences and understanding of reflection in the medical undergraduate programme, I decided to use an exploratory case study approach (Yin, 1993).

My research was carried out using a theory-seeking approach (Bassey, 1999), otherwise known as 'exploratory' (Yin, 1993). It was my intention to explain what is happening without making a value judgment or trying to induce change, and to complete the enquiry without changing the situation.

I conducted semi-structured interviews from twenty six participants from one Medical School comprising seven medical students, eight faculty educators and eleven tutors. The research data have led to several key themes. Each theme is important to the learning and development of the medical student, the teacher of medical education, and for the development of the medical curriculum.

The findings of this case study provide an opportunity for students and tutors to compare and learn from the practices of others. The findings will also be useful to educators and curriculum developers.

5.0 Learning

The thesis presents evidence, gathered throughout the study, of the individual participant's understanding and experience of reflection in answer to the primary research question: 'What are the students', tutors' and educators' understanding and experience of reflective practice and reflective learning within the MBChB undergraduate degree programme?'

I have developed a greater level of understanding in the fields of research methodology, teacher's knowledge, and the application of reflection in medical education. Considering the various research methodologies, using a case study design and completing this study has widened my knowledge of qualitative methodologies. It has shown how rich and rewarding the results from this type of research can be.

I have contributed to the professional field of education and research by way of conference papers, presentations, lectures, curriculum development resources, articles (Muir, 2006, Muir, 2007a, 2007b, Muir, 2008a, 2008b, 2008c, 2008d, 2008e, 2009a, 2009b, 2009c). Through undertaking this research I am better placed as an educator whose special interest is educational practice and the use of reflection. At a personal professional level I have a better understanding of why I practise teaching the way I do. This knowledge allows me to evaluate my practice more critically.

Completing the study has convinced me that reflection should be in all undergraduate medical education programmes. This research suggests that improvement at all levels could be achieved by a more detailed approach to reflective education than has been the case up to now.

Future research and curriculum development

I believe that there needs to be more research, which could be in the area of the reflective requirements of 4th and 5th year medical students, to explore the impact of education on practice to investigate which, if any, methods or strategies help junior doctors learn and support their practice. There is an opportunity too, to explore the examiners knowledge and experience of using the year five assessment criteria within the portfolio viva assessment.

Critical reflection is:

> 'a meta-cognitive process within the context of the practitioner's own level of experience which enables him/her to better understand, evaluate and/or resolve an issue, examine practice and personal experience including beliefs, moral and ethical principles which leads to transformation of the self (including knowledge, skill and attitude) and which re-evaluates and validates previous learning whilst identifying future learning for personal and professional practice.'
>
> (Muir, 2009)

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Muir, F. (2006). *The reflective practitioner. Student selected component.* Dundee: University of Dundee.

Muir, F. (2007a). The benefits of advanced studies in education for the education community. Presentation at Strathclyde University, MEd/EdD Conference 2007. Strathclyde University, Glasgow.

Muir, F., & Lockwood, P. (2007b). *Developing the reflective student in an undergraduate medical programme.* Poster presentation AMEE 2007, Trondheim, Norway.

McDonald, A., Muir, F., & Ambrose, L. (2008a). *Personal and Professional Development. The 'How to' guide to portfolios.* Presentation at University of Dundee, Dundee.

Muir, F. (2008b). *Reflection: What's in a name?* ASME Conference Presentation. Cardiff: Wales.

Muir, F., Ker, J., & MacDonald, A. (2008c). *How to: Develop Professional Medical Practice. Becoming a reflective medical student in Year 1*. University of Dundee: Dundee.

Muir, F., Ker, J., MacDonald, A., and Day, R. (2008d). *How to: Develop Professional Medical Practice. Becoming a reflective medical student in Year 2*. University of Dundee: Dundee.

Muir, F., Ker, J., MacDonald, A., and Day, R. (2008e). *How to: Develop Professional Medical Practice. Becoming a reflective medical student in Year 3*. University of Dundee: Dundee.

Muir, F. (2009a). Reflection in Medical Education: A case study exploring students', tutors' and educators' understanding and experience of reflection. *Advances in Health Sciences Education.* Paper submitted 28th July 2009.

Muir, F. (2009b). Reflection in Medical Education: A case study exploring students', tutors' and educators' understanding and experience of reflection. Paper prepared for Dundee University Medical Education Committee UMEC, 2009.

Muir, F., & Law, S. (2009c). *Reflection: What's in a name?* Workshop and presentation at the Tayside Centre for General Practice Annual Conference, Dunkeld.

How to:

Develop Professional Medical Practice
Becoming a reflective medical student in Year 1

Fiona Muir, Jean Ker and Angela MacDonald

This 'How to...' series has been developed to help support you develop your professional medical practice through the skill of reflection. Exemplars are provided for each year using students' coursework which has been mapped against the reflective frameworks of Gibbs (1988), Kolb (1984) and Johns (1994).

What is reflection?

Reflection encourages you to integrate your experiences and academic knowledge to create practical knowledge, which you can use in your day to day practice. It involves actively thinking about your experience and learning so that you minimise mistakes. The skill of reflection enables you to constantly question your practice in search of excellence and safety. It involves self awareness, self criticism and self assessment skills. These will support your continuing professional development as a medical student.

Why is reflection important in medicine?

As a doctor you need to be competent and deliver high quality care. This is central to patient safety, revalidation of your role as a qualified practitioner, and your continuing professional development. Reflective medical practice is about critically examining your clinical experience and learning from it. It is core to your professional role in the health service.

Why is reflection important for you to develop as a medical student?

The need for medical students to be aware of reflective practice stems from the General Medical Council which states in Tomorrow's Doctors that students should be able to reflect on practice and be self critical (GMC, 2002; GMC, 2008). As a doctor you are required to be competent and part of preparing for your role is being able to use and apply your knowledge in your clinical practice whatever the healthcare setting.
The Scottish Doctor Outcomes define the essential elements of a competent and reflective medical practitioner:
1/ What the doctor is able to do ('doing the right thing')
2/ How the doctor approaches his/her practice (doing the thing right')
3/ The doctor as a professional ('the right person doing it')
(Harden *et al.* 1999)

What can you reflect on as a medical student?

Any type of experience can be reflected on. They can be of a personal or professional nature. For example:

Dilemmas: e.g. a friend confides in you regarding her concern that she might be pregnant; a patient confides in you that they are scared of dying
Uncertainty in situations: e.g. uncovering the cadaver for the first time, visiting your GP practice for the first time, taking a patient's blood pressure, knocking on your neighbour's door in halls for the first time.
Conflicts: e.g. tempted to go out with your friends for the third time this week knowing that you have lecture notes to catch up on.
Successful events: e.g. becoming an active member of the hockey team, submitting a comment on the Discussion Board on Blackboard.
Positive experiences: e.g. a lecture you really felt you understood, finding a key reference for your Student Selected Component (SSC).

Where and when can you reflect as a junior medical student?

Reflection can happen anytime, anywhere. You will most certainly have reflected on aspects of your life already, for example your exam results, your university course choice. Common places within your medical course where you will be asked to reflect will be during Doctors, Patients and Communities, Ward Teaching, Integrated Teaching Area, Clinical and Communication Skills. You may be asked to reflect during peer exercises, group work sessions, on your own and for the completion of the Record of Clinical Experience in years 2 and 3, and in later years within the year 5 Portfolio.

How will your skills of reflection be assessed?

Throughout medical school you will have ongoing assessments in which you will be required to demonstrate your reflective ability and critically appraise situations rather than give a purely descriptive account:
1/ Year one: My PDP
2/ Year two: Record of Clinical Experience (RoCE)
3/ Year three: Record of Clinical Experience (RoCE)
4/ Year four: Portfolio and Record of Clinical Experience (RoCE)
5/ Year five: Portfolio and Record of Clinical Experience (RoCE)

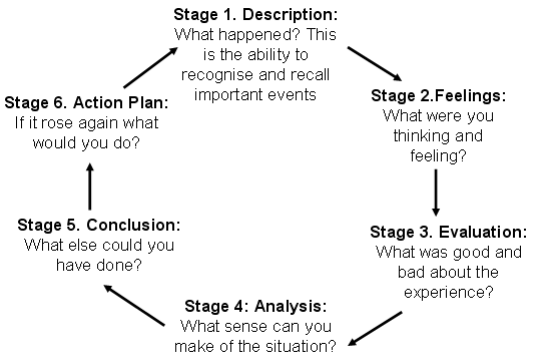
In year one the reflection will form part of the formative assessment. From year two, reflection will form part of the summative assessment. Your ability to reflect will be assessed on three levels of increasing complexity:
- Level 1 **Describes** relevant evidence of progress from experience (should be achievable by the majority of students)
- Level 2 **Evaluates** relevant experience as evidence of progress (demonstrates a more complex level of achievement)
- Level 3 **Identifies and re-evaluates** own learning needs (is the highest level of complexity of reflective ability)

How do you develop skills for reflection in year 1?

Skills for reflecting can be difficult to demonstrate particularly when you are coping with developing new knowledge and skills to use in your early clinical practice. Don't worry. We recognise these skills will take time to develop and you will be supported with further guidance as you progress through medical school. It is essential that you develop these skills and keep practising them.
Some students find difficulty critiquing a situation and exploring their feelings around an issue of concern which is triggered by an experience. Don't be put off by hiding your emotions. You may experience personal discomfort as you participate in the different activities in the undergraduate curriculum as a medical student. It is important to explore your emotions as you develop your professional role so you become more aware of how you react to different aspects of clinical practice. This process enables you to learn from mistakes and identify your own strengths and weaknesses in your professional practice . This will help you develop both personally and professionally.
Models or frameworks for reflection such as Gibbs (1988), Kolb (1984) and Johns (1994) can help you create a depth to your reflection and provide a focus for you to reflect on your experiences. It doesn't matter which framework you use providing you consider the different stages.

To help get you started you may want to use the framework by Gibbs (1988) which is given below.
Reflecting upon what happened, what you did, how you felt, how you reacted and what you feel you learnt will foster your personal and professional development. Analysis of an experience can be approached using the learning cycle through stages 1-6.

The Reflective Cycle – Gibbs (1988)



Year One-Exemplar

Using a Reflective Framework for My PDP?

Encourage yourself to ask the prompt questions indicated at each of the stages 1-6 of the Gibbs cycle above as these will support you developing your skills of reflection. Initially you may find yourself referring to these questions a number of times but through time you will find that reflection comes more naturally. For some students the process of reflection may well be underway and this framework will support you in developing your reflection to the later stages.

The first opportunity to try out your skills will be while completing "My PDP": in particular, the template entitled 'Medicine and Dundee', which encourages reflection in the first few weeks of medical school, asks you to consider the following:

1/ Why did you choose medicine, why Dundee?
2/ Reflect on your 'Introduction to Anatomy' workshop
3/ Is being at medical school what you expected?
4/ Do you have a clearer idea of what is to be achieved over the next 5 years after studying the Curriculum Outcomes?
5/ Do you know where you can go for help, whether to do with coursework or other?
6/ Are you aware of how this semester's work will be assessed?
7/What does being a "professional" mean to you?

The following is an example answer to the first question. As you are reading through each question consider the six stages of Gibb's cycle then apply these to your own answers.

Why did you choose medicine, why Dundee?

A simple answer:

I would like to work with people and combine this with a love of science; I really liked Dundee when I came to the open day and thought that the curriculum is one which I felt I would be suited to **(Stages 1 & 2).**

A reflective answer:

Having spent a number of years thinking about my academic and personal strengths and preferences, along with the experience of 2 weeks shadowing in my local hospital and GP practice, I made the decision to apply to medical school **(Stage 1).** I appreciate that medicine is a life long commitment and that enrolment in medical school is only the start, however I am enthusiastic about the challenges that studying medicine will bring, both academically and personally: I thrive on science and want to understand the workings of the human body; I enjoy problems and working with others, or on my own, to solve them; I am interested in other people, and look forward to meeting many new faces and working with them; I will be living away from home which will be a new experience for me **(Stage 2 and 3).** In researching my medical school of choice, I was looking for somewhere that I could start to meet patients early in my course, but I also wanted a firm backbone of lectures to help guide my learning; I felt comfortable when I visited the Dundee Open Day **(Stage 3).** My experiences of the first few weeks have only helped convince me that my decision was correct and that the time I had spent researching this decision was time well spent **(Stage 4 & 5).** I will remember to share my experiences with others in the same position as I was in **(Stage 6).**

> *'Follow effective action with quiet reflection. From the quiet reflection will come even more effective action'*
> *James Levin (1943)*

References

Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods*. SCED: Birmingham.

Johns, C. (1994). 'Nuances of reflection'. *Journal of Clinical Nursing.* 3. Pp71-75

Kolb, D. (1984). *Experiential learning as the Science of Learning and Development.* Prentice Hall: New Jersey.

A resource produced by Community Health Sciences Education in collaboration with the Institute for Health Education and Skills

GLOSSARY

Clinician-The term ‘clinician’ in the context of this study refers to the (practising) NHS Doctor of Medicine

DPaC-Doctors, Patients and Communities (the community part of the programme)

Educator- The term ‘educator’ in the context of this study refers to members of staff who are practising medical clinicians who attend the Curriculum Review Working Group CRWG responsible for curriculum design, development and teaching.

Educationalist-The term ‘educationalist’ in the context of this study refers to both faculty educator and tutor.

GMC-General Medical Council

ITA-Integrated Teaching Area

MBChB-Bachelor of Medicine and Bachelor of Surgery

Non-medical staff –The term ‘non-medical’ staff in the context of this study refers to healthcare professionals (for example nurses, counselors and others), and non-healthcare staff (for example retired teachers)

RoA-The Record of Achievement.
A portfolio-based learning tool which recognises the ‘centrality of reflection as a learning process’ (Royal College of General Practitioners, 1993). Formerly known as Record of Achievement (ROA) it is now known as Record of Clinical Experience (ROCE)

RoCE- Record of Clinical Experience

Tutor- The term ‘tutor’ in the context of this study refers to the General Practitioner and non-medical tutors responsible for the curriculum delivery within the community part of the programme

Footnote

When this study commenced in 2005 the term Record of Assessment RoA was used for the portfolio assessment. The term RoA has been used throughout the thesis. In 2008 the term changed to Record of Clinical Experience RoCE.