Experiences of Critical Thinking, Critical Action and Critical Being in Health Science Tutorials

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ABSTRACT Critical thinking remains one of the most debated topics in higher education. On the premise that graduates still leave higher education with limited thinking skills and that critical thinking concepts are now diffuse and difficult for some to use in practice, Barnett formulated his concepts of critical thinking, critical action and critical being. In 'Higher Education: A Critical Business' (1997) Barnett describes how educating for critical thinking is a fundamental purpose of higher education and that existing critical thinking concepts fail to realize the emancipatory potential that such an education offers. Higher education plays a crucial role in clinical education, and tutorial groups are upheld as sites for developing critical thinking. Such groups can be challenging to teach which means teachers face difficulties in developing conceptions of critical thinking as well as putting them into practice. This study examines Barnett's work for utility in these practice situations. Four case studies of small teaching groups were investigated; teaching sessions were videotaped in naturalistic settings, tapes replayed to teachers and students, and responses to them taped using Interpersonal Process Recall (IPR). Responses were transcribed alongside interviews with group teachers. Data were analysed and themes developed in terms of teachers' and students' perceptions of their own thinking processes, the nature of critical thought, critical action and critical being in teaching and learning, and what students and teachers do to enhance these critical processes. Data were also examined for meaning in terms of Barnett's theories. Themes developed include autonomy, the critical thinking process, collegial teachers and peers, extending thinking and being changed as a person. Results supported Barnett's theory in that critical thinking is purposeful and individualistic but also that critical thinking can result in suboptimal student outcomes, that true critical actions occur in social contexts and that critical being begins with the realization of one's values and has potential to develop in undergraduate education. This thesis offers many ways for teachers to inform their practice when teaching for critical thinking, action and being and also offers advice for students in higher education. Students who wish to develop these critical processes need to work hard, take risks, choose actions depending on what is going on around them and develop the ability to apply critical thinking and action to all life experiences. Students also need to realize their own values but this might mean facing the possibility that they appear a little different to others in professional life.

Key words: active learning, autonomy, clinical education, clinical teaching, critical thinking, critical action, critical being, feedback, higher education, interpersonal process recall, IPR, interview, peer review, risk, video recall, small group, tutorial, values.

ACKNOWLEDGMENTS

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PROLOGUE

Class was busy and the windows open in anticipation of a quick warm up. Students sending last messages before silencing phones and Patrick, apologetic and slightly grey, sweaty from a receding cold but keen to press on. The group quickly settled themselves ahead of his *good morning,* sitting straight, upright in chairs as health science students tend to do. Conscious of years spent huddled over books they pull out papers and pencils with a flap and rattle whilst stretching shoulders and rubbing taut necks.

Glancing to my corner as I am introduced they quickly forget my presence, remembering reminder emails and discussions already had. The merest comment and glance in my direction *ah...it's the bad thinking research day* reminds me of why I am here.

A snappy reminder of forgotten anatomy and to treatment couches they go, proffering limbs for assessment. Good humor and laughing, some serious and frowning but all uninhibited in prodding and probing. The rumbling discussion is broken as a difference of opinion rises, aired frankly, with purpose and a great show of nodding. Noise drops once again and three or four times they move to new beds, without being asked to begin again, a new leg, an ankle or knee. A bunion, *hallux abducto valgus*, yesterday's vinegar socks and much display made of their removal.

Tired, they tidy and draw to a close, returning papers and phones to former spots. Assuming they have better things ahead I quietly begin to collect belongings, collapsing tripods and packing wires made complicated by my haste. Quietly, insistent offers of hands and shoulders for carrying appear, strong backs held against creaking heavy doors. Some stop me before I leave: a question, ponderings about anatomy (don't ask me, even longer since forgotten and then some), queries over ancient but efficient recording technology resurrected at a week's notice from stores. A student finds words it seems for three or four others who stay gathered as I finally pause, heavily laden with stretching arms, awaiting the lift: *So......its not just about bad thinking, is it?*

(Field notes, Group 4, video footage shooting)

CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

INTRODUCTION

For the last 150 years critical thinking has been seen as the foundation of a liberal Western university education. It is suggested that such abilities, in their many forms, define the university graduate. Now, in the 21st Century critical thinking concepts have been widely adopted, at least in theory, by educators and industry. In New Zealand the wider community clearly shows its support for this, asking that higher education is both 'critic and conscience of society' (Education Act Amendment, 1988, section 162). Society views thinking as the route to growing successful and positive citizens: 'the purpose which runs through and strengthens all other educational purposes, the common thread of education, is the development of the ability to think' (EPCNEA, 1961, cited in Kennedy, et al, 1991, p. 12). Higher education consistently refers to critical thinking in charters, statutes, desired undergraduate qualities and learning outcomes and these higher educational institutions have the unifying goal of producing graduates who can think critically (Barnett, 1997; Harland, 2009).

However, the critical thinking debate is complex, despite attempts to achieve consensus and conclusion. Contributors from numerous fields continually add to critical thinking concepts and there have been numerous reviews of the literature. Examples include Critical Thinking: A Statement of Expert Consensus for the purpose of Educational Assessment and Instruction (The Delphi Report, Facione, 1990) and Critical Thinking in Education: A Review (Pithers & Soden, 2000). Despite all this there is still no widely accepted definition of the concept.

Critical thinking literature and its many reviews have no doubt begun to help some develop their thinking (Norris, 1985). However, the exceptional complexity and diversity of this literature means those who need to understand critical thinking

concepts very often still struggle to form a personal vision with which to inform teaching or study practice. It has also been suggested that critical thinking concepts actually have little utility for teachers in higher education (Halonen, 1995; Tucker, 1996; Barnett, 1997; Pithers & Soden, 2000; Hussain, et al, 2007).

According to both industry and education, higher education continues to produce graduates who fail to think critically about their chosen career and the societies in which they practice (Candy, 1995; Barnett, 1997; Casner-Lotto & Barrington, 2006). This failure is despite institutions being in broad agreement that their role is to develop lifelong thinking skills that support students to think effectively in education, and throughout their lives (Higher Education Council, 1992).

According to some educational philosophers (e.g. Siegel, 1980; Barnett, 1997) critical thinking is not just another educational option, but indispensable. In their view, critical thinking satisfies the moral obligation of society to educate students in the broader sense, to teach at the very least with the critical thinking spirit in mind rather than train students simply as competent technicians.

Siegel (1980) also describes how teaching for critical thinking builds in teachers a respect for a student's rights to question and challenge instruction, and what is being taught. Teaching for critical thinking therefore not only embodies a student's rights as a person to exercise judgment and evaluation (Siegel, 1980) but brings possibilities for enhancing teaching itself (Barnett, 1997).

To address the many concerns arising from the critical thinking debate, Barnett developed his potentially emancipatory theory of critical thinking. He suggests the contemporary world demands a new kind of critical thinking and that we need to think outside of existing self-limiting, knowledge based concepts. In his book 'Higher Education, A Critical Business' he proposes a broader notion of critical thinking that expands its meaning to include critical action and critical being (Barnett, 1997).

Using Barnett's theory as a framework, this thesis investigates what critical 'thinking', 'action' and 'being' mean in practice and whether Barnett's theory has any utility in the specific context of clinical teaching. Higher education still has critical thinking

near the top of its agenda (Barnett, 1997) and upholds the small group tutorial in particular as an optimal site for its development (Biggs, 1999). In the many branches of health science teaching, tutorials are seen as particularly effective methods for developing thinking, especially where patient contexts can sometimes act as barriers to frank and open discussion. Tutorials are therefore frequently used to complement clinical work. Such small groups enable teachers to more effectively introduce and develop thinking around complex real life ethical or interpersonal issues (Seabrook, 2003).

Teachers experience additional pressures from educational institutions. Complex economic and political agendas mean class sizes are often increased without appropriate increases in teaching staff. Larger groups make developing thinking harder for many teachers (Biggs, 1999). Combined with critical thinking constructs which are hard to understand and put into practice, teachers face a vast array of problems. This thesis hopes to add to our understanding of teaching and learning by examining Barnett's philosophical work for utility in the place that higher education has traditionally upheld for critical thinking development, the tutorial group.

This research originated from personal reflections on experiences of small group teaching. These experiences included pressures from students to act as a fount of all knowledge rather than a group facilitator, and learning to deal appropriately with the complex group dynamics that variable student abilities and attitudes create. In my experience, students and staff have also, at times, become accustomed to a didactic style and alongside this expectation seem to expect that more teaching, rather than better quality teaching is the way to build competent, critically thinking professionals. According to research (e.g. Paul, 1990; Biggs, 1999) these are all common problems and because of such issues, many teachers find managing groups and developing critical thinking stressful and unfulfilling.

If the aim of higher education to develop critical thinkers is to be realized, we need to overcome difficulties in understanding critical thinking and putting it into practice. Teachers and students in higher education need a clear vision of critical thinking that works well.

The following literature review briefly introduces some major concepts of critical thinking and Barnett's reasoning for the construction of his theory. This section is followed by an outline of Barnett's concepts of critical thinking, critical action and critical being and some of the conditions thought necessary for the development of critical thinking in teaching and learning. The Chapter concludes with a brief description of the context of this research, the tutorial in higher education, as a site for the development of critical thinking.

This thesis continues with the research Methodology in Chapter 2 and then three Chapters of results, analysis and discussion. These are:

- Chapter 3. Critical Thinking, which contains five themes and describes the critical thinking process, illustrated by a model.
- Chapter 4. Critical Action examines what teachers and students do to enhance critical thinking, and what it means to take critical action in these groups. There are two main themes in this Chapter: Collegial Teachers and Collegial Peers which are illustrated by two figures for the teacher and student that focus on critical action.
- Chapter 5. Critical Being is in two themes. Theme 1, Extending Thinking shows how teachers extended thinking outside professional and academic lives. Theme 2, Changing People shows how teachers were changed as people as a result of critical thinking and critical action and what a critical being might look like in practice. This Chapter concludes with a figure of Six Challenges for the Values teacher from Harland and Pickering (2011).

The work is brought to conclusion in Chapter 6. This research aims to contribute to understanding of critical thinking concepts and provide a useful and clear contribution to the practice of teaching and learning. In particular I seek to provide insight into the practice and theory of critical thinking in small groups with evidence drawn from the experiences and perspectives of both teachers and learners.

LITERATURE REVIEW

Introduction

The literature review begins with a brief exploration of critical thinking history and broader issues arising from critical thinking definitions, followed by a critical review of major concepts in the critical thinking literature. This literature is vast, therefore I have been selective and influenced by issues that emerged from the research data. Key critical thinking concepts are described, however it should be noted that there are complexities arising because of overlapping theories and the vast number of ways in which critical thinking is described and conceived. These complexities have exacerbated the difficulties experienced by teachers and students who seek to inform their learning and practice.

Critical thinking history and definitions

Critical thinking concepts have been evident for centuries and can be seen as early as the works of the Greek philosopher Socrates (469-399 BC). Whilst the term 'critical thinking' was not found in literature until more recently, its ethos can be clearly identified in his work, as recorded by Plato. Socrates invites learners to explore possibilities of thinking outside their own world (Laurillard, 2002). He also maintained that inquiry (critical thinking) is fundamental for living and learning, that 'the unexamined life is not worth living for a human being' (Socrates, in Plato's Apology, cited in Shen, 2001, p. 5). Socrates also believed that learners need to pursue their own inquiry and reason for themselves which suggests teachers act as skilled facilitators, as well as possessors of knowledge (Shen, 2001). Such ideologies have persisted and can be seen clearly in the literature of the 21st century:

> Critical thinking is a positive attitude; 'thinking well'. It is independent and individualistic: it prepares us and sustains us for quality contributions to our profession and life. Thinking critically protects us (partially) from assumptions, falsities and being misled.
>
> (Pithers & Soden, 2000)

Some critical thinking authors agree on one point, that the purpose of critical thinking is positive and benefits both the self and others (e.g. Paul, 1990; Barnett, 1997; Pithers & Soden, 2000). Despite being in broad philosophical agreement, many schools of critical thinking have nevertheless emerged, each concerned with what critical thinking actually is. Those in teaching practice remain frustrated that a widely accepted definition still remains elusive, especially when they are told by both educationalists and industry that students often fail to reach their potential (Barnett, 1997; Casner-Barrington & Lotto, 2006).

Additional confusions have arisen to make things difficult for teachers and researchers in practice. Differences in semantics and interpretation of critical thinking terminology mean that even authoritative dictionaries (e.g. Chambers, 2008) contain contradictory definitions. Such definitions include analysis, reasoning and logic, synthesizing and evaluating and broader terms such as ideation, rumination and speculation. In addition, there exists a general colloquial assumption that 'being critical' is negative and derogatory (Cottrell, 2005).

All kinds of scholars and industries have become interested in critical thinking, especially those who see themselves as consumers of critical thinking graduates. Each profession offers another concept, context or use of terminology. When one profession refers to critical thinking, there is no reason to believe that they mean the same thing as another (Barnett, 1997).

Critical thinking has also become fashionable. Alongside other educational ideas (e.g. metacognition, creative thinking, higher order thinking), in some circles critical thinking has become such a 'buzz' word that simply adding *critical* to a topic (e.g. critical appreciation) lends an intellectual air and increases the marketability of courses and publications. Authors warn, however, that even impressive sounding programs may contain ineffective teaching or limited critical thinking concepts (Tucker, 1996; Barnett, 1997; Moon, 2008). Such deceptions present additional barriers to those who wish to teach and think critically (Barnett, 1997) and some say that critical thinking terms are used with such regularity and interchangeability that they have lost any semblance of definition (Cuban, 1984, in Kennedy, et al, 1991).

The following review examines six key conceptions of critical thinking in the Western world:

1. Critical thinking as skills and abilities
2. Critical thinking as an attitude
3. Critical thinking as logic and reasoning
4. Critical thinking as reflection
5. Critical thinking and creative thinking
6. Critical Being

In conception 6, Barnett's reasoning for the development of his own theory of critical thinking, critical action and critical being is examined. The Chapter concludes with a review of critical thinking in the tutorial group and outlines the context of the study.

1. Critical thinking as skills and abilities

One of the largest groups of critical thinking concepts is concerned with thinking skills and abilities. These terms are frequently used in the literature, often interchangeably. Such concepts are published widely as self-help books, training guides and form the basis of internet sites, and as such are readily accessible. These resources are popular with those seeking to improve study skills and beginner teacher practitioners (e.g. Cottrell, 2005; Paul & Elder, 2006).

Critical thinking skills and abilities are primarily presented as being applicable across knowledge domains, of value to different professions and tend to focus primarily on problem solving. Halpern (1999, p. 70) describes this kind of critical thinking as 'the use of cognitive skills or strategies that increase the probability of a desired outcome' and that students can be taught to recognize and use skills appropriately and make their thinking more effective (Halpern, 1998).

The essentially pragmatic approach to critical thinking as skills and abilities is another reason for the popularity of these concepts and makes them particularly attractive to professions who seek definitive or absolute answers, e.g. law. Cottrell identifies the

following abilities as central to critical thinking:

- identifying assumptions, bias and theoretical perspectives
- evaluating evidence, premises and salience
- identifying arguments
- developing conclusions

<div align="right">(Cottrell, 2003; 2005)</div>

Halpern suggests the following critical thinking skills:

- verbal reasoning skills
- argument analysis skills
- skills in thinking as hypothesis testing
- skills to deal with likelihood and uncertainty

<div align="right">(Halpern, 1998)</div>

Paul and Elder (2006) present similar concepts, but also suggest that critical thinking should form the basis of everyday problem solving as well as at work. Their 'Mini-Guide to Critical Thinking, Concepts and Tools', contains chapters on 'Checklist for Reasoning' and 'A Template for Problem Solving'. According to these authors, the quality of decisions made depends on good critical thinking and that 'shoddy' thinking is costly both economically and in terms of quality of life. A well cultivated critical thinker:

- raises questions/problems clearly and precisely
- gathers and assesses relevant information
- comes to well reasoned conclusions, tested against appropriate standards and criteria
- open-mindedly tests against alternative systems of thought, recognizing assumptions and consequences

<div align="right">(Paul & Elder, 2006, p. 4, abridged)</div>

Whilst Cottrell (2003; 2005) presents her concepts of critical thinking as individual skills, Paul and Elder (2006, above) present theirs as parts of a critical thinking 'process'. Other well known process concepts are found in the work of Edward de Bono. His concepts are also practically focused and 'The Six Thinking Hats' technique is used widely in education and industry (De Bono, 1985). This technique is valued as a time saver for solving problems. Subgroups are assigned a 'hat', which represents a particular part of the thinking process. Isolating thinking 'parts' means group discussions are focused, intensified and hopefully outcomes optimized. What is interesting about this technique is that pragmatic components such as facts (white hat) and barriers (black hat) are included alongside creativity (green hat) and emotional, gut reactions (red hat). De Bono's concept therefore seems a little broader than some others. What this technique does especially well is that it actively discourages 'ego-play' by focusing on group members working together rather than allowing competitive behaviour that might hold up group processes (De Bono, 1985; Moon, 2008).

There is an ongoing debate between critical thinking authors as to whether critical thinking skills will transfer across domains or contexts (usually meaning disciplines) or to different areas of one's life. Generally, authors agree that such transfer is desirable (Kennedy et al, 1991). Some argue that skills are easily transferable between professions in which identifying arguments would work well, e.g. science, law or medicine. Some advocates of transferability (e.g. Cottrell, 2003; 2005) liken skills to a 'mental toolbox' which allows thinkers to easily engage with any topic or discipline and therefore be used in broader, perhaps non-professional contexts (Kennedy, et al, 1991). However, other authors view skills as context dependent. Bailin (et al, 1999) describes how thinking changes subtly across disciplines and that thinking skills should be used closely with relevant disciplinary knowledge and standards. Cottrell (2005) also briefly mentions context as maintaining contextual perspective but her work is intended to be generic, for use by different kinds of students and she mentions this concept only in terms of 'argument' and 'salience'.

Another debate in the literature is concerned with how easy the skill of critical thinking is to develop. Some authors suggest that with practice, critical thinking skills easily become habitual (e.g. Cottrell, 2003; Moon, 2008). However, Scheffler

describes the importance of being mindful with thinking and suggests instead that critical thinking should be purposeful and, whilst becoming easier over time, should never be rendered automatic and always accompanied by personal judgment (Scheffler, 1965, in Bailin et al, 1999). Others argue that critical thinking is a purposeful and deliberate act (e. g. Barnett, 1997).

What skills-based critical thinking concepts do well is to help students engage with thinking processes. Accessible resources mean they can do so without teacher supervision (Moon, 2008). Whilst Barnett (1997) is not an advocate of these concepts, he remarks that skills concepts do create some critical thought in higher education communities and that this approach has its uses. However, Barnett (1997) believes arguments about context and transferability are at best confusing, and those engaged in such debates risk losing sight of the broader purposes of critical thinking and higher education. He believes skills concepts are among the narrower definitions of critical thinking which can be contrasted with broad concepts such as Ennis' statement that critical thinking is 'reasonable reflective thinking about what to think or do' (Ennis, 1987, p. 10). Narrow concepts, Barnett argues, are limiting, over simple and as such often accompanied by mistaken beliefs of mastery. He also argues that students who are expected to master such skills are merely operating under strict academic control (Barnett, 1997). However, it should also be noted that broader ideas such as those suggested by Ennis (1985) can be difficult as they lack specificity and thus are a poor guide to practice.

Barnett also believes that critical thinking skills have taken on a life of their own in that higher education has let these become a driving force in their own right and are an internal agenda of their advocates. Skills also become an external agenda whereby they are seen as key competences for economic regeneration, and critical thought seen to serve only economic and industrial communities. While such agendas rescue higher education from self-doubts about its critical thinking development, Barnett believes these aims are self-serving and their ends limited. Such definitions decline to engage students in the wider critique of their education and taken-for-granted worlds. Critical thinking should instead offer a freeing of the mind unconstrained by a narrow definition or context (Barnett, 1997; Barnett, 2000).

2. Critical thinking as an attitude

After the skills debate in the 1980's, the idea arose that critical thinking is substantially influenced by our attitude (sometimes called an attribute). In 1998, Halpern added to her skills concepts the idea that student dispositions can influence how they use critical thinking skills. She surmised that it is not enough to teach skills, or for students to develop abilities, if they are simply not inclined to use them. Adding ability to attitude led to Halpern developing the following list of attitudes she sees as fundamental to successful critical thinking:

- willingness to engage in and persist at complex tasks
- habitual use of planning, and suppression of impulsive activity
- flexibility or open-mindedness
- willingness to abandon non-productive strategies in an attempt to self-correct
- awareness of social realities to be overcome (e.g. the need to seek consensus or compromise)

(Halpern, 1998)

Other scholars describe:

- developing confidence in one's reasoning
- keeping an open mind
- exercising fair-mindedness
- humility and courage
- thinking independently and objectively
- ability to empathize and take different perspectives
- intellectual commitment to use critical thinking skills to guide behaviors
- awareness of and curiosity in others
- personal and academic assertiveness

(Paul, 1990; Paul & Elder, 1997)

Paul, in particular, refers to the effort that critical thinking takes:

- proceed when challenged and faced with other difficulties
- remain attentive, committed and reflective
- observe when less than thorough, or when methodical checking and rechecking necessary

(Paul, 1993)

Attitudes will have different relationships with critical thinking. Elder and Paul (1998) described how they believed attitudes were the antecedents of critical thinking and that attitudes actively encourage critical thinking. Subsequently, however, Paul and Elder (2006) also suggested that intellectual humility and courage sit alongside our thinking. Later still, Facione (2009) described the relationship between attitude and critical thinking skills as a parallel one, that skills are developed alongside one's critical thinking spirit, or character.

The attitudes area of the critical thinking literature is complex and terms (such as attitude, attributes and emotions) are often used interchangeably. However, this interdependence of critical thinking and our way of looking at life serves to reiterate the general positive philosophy of critical thinking. Such attitudes mean that we act purposefully, positively and seek to protect our thinking from error (Paul & Elder, 2006; Facione, 2009).

Barnett argues that conceptualizing critical thinking as an attitude merely concerns people with getting caught up with behavioral accomplishments. While he agrees that attitudes in critical thinking are important and reiterate its positive intent, he believes existing concepts are too 'static'. Barnett suggests instead that attitudes are better described using imagery; that critical thinkers look at the world from afar, having a view not given entirely by the world itself. Barnett describes this 'critical disposition' as something deep seated, indicating the characteristics of one committed to using critical thinking, but also inclined to examine the world howsoever it appears. This characteristic forms the basis of Barnett's concept of the critical being in higher education (Barnett, 1997) reviewed later in section 6 of this literature review.

3. Critical thinking as logic and reasoning

Logic and reasoning can broadly be described as practical concepts, mostly focused on the analysis of argument, with an emphasis on seeking an objective truth, or right answer (Moon, 2008). Broadly defined:

- reasoning - drawing conclusions on the basis of facts (reasons)
- logic - quality of reasoning and the rules by which it takes place

(Paul, 1993)

A number of camps have arisen associated with logic and reasoning concepts of critical thinking. Some suggest these concepts are essentially foundational to critical thinking and two authors describe over 50 definitions associated with their use (Bowel & Kemp, 2005). One 'Complete Guide' (Lau, 2009) to critical thinking makes no mention of logic but suggests that truth (as also used in many logic concepts) is instead found by analytical semantics (arriving at meaning through logic). Logic has been included within critical thinking concepts (e.g. De Bono, 1985; Cottrell, 2005) and broad versions of it can be seen in some accounts as evidenced by phrases such as 'making sense' and 'following on' (e.g. Paul & Elder, 2004). Scheffler and Rubenfield (2000) suggest that to be effective, logic should be combined with other skills such as reflection and intuition and in an early work, De Bono (1982) described the use of logic as simply a skill to expose contradictions in argument.

What logic concepts do well is to engage students in thinking. The pragmatic nature of logic and reasoning concepts instill a strong sense of rules, which is attractive, especially to beginner thinkers who might find these easy to follow. Logic concepts that elicit finite answers may also be attractive, because they suggest critical thinking is about seeking answers and is a structured, finite process (Moon, 2008). Jones and Brown (1991) found that perceptions of critical thinking in nursing education practitioners were limited to scientific logic and problem solving approaches. These authors observed that complex professional practices such as health are not served well by such models. Lack of insight into complexities and uncertainties of, for

example, clinical practice, has meant that logic believers are often seen as closed minded (Barnett, 1997; Jaques, 2003; Moon, 2008). Even De Bono (1985), who includes logic within his own work, has noted that seeking correct answers might not always be best for developing critical thinking.

As with other rule bound concepts, Barnett (1997) believes logic concepts are limiting. To Barnett, critical thinking concepts concerned with cognitive processes mean that some broader ideals are lost, in particular that critical thinking is 'free thinking'. Whilst widely adopted by education and industry, Barnett believes this mechanistic approach to thinking has been damaging to education. Institutions have become more concerned with producing an effective workforce in possession of knowledge skills. Barnett believes industry has also imposed largely technical contexts on education institutions via requirements for graduates. He suggests higher education has, in turn easily fallen in line with requirements, ceased the pursuit of alternative ways of thinking and remained in a narrow construct operating in relation to formal knowledge.

4. Critical thinking as reflection

The fourth broad category of critical thinking concepts is that critical thinking is reflection, loosely an ability to look back upon one's experiences and thoughts. The purpose of reflection is as a means to improve thinking and this concept tends to be used on a personal level.

Reflection has various descriptions in the literature. Phillips and Bond (2004, p. 283) use the term analytically, describing reflection as 'looking beyond what is there'. Ennis (1987, p. 10) describes reflection in terms of critical thinking 'being a personal ability to reasonably reflectively think about what to do and believe'. Ennis also suggests reflection goes hand in hand with abilities to use other critical thinking skills (logic, etc.) as appropriate, and that to be effective, thinkers need to develop such metacognitive abilities inherently (Ennis, 1989). Reflection is also described as deep, superficial and secondary (Moon, 2008). Deep reflection is sometimes closely correlated with other critical thinking abilities (logic, reasoning and problem solving), as its purpose is seen as absolute and in pursuit of a truth, or conclusion, whilst in

contrast, superficial reflection is concerned more with simple wondering. Secondary reflection is used to describe a process by which earlier thoughts, decisions or primary reflections are revised.

What many definitions of critical thinking as reflection have in common is that they exhibit an underlying broad and common purpose (Moon, 2008). This purpose is one that seeks to improve the quality of thinking. Brookfield (1987) describes this purpose as reflective *skepticism,* as a significant part of the *process* of critical thinking. This process is described by Brookfield as constantly updating thinking by questioning the status quo. Brookfield's concept echoes secondary reflection, which is also described in the work of Dewey (1910) as simply looking back on past experiences and using them to plan for the future.

Reflection concepts seem inherently positive and practical, and enable critical thinkers to continually seek alternate, improved solutions to problems. Reflection has also been conceptualized widely in health professional literature, again with the pursuit of quality as its purpose. Francis and Cowan (2008) surmise that in postgraduate professional fields, a *reflective practitioner* is held with the same esteem as a critically thinking graduate in higher education. Reflective practitioners are featured in Schön's collection of case studies (1987) and both Schön and Francis and Cowan describe reflection as a vital tool for short and long term professional development.

Definitions of critical thinking as reflection are valued in practice because such concepts encourage practitioners to exercise continual quality improvements in both thought and actions (Moon, 2008). However, Barnett believes such concepts are simply extensions of skills concepts of critical thinking, and that critical thinking is not as simple. What Barnett's concepts have in common with reflective concepts, however, is the relationship between thinking and action. Barnett considers that the world of action contains possibilities for learning and for transforming ourselves as persons (Barnett, 1997).

5. Critical thinking and creative thinking

Skills and logic concepts, and to a certain extent reflective concepts of critical thinking have been criticized by Barnett for being limiting. Some of these concept descriptions, however, also refer in some degree to creativity and lateral thinking. For example De Bono (1985, Six Thinking Hats) includes a green hat for 'new' ideas and suggests that using this hat as part of problem solving process acknowledges the importance of thinking 'outside the square'. Richard Paul, who, alongside Barnett dominated certain aspects of the critical thinking debate in the late 20th century, has viewed creativity and lateral thinking as both integrated and inseparable from critical thinking and that ground breaking work is seldom generated by known processes or systematic instruction alone (Paul, 1993).

However, creativity and critical thinking can be seen as oppositional, based on the premise that the former is unstructured, irrational and subject to emotional and subconscious factors, and the latter rational and conscious. Furthermore, creativity does not tend to thrive in an instruction driven environment (Moon, 2008). Paul (1993) describes 'laterality' as the way in which we develop our own views of the world. Whilst skills concepts of De Bono (1985) and others may contain lateral thinking as well as creativity within their rule-bound concepts, perhaps creative lateral thinking is the beginning of what Barnett means by 'giving students opportunities to develop [critical thinking] dispositions' (Barnett, 1997, p. 4). Barnett's project, which promises students the potential to 'come to free themselves from taken for granted worlds' (Barnett, 1997, p. 4) is perhaps unlikely to be on the agenda of most teachers using such concepts, but creative lateral thinking is a step on the way towards freeing thinking from simple knowledge bound processes that Barnett finds so limiting.

This section has described some of the main concepts of critical thinking in the literature. Barnett's (1997) theory of critical thinking, critical action and critical being are now described in detail.

6. Barnett's concepts and the theory of Critical Being

My thesis is that we should dispense with critical thinking as a core concept of higher education and replace it with the wider concept of critical being.

(Barnett, 1997, p. 7)

Barnett's reasoning for developing the theory of critical being stems from his concern with the direction of other critical thinking concepts in the literature. He believes the complexity of the literature is symptomatic of narrow aimless arguments, embedded within formal knowledge and insufficient for the role of higher education in society and today's world. His book 'Higher Education: A Critical Business' reiterates the positive purpose of critical thinking maintained throughout the literature but Barnett argues a broader theory of critical thinking, critical action and critical being is needed. Barnett proposes that this new kind of thinking allows individuals to live and act with purpose and autonomy that also brings with it liberation and emancipation from given worlds of factual and contextual knowledge in order to create our own (Barnett, 1997).

Critical thinking today

As well as being cognitively and personally limiting, Barnett also believes existing concepts are insufficient for the world of today. The information age of the 1990's has now been replaced by the *knowledge age* (Wilcox, 1997). The volume of information alone that we now experience is increasing and more than ever critical thinking needs to become a vital life process not isolated from professional work (Barnett, 1997).

The nature of our experiences is also changing. It could be argued that deception is the basis for marketing strategies worldwide and that people with both superior thinking skills and strong habits of mind can also use their thinking for ruthless or immoral purposes (Facione, 2009). Critical thinking offers some protection from such deceptions, and in theory should make us good citizens in rational control of the verification of knowledge (Sumner, 1940; Kuhn, 1999).

Rapid advancement of technology and information availability also mean that critical

thinking as it was once represented is no longer sufficient. We inhabit a world where social and professional lives are constantly being redefined (Barnett, 1997; Ab Kadir, 2007). Even in 1985, De Bono commented that instability in society calls for a corresponding change in solutions we have to offer. But, whilst thinking skills can obviously assist us to progress professional, personal and economic lives and contribute to our functionality amidst such change (Barnett, 1997; Paul & Elder, 2006), Barnett believes that narrowly construed constructs of critical thinking seek only to further economic or political agendas of industry. In Barnett's view, critical thinking needs to extend further. Critical beings of the 21st century need to question their place in a world where the larger problems that society faces persist despite the presence of those graduates that higher education have sought to equip to contribute to a better life (Barnett, 1997). Critical thinkers have an obligation to themselves, their profession and society to ensure they think consistently and contribute continuously, as 'friendly critics' of the workplace but also of society (Tucker, 1996; Barnett, 1997; Education Amendment Act, 1988).

Domains of operation

Barnett's concepts contain certain elements of those that he critiques. He agrees somewhat with context-dependent skills insofar as critical thinking needs a point or purpose; the first domain of critical thinking he describes as knowledge. However, Barnett extends knowledge to include sociological aspects of the self and the world rather than those restricted to areas of professional expertise. He developed these sociological concepts from the notion that definitions of what critical thinking *is*, should be replaced with concepts addressing the question *'what is it for?'* (Barnett, 1997, p. 65). Barnett describes three broad domains in which critical thinking (CT) takes place. One can be critical of:

- propositions, ideas and theories, especially as they are proffered in the world of systemic knowledge (CT1)
- the internal world, that is oneself (CT2), a form of critical thought that is demonstrated in critical self-reflection
- the external world (CT3), a form of critical thought that is demonstrated by critical action

(Barnett, 1997, p. 65)
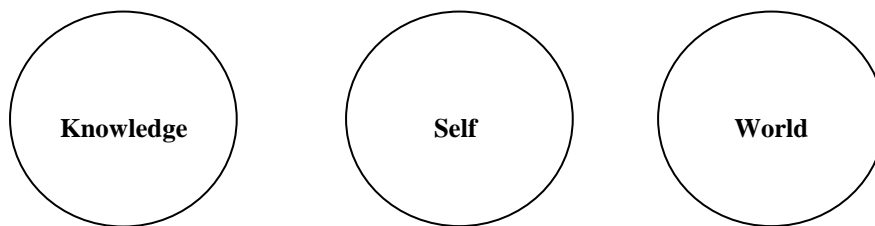
Figure 1. Barnett's Domains of Critical Thinking Barnett outlines three domains in which critical thinking can take place (Barnett, 1997, p. 65, abridged).

In contrast with the rule bound, compartmentalized concepts of critical thinking, Barnett is clear that rather than delineating distinct boundaries, these categories serve to illustrate the 'purpose' of thinking critically. The boundaries between domains should be viewed as blurred in that Barnett acknowledges the effect that each domain could have on another and, as discussed later, a person is capable of inhabiting all, or some of the domains at once.

Modes of operation

Barnett describes three ways of operating in these domains. The forms in which this critique operates are: *critical reason, critical self reflection* and *critical action*. Whilst critical beings can act at different levels in each domain, critical reason, critical self reflection and critical action also operate in other domains. In higher education Barnett believes that critical thinking has been focused primarily on formal bodies of

knowledge (CT1), as logic, analysis etc. within 'permitted' moves of a discipline. Whilst of late other action components have been incorporated into curricula, the purpose of this adoption has still been with a primary focus on developing disciplinary competences rather than a wider evaluation of, for example, an organization and its place in society. Barnett believes the developmental potential of even these kinds of situations is not being realized, that criticality is being developed within defined limits and thus students' development is arrested (Barnett, 1997).

Barnett illustrates his concepts with the example of a student standing in front of the tanks in Tiananmen Square in the 1989 protests. This example is dramatic but shows Barnett's principles clearly. This student's act stems from the student's deep understanding of the principles of politics, sociology and political science (CT1), a reflection upon himself, his values and his place in society (CT2), and his place in the world by taking critical action within it (CT3). This example illustrates what Barnett (1997, p. 65) meant by 'what is it [critical thinking] for?':

CT 1 = to understand a proposition
CT 2 = to attempt to understand oneself and
CT 3 = to take a stance against the world

Barnett sums up his classification of criticality in the following statement:

> …do I want to extend my abilities to act critically in the wider world, or to evaluate critically theories produced within bodies of thought, or indeed, to understand myself critically?
>
> (Barnett, 1997, p. 70)

CT 1 Critical thinking about knowledge, critical reason

Barnett argues that education has, in general, arrested critical thinking at lower levels ('skills') and seldom teaches what it is, for example, to critique a body of thought and rarely to critique the intellectual field itself. He believes this problem is exacerbated by modular, credit based courses which tempt students to see rewards of study simply as credits, without encouraging them to pause and to reflect on, say interdisciplinary

differences, contrasting perspectives and make a wider critique of this framework. Self assessment and consideration for one's actions has taken a greater place in education in the form of engaging students in active learning. Thinking, however, is arrested and does not have the transformatory potential of the higher levels of critique Barnett argues are possible.

CT 2 Critical self reflection

Critical self reflection is another area in which Barnett says much lip service has been paid, but that higher education has taken on some forms more than others. Students are encouraged to be self critical and monitor their performance in the world, but neglect their personal projects and how they situate themselves within that world. Neglecting the development of self in this way has resulted in learners seeing higher education as an opportunity for self development for the most part only when they are mature students. In particular, undergraduates form their 'self' from external agendas and worlds of work rather than a combination of their own values and aspirations. Whilst self reflection is practiced in many professions, and students are exposed to it through experiencing difficult situations, they tend to develop coping strategies rather than growing as persons. Such strategies are an attempt to preserve the ego and maintain some kind of self worth (Barnett, 1997).

CT 3 Critical action in the world

In isolation, critical thinking has value, yet is benign. Society wants and needs actions to fulfill its greater philosophical requirements. As the critical thinking debate has clearly maintained throughout, action is that by which the positive nature of thinking and our contribution to a changing and problematic society is realized. Higher education is in danger of producing graduates who, at best, function adequately in organizations, but thinking critically is not enough. Higher education falls short of equipping graduates to assist in the constructive reshaping of the world. Even critical action has more limited forms, and when contained within components of coursework, whilst critical, these forms of action still have the tendency to remain grounded in that component and be neglected in the next module. Whilst welcomed by Barnett, this kind of action does not represent the interests of wider society and the

world and is still inherently limiting. Barnett asks instead that educators look for critical thinking in their students that takes part in all the domains. This kind of thinking is what he calls a critical disposition and which represents:

> ...an ability to size up the world in all its manifestations and a capacity to respond in different ways.
>
> (Barnett, 1997, p. 87)

Relationship between two axes

What is distinct about Barnett's concepts is that CT1, CT2 and CT3 operate on two axes. The first axis shows how it is possible to reason, self reflect and act at different levels within each domain, each level of criticality offering increasing opportunities for personal transformation. The second axis calls on the blurred lines between the domains in that it is possible to inhabit each domain in the same act. Barnett describes critique in relation to formal knowledge, self and the world on increasingly critical levels:

Level of criticality	Domains		
(1-4 increasing)	Knowledge	Self	World
4. Transformatory critique	Knowledge critique (reframing of knowledge)	Reconstruction of the self	Critique in action (collective reconstruction)
3. Refashioning of traditions	Critical thought (malleable traditions of thought)	Development of self within traditions	Mutual understanding and development of traditions
2. Reflexivity	Critical thinking (reflection on one's understanding)	Self reflection (on one's own projects)	Reflexive practice ('adaptability')
1. Critical skills	Discipline specific critical thinking skills	Self monitoring to given standards and norms	Problem solving (means-end instrumentalism)

Figure 2. Barnett's Levels of Criticality This figure shows what Barnett meant by increasing levels of criticality in each of the three domains of operation (Barnett, 1997, summarized from pp. 75, 89, 101)

Thinking critically in three domains means individuals can be aware of themselves and their knowledge in a wider social context and begin to see how their own notions are influenced. Such self awareness challenges the idea that self and knowledge are 'given' and, rather than being assimilated in a disciplinary community, are transformed (Barnett, 1997).

Critical Being

According to Barnett (1997), critical reason, action and self reflection have been taken on, in part, by higher education. This partial adoption is the crux of Barnett's theory. Critical beings, to Barnett, are those who simultaneously think critically at the higher end of critical thinking processes, habitually take effective action (via self reflection)

in and encompass the three domains: knowledge, self and the world. The model he proposes is therefore a blended one. Critical being as the integration of the three forms of criticality:
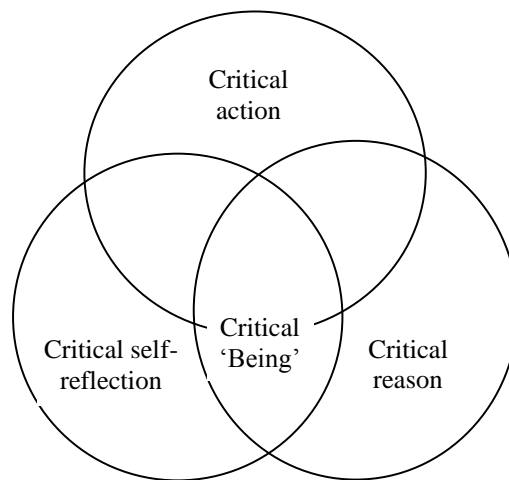
Figure 3. Barnett's Theory of Critical Being This figure illustrates how Barnett's conceives the critical being as a product of critical thinking and critical action (Barnett, 1997, p. 105)

Mathematically expressed Barnett's (1997) concept of critical being could be shown as:

$$CB = CT + CA$$

Conditions necessary for critical thinking in the tutorial context

This section of the literature review briefly introduces mainstream pedagogical ideas thought to encourage, enhance and sustain critical thinking, however it is construed (Biggs, 1999; Youngblood & Beitz, 2001). Such teaching strategies are sometimes considered philosophically different from traditional didactic instruction. For learners this difference means an emphasis on being participatory and cognitively engaged rather than passive receptors of knowledge. Learners begin to develop an awareness of their own thinking and become responsible for its greater part. For teachers, learners are their focus and they shift from knowledgeable teacher to facilitator (Brewer, 1985; Brookfield & Preskill, 1999; Kuhn, 1999). Learning strategies associated with this philosophy are broadly termed *active learning* and maximize opportunities for student interaction. Active learning takes many forms, for example,

field work, problem based learning, cooperative learning, discussion, debate, role play, case study and discussion in the tutorial group.

It is important to note that active learning strategies do not guarantee students will become critical thinkers. Conversely, teaching without critical thinking in mind can also produce critical thinking. Active teaching strategies can also be tricky, just as easily as lectures can capture an audience with insightful instruction. Some teachers also feel compelled to choose between these approaches, however it is the view of Brookfield and Preskill (1999) that varied teaching techniques may work in a complementary fashion and are not mutually exclusive.

However, evidence shows that despite its uses, using didactic teaching as a *main* teaching strategy means students tend to become passive learners (Biggs, 1999). Passive learners often believe learning is simply about factual knowledge and that the teacher's role is to transmit it. Students might also perceive that alternative techniques are too challenging and such beliefs can have long term effects such as becoming inflexible or unable to adopt different strategies when required (Barr & Tagg, 1995; Barnett, 1997; Entwistle, 1998; Barnett, 2004). Teaching for active learning therefore aims at minimizing such tendencies by creating the following broad conditions:

1. Time to engage with the curriculum and teaching strategy
2. Encouragement to develop independence in learning
3. Conditions to develop collaborative learning
4. Allowing discussion and discourse
5. Conditions that allow for individual learning needs
6. Creating a good atmosphere
7. Modeling

1. Time to engage with the curriculum and teaching strategy

Teaching for active learning can be resource intensive, often influencing its inclusion in curricula design. Such resources include increased teacher-learner ratios, logistical issues and field work costs (Barnett, 1997). However one significant advantage of active learning is increased time for teachers and learners to engage with the curricula

and come to terms with varying teaching philosophies (Brewer, 1985).

Active teaching strategies deliberately prolong teaching times which also allow time for establishing and maintaining group processes, rapport building and negotiation of group rules. Extended time also enables early detection of problems, identification of individual learning styles and allows teachers to gradually introduce unfamiliar or daunting techniques (e.g. debate, group speaking). Learners new to such activities have been likened to 'aliens in a new cultural landscape' and for active learning strategies to be effective, time needs to be spent acclimatising the whole group (Brookfield & Preskill, 1999, p. 143).

Smaller groups and longer sessions also enable teachers to be flexible, vary format, introduce new techniques and contexts and address emerging thinking during class. Extended times also allow teachers to address individual needs of students and yield unanticipated learning opportunities. Well run, functional groups tolerate active learning strategies well, students and teachers find them stimulating and enjoyable and many begin to prefer group work. Active learning also pays dividends in that students are more likely to engage deeply with content and pursue their own learning outside class, in turn building a sense of responsibility and personal development (Chenoweth, 1998; Laurillard, 2002; Robson, 2006).

2. Encouragement to develop independence in learning

Active teaching strategies explicitly seek to engage learners and elicit contributions by participation in class. In doing so, students begin to express opinions, make their beliefs explicit and offer knowledge. Taking part in class encourages students to formulate thoughts carefully, reexamine or defend thinking in the light of differences within the group. Bringing knowledge to the group may also help students identify underlying gaps in their knowledge and encourage them to become self-directed and motivated. They may also develop a sense of ownership of their learning which they build on outside the classroom and later in life (Pithers & Soden, 2000; Robson, 2006).

Philosophically, active learning strategies are different to more traditional methods

(e.g. the lecture) which often illicit less student participation. Less participatory methods mean learners often develop beliefs that they are dependent on their teachers, not only in what they learn, but how they learn. By contrast, students in active strategies begin to take responsibility for seeking their own solutions. For teachers, these strategies might also involve a conscious shift away from a role as knowledge transmitter which, for some, also means a shift in their intellectual status (Pithers & Soden, 2000).

Teaching for active learning can also be tricky. Research shows students often report feeling frustrated and uncertain, particularly in finding 'answers' are not always forthcoming. Teachers too find 'being questioned' and 'being wrong' unnerving and in both these cases it is helpful for teachers and students to understand the purpose of active learning in developing critical thinking. However, despite difficulties, which are often transient, growing independence in learning is essential for critical thinking skills and equipping learners for professional life outside of the classroom (Barnett, 1997; Pithers & Soden, 2000; Casner-Lotto & Barrington, 2006; Archer & Davison, 2008).

3. Conditions to develop collaborative learning

Developing independence in learning is a vital skill for life in, and outside of the classroom and for being able to work in a group. What active learning does is create conditions in which students can develop collaborative learning skills as well as independent ones. Developing both kinds of skills means that learners can be flexible, resourceful and use either as required (Gokhale, 1995; Brookfield & Preskill, 1999; Browne & Freeman, 2000; Robson, 2006).

Active learning strategies, such as group presentations and projects, do particularly well in helping students to develop collaborative skills by encouraging group members to listen to each other, respect each contribution and allow each other time and space to consider options. Members learn to use their different experiences and knowledge to make critical comparisons and connections between their knowledge and that of others, and begin to realize that collaboration can sometimes achieve much more than one person's thinking alone (Brookfield & Preskill, 1999).

Collaboration can be addictive for those who crave the chance to be heard, and once members feel some sense of success, they are often keen for more. Collaboration is not easy and some say true collaboration is rare. However, with attention paid to keeping everyone involved, sharing, 'haggling' and mutual compromise, students can learn the value of respecting other views, pursuing a common goal above self-interest and taking part in discussion rather than pursuing an absolute solution (Brookfield & Preskill, 1999).

During active learning, students may also learn when it is appropriate to exhibit healthy dependency on others for success, and begin to experience what it is to learn from each other. Over time, students may also build tolerances to complexity, ambiguity and differences in others as well as developing team work and communication skills (Brookfield & Preskill, 1999).

4. Allowing discussion and discourse

Discussion and discourse thrive in smaller groups, as these present fewer logistical difficulties and can lessen participant anxieties. Like critical thinking, discourse is also often misconstrued negatively as argument. However, true discourse is crucial in developing critical thinking skills and dispositions as it offers unique learning opportunities (Brookfield & Preskill, 1999). These authors call good discourse 'democratic' as it offers students opportunities to develop particular dispositions:

- Receptivity to new ideas and willingness to question the old
- Mindfulness of the group and the mutual development of its members
- Humility to recognize the limits of one's own learning and learn from others
- Entering discussion with the purpose of modifying outcome or opinion
- Appreciation for contributions of others
- Hope of reaching a new understanding
- The ability to grow individually and within the group, yet have the strength and resolve to hold an opinion within the flux of this growth

(Brookfield & Preskill, 1999)

Such dispositions can be difficult to encourage, especially if they represent changes from the traditional norm. They are, however, highly valued for developing critical thinking. A teacher's role in processes of discussion and discourse is, again, not just to be knowledgeable but to participate, and students become aware that the teacher's position is not to answer questions, repair silences, or solve arguments. Rather, the teacher manages discussion by subtle verbal and non-verbal cues and allows justification and logic to be pursued, views broadened and assumptions challenged (Brookfield & Preskill, 1999).

5. Conditions that allow for individual learning needs

What active learning strategies in small groups also allow is the ability (via smaller numbers and close contact) to recognize and take into account students' individual needs. This insight is especially pertinent when students find active learning strategies challenging or new. Student needs may include:

- issues with group process
- cultural barriers to participation
- interpersonal issues developing between students or teacher
- persistent limited learning approaches
- unwillingness to develop collaboration skills
- selfishness or immaturity

(Brookfield & Preskill, 1999)

Student needs are important to consider on an ongoing basis as they may all present barriers to participation and therefore critical thinking development. Active learning strategies can more easily permit attempts to remedy or minimize problems by closely monitoring the individual, consulting with them and being flexible enough to adjust teaching strategies appropriately (Barr & Tagg, 1995; Biggs, 1999; Laurillard, 2002; Moon, 2009).

Students are all different, and to develop good thinking skills they need to be supported by attentive teachers who appreciate these differences and have time to

observe them in action. Attending to difficulties gives a student opportunity to overcome them, but also encourages them to build on skills and become equipped for new challenges. A learner so equipped becomes an independent, self-sufficient individual with increased confidence (Postman & Weingartner, 1969; Biggs, 1999).

6. Creating a good atmosphere

Group learning strategies need a good overall atmosphere to function well and optimize processes. Students need an atmosphere that encourages and supports them to take part in discourse and disclose personal beliefs. However, difficulties can arise if students are shy or when a student's past experience of learning environment is highly competitive. Competitive learners might be selfish, see little value in group participation and present barriers to developing critical thinking. Teachers, too, find creating the right atmosphere difficult if they believe teaching is about their own knowledge or they feel insecure about being questioned. (Brewer, 1985; Barr & Tagg, 1995; Biggs, 1999; Biggs, 2001; Moon, 2009).

A good atmosphere is therefore one that strikes a balance between open and frank discourse without significantly endangering the feelings of the participants. This atmosphere is tolerant, supportive and encourages risk taking and questioning. Such an atmosphere also enables learners to expose and discuss mistakes, erroneous thinking and knowledge, without fear, and enable them to learn from that experience. These environments are ones in which skills of participation, respectful and careful contributions are valued in the development of knowledge and skills (Biggs, 1999; Moon, 2008).

A teacher's role in all this is to manage behaviour and communicate clear expectations of standards. These standards may eventually become the responsibility of the entire group and groups begin to develop a sense of both responsibility and independence (Brookfield & Preskill, 1999).

7. Modeling

Teachers who model behaviours that they expect to see in class can help break down

barriers to participation, convince skeptical students and clearly indicate their expectations. Breaking down such barriers can in turn help to develop critical thinking processes. The effects that teachers who model behaviours can have on students are vast and such behaviours are thought by many to be crucial in developing critical thinking (hooks, 1994; Brookfield & Preskill, 1999; Browne & Freeman, 2000). Demonstrating behaviours that they wish to enhance begins with the teacher participating in active learning strategies that allow, for example:

- offering encouragement by active inclusion in discussion/discourse
- tailoring discussion toward/against learners according to need
- taking risks in discourse by disclosing personal opinions and knowledge
- active listening, use of silence
- engaging and challenge more confident learners further
- being open to questioning
- exhibiting collaborative knowledge construction

(Brookfield & Preskill, 1999)

Being active participants in discussion and discourse also mean that teachers can be clear about their aims and teaching philosophy. Teachers can be overt about teaching for encouraging critical thinking or conceal processes within teaching strategies. When faced with barriers to establishing an active learning strategy, in addition to modeling expected behaviours, teachers may also find it useful explain to students their purpose and expected learning outcomes (Moon, 2008).

This description of tutorials and active learning for critical thinking development should be accompanied by a reinforcement of one of the overreaching and enduring philosophies of critical thinking. This philosophy is that following rules is anathema to the principles of critical thinking and therefore categories should be regarded as conditions and accompanied by a degree of flexibility and responsiveness when applying them in practice (Barnett, 1997; Biggs, 1999; Robson, 2006; Moon, 2008).

Context of study

The broader context of my study is the critical thinking theories of Western liberal higher education. Practitioners often find the subject difficult to teach and forming a personal vision of critical thinking with which to inform practice difficult. Barnett (1997) believes this lack of consensus and clarity means graduates, in turn are not realizing their potential. He proposes that existing critical thinking concepts are inadequate for the modern world and that his concepts offer a significant and beneficial change to the way we teach and learn. He therefore presents a new theory of critical thinking and it is the purpose of this study to examine Barnett's ideas for relevance in small group work in the health sciences.

Higher education and critical thinking

Outwardly, higher education shows a great commitment to critical thinking development as a valued part of its own purpose (Halx & Reybold, 2005). For example, at the University of Otago:

> The capacity to be a critical thinker; capable of weighing, evaluating, and integrating new information into his or her understanding of issues...the ability and willingness to learn and the appreciation that learning continues throughout life…both within and beyond the health sector.
>
> (Graduate Attributes, abridged, Otago, 2008, p. 1)

Critical thinking is viewed by higher education as a vital capacity for success in the classroom, professional life and society. Candy believes critical thinking is a lifelong tool which equips graduates for life outside of formal learning (Candy, 1995). Kuhn (1999, p. 1) describes developing critical thinkers as higher education's 'unifying promise' and that critical thinking enables people to participate fully and positively as a citizen of a democratic society. Such an education also provides social cohesion of skills and knowledge, between people and across generations, and a possibility that educating the next generation is not simply to transmit knowledge but rather equip them to fend for themselves (Grant, 2002). Our educators know that education is for 'life in all its manifestations' (Whitehead, 1929, p. 198) and that 'they accept a role as

critic and conscience of society' (Education Amendment Act, 1988, section 162).

Despite all this, higher education has, by way of marginalization of those processes which encourage critical thinking, undermined its own narrative. For some, thinking critically is becoming harder, not easier and presents a challenge for even the brightest of students. Concepts are tricky and the rehearsal or practice spaces necessary for critical thinking seem to be increasingly marginalized. Tutorials are often under threat, and accessible non-elitist mass education systems usually lead to increased student numbers without increased teaching resources. Field work, essay writing and small groups may even be edged out of the curriculum. Barnett suggests that despite being paid much lip service, the idea of critical thinking has been marginalized by recent higher education reforms. Because of reform, higher education institutions have returned to more of a technical training ground for industry skills. Teaching for critical thinking becomes harder and graduates are leaving higher education with underdeveloped critical thinking skills (Barr & Tagg, 1995; Barnett, 1997; Smith & Webster, 1997; Halx & Reybold, 2005; Casner-Lotto & Barrington, 2006).

> The essential purpose of the university is to develop the methods of thinking.
>
> (Anderson, 1993, p. 58)

The tutorial

Both Barnett (1997) and Readings (1996) agree that developing critical thinking in our learners is not a simple transaction concluding with bestowing degrees. It is a specialized process that needs spaces, opportunity, skill and time to develop. These feelings are echoed and supported by those teachers who often face the difficulties presented by marginalization. These teachers identify that critical thinking needs particular skills to teach and they actively seek training and continual professional development (HEDC, 2008).

The tutorial group is an optimal and unique site for fostering thinking. Tutorials offer opportunities for discussion, democratic discourse and other active learning strategies as well as opportunities to develop generic communication skills and social or intellectual networks. Tutorials are often used to complement clinical work where

logistics and patient contexts might make teaching and learning difficult. Tutorials remove some of these barriers and enable frank discussion, reflection, engagement with complex topics which all encourage deep learning approaches (Brookfield & Preskill, 1997; Biggs, 1999; Brookfield, 1999; Seabrook, 2003).

Tutorials therefore have a significant role in higher education and are generally held in high regard by teachers. However, small group work does not guarantee that students learn well. Students experience multiple group processes that require skilled management and mean small groups do not always produce critical thinkers. Group processes need to be understood and skills developed for high quality teaching (Paul, 1990). This kind of quality teaching is generally seen as creating conditions that enhance critical thinking, and aims to shift student learning from knowledge towards awareness of its context, to their own thinking processes, subjectivity and objectivity (Moon, 2008).

Tutorials have the advantage of increased student/teacher contact, mindful monitoring of individuals' learning and implementation of active learning strategies. This relationship charges teachers with great responsibility for managing stresses and barriers to learning. Whilst educators and faculty defer to critical thinking as a learning outcome, paradoxically, staff often have no training in it, or no teacher training at all (Grant, 2002; Halx & Reybold, 2005). Lack of training may be damaging and create an environment that actively prevents students engaging in deep learning strategies and critical thinking; students may perceive tutorials as having little value (Haas & Keeley, 1998). Small groups therefore need teachers who are both knowledgeable in critical thinking teaching and skilled and flexible facilitators (Young, 1980).

Conclusion, research aims and structure of thesis

Without a functional critical thinking construct, and practicing it well, higher education might have little or no chance of playing a part in the continued reshaping and rationalization of society with all its attendant problems. Hence a requirement to encourage critical thinking is becoming essential in Western society at the start of the 21st century and it is also being demanded by industry (Education Amendment Act,

1988; Candy, 1995; Tucker, 1996; Barnett, 1997; Facione, 2009).

In my literature review I have introduced five schools of critical thinking conceptions and illustrated why teachers and students find critical thinking concepts so complex. Barnett's reasoning for his own (1997) theories was also described as part of this review.

Barnett makes compelling and detailed arguments for his theory of critical being and my thesis aims to offer a contribution that brings clarity to this theoretical argument. The study examines the nature of critical thinking in practice and how it is experienced by teachers and learners in health science settings. To examine the meaning of Barnett's theory of critical being, his concepts are used as a framework for examining the empirical data.

Evidence is sought on two broad premises of Barnett's theory. The research will firstly examine how critical thinking, critical action and critical being are experienced in group situations in the health sciences by critically examining teachers and learners for whom critical thinking is the cornerstone of their practice. The study will also examine the theory that critical thinking and critical action are necessary conditions for higher order learning, as part of the foundations of a higher education. Evidence will be used to develop a model and form suggestions (at the end of Chapters 3, 4 & 5) that can support students' and teachers' conceptions of critical thinking.

Results from this research will therefore have applications in health science teaching across higher education institutions and clinical teaching environments. I seek to make a useful contribution to the practical understanding of this topic and contribute to critical thinking theory.

The next Chapters will:

- describe the method and methodology of a qualitative investigation of four in-depth case studies in higher education health science small group teaching and offer, by way of inductive analysis the following:

- examine how critical thinking, critical action and critical being were experienced in group situations in health sciences by teachers and learners

- examine Barnett's theory that critical thinking and critical action are necessary conditions for higher order learning as part of the foundations of a higher education

- investigate, using empirical data (in Chapters 3, 4 & 5) whether Barnett's theory of critical being has utility in practical teaching and learning situations, with a data analysis grouped according to components of his theory of critical being

- illustrate the process critical thinking through the development of a model (Chapter 3)

- offer suggestions for teachers and students in higher education who wish to develop critical thinking, critical action and critical being (Chapter 4 & 5)

- summarize and conclude, including future possibilities for research and recommendations for practice.

CHAPTER 2
METHODOLOGY

INTRODUCTION

Chapter 1 examined the concept of critical thinking and introduced the work of Ronald Barnett, whose theory forms a framework for this study. Barnett's reasoning for his potentially emancipatory theory of critical thinking was detailed alongside an examination of the context of this study, the tutorial group in higher education. Chapter 2 describes core components of the research process which broadly seeks to explore the utility of Barnett's critical thinking theory within small group teaching practice.

According to Grix (2002), core elements of any research process are ontology, epistemology, methodology, methods and sources. It is vital that the researcher understand and communicate clearly the inter-relationships between these elements to fully justify their choice of methods, and to provide a transparent and aligned piece of research. This Chapter therefore begins with a description of ontological and epistemological perspectives, and outlines the rationale for research design and methods that have been selected to address guiding questions and research aims. Details of methods include consent process, data collection, analysis, verification and limitations of the study. The purpose of this study is guided by the following research questions and broad research aims:

Guiding questions for research

- how do students and teachers experience critical thinking in small group teaching in the health sciences?
- what do students and teachers do in small groups to enhance critical thinking

processes?

- what relevance does Barnett's theory have to the practice of thinking critically in the group, and what does this look like?

Research aims

- to examine Barnett's theory that critical being is a necessary condition for higher order learning as part of the foundations of a higher education
- to contribute to the higher education research field by developing new theory for critical thinking, critical action and critical being
- to improve critical thinking practice in small groups in the health sciences by developing tools to support teachers' and students' conceptions of critical thinking

Ontology

In qualitative research the position and perspective of the researcher in the research process is vital. The researcher influences the study at an elementary level by their selection of epistemological standpoint and, subsequently, suitably aligned research methods. This influence is maintained throughout initial research initiation, data gathering, data analysis and, in this case, culminating in emergent constructs and models. The effect one has is shaped essentially by ontological perspective; understanding of oneself, experience of and beliefs about the world and our place in it (Merriam, 1998).

My clinical teaching experiences in tertiary health science sectors form the foundations for this research and also it's starting point. From the outset of my career as a small group clinical teacher I felt compelled to provide learners with the means to engage with information sufficiently to become excellent practitioners but also skilled for work and life. I instinctively avoided didactic teaching methods but often felt that resources for alternative teaching techniques were inaccessible. In particular I found literature on teaching and learning, especially critical thinking difficult to understand and its language formidable. At the beginning of my teaching practice I had no

experience in education research, however, I *did* know that critical thinking skills, as I have now discovered are the basis of good practice as a professional and in all walks of life. Clear guidance might have enhanced my practice as a novice teacher and as a critical thinker. Such guidance would have also helped in situations where, for example, I often found myself in environments where more teaching, rather than quality teaching was upheld as the answer to improving student learning and where didactic teaching techniques were the norm. These practices seemed to instill in students a culture that championed the teacher as a fount of all knowledge. I found this incredibly stressful and the air of authority assumed by some clinical teachers distasteful.

It seems irrational that a literature intended, in some part at least, to illuminate the practitioner is mostly difficult to understand and deduce meaning from. These difficulties have contributed significantly to my beliefs that research should be pragmatic, produce something of value to add to current theory yet, first and foremost, be accessible and useful to those in practice. Choosing Ronald Barnett's work as a framework for this research may seem a little odd, given that his socio-philosophical writing is complex and not for everyone (Hilsdon, 2007). However, his proposition offers a theoretical approach to critical thinking which transcends preceding concepts and is intended for students in education and for when they graduate and enter the world of work. In addition, critical being is focused on society's needs and as such, Barnett (1997) believes his theory to have emancipatory potential.

The intention of my research is to investigate Barnett's work for utility in practice settings. His 1997 work, whilst theoretical, aligns with my beliefs and the fundamental point and purpose of my research is to find out what Barnett's theories look like in practice and whether they have any genuine utility. As such I aim to use the research outcomes to guide both teacher and learner in practice situations.

Epistemology

Having established an ontological starting point and context, this methodology moves forward in terms of what I know about knowledge. Philosophical standpoints on theories of knowledge and learning and how we come to know are foundational to

qualitative research, as they determine the selection of research methods. My epistemological perspective aligns with some of the guiding principles of the constructivist paradigm. Constructivism is reliant upon human interactions, and emphasizes the role of culture, experience and circumstance in the creation of one's conditional truth. Reflecting on our own experiences, we *construct* our own understanding of the world, forming our own rules and mental models, which we use to make sense of our experiences. Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences (Carter & Little, 2007).

Methods that allow emergence of ideas from the data fit the constructivist paradigm and they should allow individuals taking part to represent their own meaning. It was the purpose of the research to examine the meaning of critical thinking within teachers' and students' own experiences. Examining emergent data from both perspectives acknowledges the epistemological foundation of construction whilst the analysis recognizes researcher interpretation. The participants' constructs influenced me as the researcher, which in turn influenced the data analysis and emergent theme development.

Research design

This is a qualitative study using an ethnographic approach. The main advantage of qualitative research is that it yields data that provide a particular depth and detail to sociological phenomena. These phenomena are investigated with minimal expectation, which enables the development of in-depth explanation (Lincoln & Guba, 1985; Merriam, 1998; Bowen, 2005). Four in-depth case studies were undertaken to examine student and teacher experiences of critical thinking in naturalistic small group clinical teaching settings. The methodology is inductive and emergent (Conrad, 1982; Thomas, 2006; Carter & Little, 2007) and in line with the constructivist epistemology. The influences upon method selection (participant/researcher relationship, quality of data collection) were as follows:

Participant/researcher relationship

This inquiry into critical thinking took into account cultural contexts of the social situation and was essentially ethnographic. It was acknowledged that the researcher was an active participant in data gathering; teachers' and students' responses guided the researcher's questions and provided direction for inquiry and construction of knowledge. The researcher's own experience was openly discussed with all participants and examples from my own practice were used in discussions to enhance participants to construct their own meaning.

Quality of data collection

Within the tradition of ethnography, the case study approach and multiple forms of data gathering allowed the researcher to have confidence in the analysis of complex ideas and allow emergent theory from this inquiry. The use of case study has many advantages:

- allows investigation of specific events but opportunity to illuminate general problems by broadening the study to include different disciplines/groups
- allows the researcher's epistemology to interpret data
- illustrates multiple factors contributing to a group situation
- shows the influence of personality, culture and emotion on group situations
- allows rich and vivid descriptions to present viewpoints from all participants.

(Merriam, 1998)

METHOD

Personal recognition of ontological and epistemological perspectives combined with an inquiry into research methods allowed selection of methods that aligned with my beliefs about knowledge. A substantial part of this study is based on the use of the Interpersonal Process Recall technique (IPR) which was chosen because it allows participants to gain deep insights into their experiences which would be difficult with other methods. IPR entails videotaping participants in naturalistic situations and

replaying the tape to the same group or person. Participants are offered opportunities stop the tape at any point to reflect, comment and discuss what they see with each other (if in a group) or the researcher. These comments are digitally recorded and later transcribed for analysis.

The use of IPR is fundamental to this research and has many advantages. As its name suggests it is interpersonal interactions that are the focus of this technique, as well as personal thinking. IPR is rarely used but it is a technique which is valued because it allows both researcher and participant to gain knowledge about underlying thought and feeling in human interactions. IPR also gives participants opportunities to recall cognitive and emotional aspects of the teaching/learning situation and assist them in making their thoughts explicit in discussion (Kagan, et al, 1969; Lyle, 2003). IPR also offers participants both time and opportunity to reflect on experiences which are not usually available in the moment itself (Laurillard, 2002) and the benefit of hindsight to reflect on actions and responses which enhances descriptions (Merriam, 1998). Logistically this technique is ideal for the small group, as long as time is taken to ensure that all group members feature in video shots, that all participants can see replayed footage easily and are sure how to ask the researcher to stop the tape.

Construction of knowledge by reflective dialogue in this manner is an excellent source of data in regards to personal constructs, beliefs and also at focuses the inquiry in a particular context. Due to its reflective components, IPR is seen as a critical process and thus an excellent tool with which to examine critical thinking (Powell, 2005). This study used this technique with both teachers and groups of students. In summary, this study entails the following:

- four health science teachers from different health science fields were interviewed with an open ended/unstructured questioning technique
- four of their teaching groups were videoed in naturalistic settings
- each of the four teaching groups were played their videotape in an interpersonal process recall (IPR) session and the students responses recorded
- each of the four teachers were played their videotape in an interpersonal process recall (IPR) session and the teachers responses recorded

The following is a description of the empirical stages of research alongside particular methodological influences.

Participant Selection

Four teacher participants in this study were purposively selected in three different health science disciplines. Three were undergraduate group teachers and one postgraduate. Teachers were approached by email, sent the research proposal as a guide to the study and given time to consider their own participation, and in relation to selecting an appropriate group of students that would, in theory, be willing to take part in subsequent research stages. Purposive sampling is a commonly used strategy with the rationale to ensure teachers had critical thinking teaching objectives, and that both teachers and students had prior experience of small group teaching in the clinical environment. Using teachers known to the researcher also enabled access to naturalistic settings and meaningful exploration of knowledge and experiences due to existing professional relationships. Additionally participants are likely to be interested in research, and be self-reflective in regards to their contributions. Their participation and contribution can therefore be seen as a form of empowerment and part of their learning and professional formation (Kitzinger, 1995; Merriam, 1998).

Having consented to the study, one teacher expressed concerns that they would be unable to 'perform' on the day, especially in the interview. The nature of this emergent qualitative study was reiterated with emphasis on the teacher's experiences and that being well-versed in critical thinking literature was not a selection criterion. Two of the teachers asked for readings on the topic, and general advice on literature searches was given with the intention that the researcher should not suggest a particular author or construct which could begin to influence a teacher's beliefs or practice. It was seen as essential for this study that the teachers were observed in a naturalistic situation and not one construed by theory (as described by Wolcott, 1993).

Students in the teaching groups (10-17 participants) were approached by their teachers following the teacher's decision to proceed. The research proposal was brought to the group, discussed, and verbal consent gained by the teacher prior to data

collection on the premise that the whole group needed to consent for the research to take place. Written consent is described in the next section.

Consent process and Ethical considerations

All teachers and their students completed a consent process before they became participants, based on the need for consent of the four complete student groups in addition to the teacher. Being familiar with the student groups, teachers were able to adequately discuss research objectives with the students prior to data collection, thus securing with reasonable confidence an assurance that students would consent to all stages of data collection. Therefore written consents were obtained on the day of video taping, preceded by a brief group discussion of objectives, and followed by an additional opportunity to ask questions. The students were given the following options verbally prior to video sessions:

- to take part in the study in its entirety
- to agree to be videotaped and not take part in the study or
- refuse permission to take part or be videotaped, in which case a new group would have been selected and the process begun again.

All students and teachers were given information sheets and signed their forms directly prior to the first data collection stage as appropriate. There were no problems obtaining consent and it was reiterated throughout that all participants were free to withdraw at any time during the process. The following considerations were also made in regard to academic and emotional aspects of the research:

- it was made clear to teacher participants that an open ended interview technique would be used and that exploratory questions would be asked, in response to the teacher's perceptions and descriptions
- it was also made clear that teachers would be free to leave any question unanswered if desired
- teacher and students were not be present for the other's IPR video replay, thus minimizing the possibility of unequal relationships influencing what was said

- it was stressed teachers and students would be free to leave any question or comment unanswered if desired in the video replay stages.

See Appendix A: Ethics Consent forms and

Appendix B: Information Sheets for Participants.

Confidentiality

Confidentiality for the participants of this research was maintained by the following means:

- Data cassettes, paper transcripts, consent forms and data analysis documents were kept in a locked filing cabinet at the Higher Education Development Centre at the University of Otago.
- Digitised recordings, electronic transcripts and data analysis documents were kept in a password protected computer.
- Interview transcripts and data analysis documents were identified by colour code referring only to discipline.
- No names of students or teachers were used in this thesis and pseudonyms were consistently used for quotes, descriptions and analysis documents and in the subsequent results, analysis and discussion Chapters.

Data Collection

The empirical research had four stages:

1. four health science teachers interviewed separately via open ended/unstructured questioning
2. four teaching groups videoed in naturalistic settings
3. same four teaching groups went through an interpersonal process recall (IPR) session with students only
4. same four teachers went through an interpersonal process recall (IPR) session without students

Finally, I maintained field notes throughout the study. The next section describes the data collection process.

Teacher interview

Teacher interviews (45-60mins) were active, exploratory and open structured, preceded by a brief recap of study purpose, consent, and questions with the aim of refocusing the interviewee. An open ended interview technique was used, with a few basic questions prepared which formed a guide with which to open the interview. The open structure allowed questions to develop further, diverge to new topics and thus be guided by the respondent's ideas. The broad areas for interview were initially taken from the literature review and the primary researcher's understanding of critical thinking, but the discussion also developed alongside both the researchers and teachers thinking about the topic (Merriam, 1998; Holstein & Gubrium, 2004).

Teaching group video

Using the above teachers, four different tutorial groups were recorded on video (shortest 45 minutes, longest 1.5 hours) in naturalistic teaching situations. Two of the groups discussed essays, one was a semi-structured clinical case tutorial and the other consisted of a small anatomy recap and a hands-on discussion/clinical examination using the students as models. It was necessary for the researcher to be present in the class to ensure students were consistently sighted in the footage and therefore optimize responses in the subsequent IPR stages (described in the next section). An ethnographic approach to qualitative research requires a recording which is an authentic as possible (Penn-Edwards, 2004), which I believe was optimised in this case as the researcher remained silent and unobtrusive during the recording and after a few minutes class members seemed to forget I was there.

Interpersonal Process Recall (IPR) by students

The videotape recording of each student group was played back to them directly after the teaching sessions. Students were given instructions to watch the tape and stop it at

any point that evoked feelings or thoughts about the teaching, thinking or learning process. The students were encouraged to discuss interactions amongst other members of the group as well as their own contributions. Their responses were recorded and transcribed verbatim following the session.

To illustrate what was required and how it would work, the researcher stopped the video and initiated a discussion at a point of interest. Students then understood the process and were able to stop the tape (or ask to stop it) in response to thoughts and feelings elicited by the playback. Discussion was generated between members of the group and with the researcher. In most cases only 15 minutes total (approx.) video running time was required to initiate discussions which lasted up to one hour. When questions were required to keep the discussion going or gain further information, an open ended questioning technique was used, similar to that used in the teacher interviews in order that opportunities for self reflection and mutual construction of knowledge were optimised.

Interpersonal Process Recall (IPR) by teachers

A similar IPR session was undertaken by each of the teachers in the study. Teachers' responses to their own teaching sessions were also recorded and transcribed verbatim. This session took place at a time convenient to the teachers, rather than after class. This is because it was assumed that teachers might be a little more focused than the students, and find it easier to recall their processes at a later date. However, it was useful to have previously investigated teachers' conceptions of critical thinking in interviews as this enabled the teacher's responses to quickly develop in depth as many meanings were already clear to them.

Throughout all IPR sessions a set of field notes were maintained, which I found useful as they provided a longitudinal prolonged engagement with the conceptions of all the groups (as described by Cashwell, 1994) and useful reflections on personal experiences. Field notes were used in the data analysis to aid in the identification of emergent themes and provided an element of triangulation between video footage, transcripts and field notes (Padgett, 1998). The notes also acted as a record of interesting processes in the sessions that were pursued later.

Data analysis

Interview and IPR transcripts

Data from interviews and IPR recordings were transcribed verbatim (total 12 manuscripts). Manuscripts were analysed using inductive analysis, with themes arising from the data itself. Data were reduced by identifying similar themes and by constant comparison placing under thematic codes in a roughly three step process. Thematic codes emerged gradually as a result of becoming familiar with the data, making logical associations between the data sets of interview questions and IPR responses, and comparison with the literature review and Barnett's framing text. Between each stage, the data themes shifted from low levels of abstraction to higher levels of major overreaching themes rooted in the concrete thematic content of the data (Halx & Reybold, 2005).

Categorising data and developing its themes has the intention of abstraction by which its meanings are communicated and illustrated by the use of models or metaphor. Although qualitative case study analysis provides a depth of inquiry and description of particular contexts, the use of analogy when discussing results may also provide a certain amount of transferability and reliability (Merriam, 1998). That teachers and students might be able to directly use the research outcomes to inform their practice is important, as the intention of the study is to contribute to the understanding of the field, provide a platform for rethinking critical thinking concepts, and provide teachers and students with practical models for enhancing their understanding of critical thinking processes. The models and figures described in Chapters 3, 4 and 5 may be used by students and teachers to inform their own beliefs and enhance understanding of this topic.

From the developing themes a critical discussion was developed within the framework of Barnett's theory of critical being and critical thinking literature. This discussion forms the bodies of Chapter 3, 4 and 5 and are titled according to Barnett's overreaching philosophical framework; critical thinking, critical action and critical being.

Video footage/rationale

The video footage had two main functions:

- as a stimulus for the interpersonal process recall sessions and
- to substantiate and elaborate on thematic development from the transcripts

To analyze the video footage completely is beyond the scope of this study. However the video footage was used in particular to examine critical actions (as described by Barnett) first hand and also to compare to information with teacher interviews and teacher/student IPRs. Examining footage provided insight in regards to action versus intentions with added components of body language, inflection and non-verbal clues.

Data verification

No formal data verification was undertaken by participants although they were given verbal opportunities to do so in addition to the formal invitation to review video and transcripts given on the Ethics Consent form and Information Form for Participants (see appendices A & B). Thematic development was initially undertaken with supervision from the primary research supervisor who provided assistance with development and a form of verification via discussion of final categories.

Limitations of study

There are a number of limitations with a study of this kind. The possibility of interviewer and interviewee bias should first be considered. Teacher participants were purposively selected, however they were only slightly known to the researcher. It is possible that interest in the study and growing interest in the topic could exist alongside wanting to 'say the right thing' and present in the teachers' interview and IPR data. It was seen as vital to examine the respondents' concepts, emotions and thoughts in a mutually constructive and respectful atmosphere, without the researcher adopting the role of knowledgeable teacher. Efforts were made to ensure conversation was maintained in a collegial and approachable manner and no attempt was made to

describe concepts of critical thinking from the literature unless they were brought into the conversation by the participant (Cashwell, 1994). Having already met with the teachers for the interviews meant elements of trust had already developed between researcher and teacher and rapport was already well established. Confidence in the relationship enabled, in particular, the examination of emotional elements and aspects of both the researcher's and participants' teacher practice without fear of judgment. Subsequent to the empirical stages of this research, two teachers expressed interest in using their video footage as a part of peer review and self review processes, which indicated high levels of confidence in the equitable and naturalistic relationship between teacher and researcher enabling quality teaching processes.

Another limitation to consider is that students might also describe situations in a positive light thinking the researcher may reveal the details to the teacher. However there were plenty of instances in which negative situations were described in detail, so in reality, that students were biased in what they said seems doubtful. Every opportunity was taken to approach participants in a collegial fashion (rather than authoritative or knowledgeable) and stress the emergent nature of the research. There is a slight possibility that participants may have 'reordered' their thoughts prior to the IPR process and changed their account of events, but this is difficult to assess in practice (Lyle, 2003).

There was one unexpected issue raised by the use of video recording. Some student participants were particularly self-conscious and voiced concerns about seeing and hearing themselves on the tape. During both teachers' and students' IPR sessions most groups described initial trepidations but all unanimously seemed to capitulate and relax just minutes into the sessions. Following data collection, two teachers even remarked on the normality of the groups and success of teaching and learning processes, despite my presence. Such perceptions of data collection processes are important. If participants understand the process (including the research process in general, one may assume) as useful and productive, this influences their participation and therefore quality of the data produced. However, despite their initial trepidations, I believe the students' and teachers' positive attitude to this research enhanced both depth and breadth of data in multiple ways. In particular, that by participating fully, participants seemed able to discuss personal processes openly with the researcher and

their peers and allowed a substantial data set to be collected during IPR.

Finally, the video recordings also contained long periods of inactivity whilst students read documents, examined each other or where teaching briefly shifted to a didactic style for an anatomy recap. Whilst not intending to pick any process on the tape purposefully, it was necessary to move the tape forward to an interactive point to avoid boredom in the recall, which was a little distracting for the students and defocused them slightly. In the first instance this was solved by simply picking the next 'busy' part of the tape. The next tape was briefly viewed prior to second IPR session and notes made, to avoid having to skip through in the presence of the participants.

Criteria for Judgment

In any research is it important to establish criteria for judgment of the work. This work has its origins in my experiences and frustrations with clinical teaching and also with the vast amount of literature on critical thinking. Such a literature made it hard, especially as a beginner practitioner, to form ideas about critical thinking which would effectively inform my practice. This work should be judged on its clarity and relevance to clinical teaching practice for the teacher and student and whether the resulting commentary on Barnett's theory and any utility found therein seems clear. It has been intensely satisfying to research a topic so close to my experiences and as such I feel this project represents a full and confident realization of my values.

SUMMARY

Methods for this study were selected for their alignment with my ontological and epistemological beliefs and also performed well in the practice situation. During data collection there were minimal insurmountable obstacles and where difficulties arose simple solutions were found with no compromise necessary. When pursuing solutions to problems, however small, I was reminded of my ontological and epistemological stance and on analyzing the data I was reassured in regards to my choices. Overall I believe my methods enabled rich data to be obtained. Participants also seemed to gain personally and professionally from the experience, as did I, and we all seemed to take

pride and ownership of our contributions.

In the next three Chapters, transcribed data from interviews and IPR sessions are analyzed and developed in terms of overreaching themes in relation to critical thinking. In addition video footage and field notes add an extra dimension to the analysis. Chapters are titled in accordance with the research questions arising from the analysis of Ronald Barnett's theory of critical thinking, critical action and critical being. These Chapters contain sections in which themes are developed in terms of the meaning of critical thinking, action and being to students and teachers and its implications for critical thinking pedagogy.

Data is presented by the use of quotes and an indication of its origin (interview, student/teacher IPR, field notes, or video footage). The teachers' data is presented by the use of pseudonyms (Deirdre, Denise, Miles and Patrick) and course/program detail and professions are omitted from the text and indicated [X]. Data from students in teaching groups are described by group number:

Group 1 = Deirdre's Group
Group 2 = Denise's Group
Group 3 = Miles' Group
Group 4 = Patrick's Group

When appropriate, source (IPR etc.) is included with group number/teacher and if there is dialogue between more than one student in any quote, pseudonyms are used to differentiate between students.

In summary, this thesis contains:

- an examination of how critical thinking is experienced in group situations in the health sciences by both teachers and learners

- an examination of Barnett's theory that critical thinking and critical action are necessary conditions for higher order learning as part of the foundations of a higher education.

- an investigation using empirical data into whether Barnett's theory of critical being is realistic in practical situations

- description of a tool developed from the critical analysis, that supports both teachers' and students' conceptions of critical thinking

- summary and conclusion with regards to future possibilities for research and applications.

CHAPTER 3
CRITICAL THINKING

Barnett on Critical Thinking

Barnett (1997) presents his concepts of critical thinking as an educational ideal. In particular, that critical thinking is the basis of higher order learning and thus represents what is 'higher' about a higher education. In other words critical thinking is what the university represents and needs to achieve through its research and teaching. Barnett argues that at present we do not have a proper account of critical thinking in terms of student learning and the outcomes of a higher education. He suggests that critical thinking should be emancipatory in nature and both educationally and socially radical. What Barnett argues is that those who work in higher education need to think about the concept in new ways because we can produce clever graduates capable of critical thinking in the knowledge domain, but who are not so capable in critically thinking about their own lives and how they influence and contribute to society.

ABSTRACT This Chapter examines how students in this study experienced critical thinking. In addition, Barnett's concept of critical thinking is examined with respect to its relevance as a theory that has utility for teachers and students. As such, the Chapter aims to contribute to a theory of critical thinking. Data used in this argument comes from interviews, IPR, videos and field notes, reflects the views of students and teachers and is illustrated by the use of a model at the end of the analysis. Themes developed included Decision to engage critically, Initial evaluation of tasks, Circumstances of inquiry, Deciding when to stop and Development of critical thinking strategies. The key findings showed that critical thinking was developed as students gained autonomy in their thinking. Students were able to separate self from peers and teachers, as sources of knowledge and in deciding how to go about their work (developed autonomy). Students could choose whether or not to be critical

thinkers and, when they did so, formulated strategies for learning. This process was related to the student's own beliefs about success in learning such as passing the paper. Students also developed critical thinking in relation to ideas about what they were prepared to risk and sacrifice, such as forming relationships with friends and losing enjoyment in learning. They selected one work strategy over another and this phenomenon was influenced by these beliefs, past experiences and a sense of what was reasonable. They were also able to change their thinking in response to other group members; this is discussed further in Chapter 4 (on critical action). Data were congruent with Barnett's theory of critical thinking although his work does not take into account that students make careful decisions about how to go about their work and it is proposed that such purposeful learning strategies might not, in the long run, result in any form of higher order learning. Whilst it was unclear what ultimately influenced students' choices, it is also proposed that critical thinking serves to prepare them for further group interactions such as tutorials and group work. For teachers and students in higher education these results have implications. For example, if autonomy is important for developing critical thinking, teachers need to think carefully about how to teach for autonomy. Learners too need to think carefully about how they approach their learning and perhaps in the process make compromises that may feel uncertain at first but may prepare them to further develop their thinking.

INTRODUCTION

Chapter 1 introduced critical thinking concepts which, in their many forms have been around for centuries. This complex literature, it is argued, has led to students and teachers having difficulties putting critical thinking ideas into practice (Facione, 1990). These difficulties have become increasingly pertinent because whilst we inhabit times of ingenuity and creativity, our societies also face unprecedented uncertainty and complexity (Paul, 1990; Barnett, 1997; Hargreaves, 2002).

To cope with such times, and to respond appropriately, it is argued that higher education needs to produce critical thinkers. If we are to do so, teachers and students need guidance that is easy to interpret and concepts that are useful in practice. In his work (that frames this thesis) 'Higher Education: A Critical Business' (1997) Barnett suggests that difficulties in practice also arise from critical thinking concepts that have

little utility in such times.

Teachers and learners face further complexities. Higher education is asked to respond to economic and social conditions of the 21st century by increasing student numbers, at the same time as educating for critical thinking (Ramsden, 1992). In particular the drive towards mass higher education has meant large scale teaching strategies have had to increase. Mass lectures coexist with other, more expensive forms of teaching, such as small groups and tutorials, which are important sites for the development of critical thinking (Barnett, 1997).

In this Chapter I examine the data for what it meant to be a critical thinker and how students and teachers made sense of these experiences. Barnett's (1997) theories are also examined for utility in this practice situation. This study seeks to add to concepts by using an analysis developed from IPRs, interviews, field notes and video tapes. In particular I examine what critical thinking actually looks like in practice situations where teachers purposefully try to develop it. The five key themes were:

Theme 1 Decision to engage critically This section discusses why and how students decided to think critically about their learning.

Theme 2 Initial evaluation of task This section describes how students began to think about the task ahead.

Theme 3 Circumstances of inquiry (including personal beliefs about success, taking risks, critical sacrifices, influences of peers and teachers). This theme describes how students considered personal factors when thinking critically and briefly introduces the idea that teachers and peers, via critical actions had the potential for influencing a student's thinking (this phenomenon is described in detail in Chapter 4, on critical action).

Theme 4 Deciding when to stop This section discusses how and why students decided when to stop thinking about a task and began to put their ideas into action.

Theme 5 Development of critical thinking strategies This final theme describes strategies students in this study decided to undertake in learning and how they were different in terms of what a student might have learned from them.

All themes are central to the idea of critical thinking in groups and throughout this

Chapter they are explored to gain insight into what critical thinking might look like in practice. Alongside results and discussion, Barnett's (1997) concepts and other ideas from the critical thinking literature are discussed. These themes are followed by a model illustrating the critical thinking process. I then conclude with implications for teachers and students in higher education and critical thinking theory.

> …only by wrestling with the conditions of the problem at hand, seeking and finding his own way out, does [the student] think.
>
> (Dewey, 1916, p. 188)

RESULTS AND DISCUSSION

Five themes on critical thinking emerged from this study:

1. Decision to engage critically
2. Initial evaluation of task
3. Circumstances of inquiry
4. Deciding when to stop
5. Development of critical thinking strategies

Theme 1 Decision to engage critically

This first theme discusses why and how students decided to think critically about their learning. Data suggested that thinking critically was a purposeful decision and one that set critical thinkers apart from peers who might have decided not to think critically, for example who just went with the flow or copied another's ideas. Barnaby (Group 3) showed how he decided to think critically about his work. His decision seemed to emerge from his description of the overwhelming nature of his learning experiences:

> We have all this information chucked at us, and it's like …oh my god, there goes six months of study just for that...how much of that do we need to know?...no-one tells you that. How much is too much? How much is not enough? No-one seems to know.

As well as acknowledging his experiences, Barnaby followed his rhetorical questioning that someone should 'tell' him what to do with evidence that he knew how to cope:

> I think most of us do know what we need to do…the bridge between knowing what to do, making yourself do it…
>
> (Barnaby, Group 3, IPR)

Some students were ready to think carefully about their work, in Barnaby's case an essay. That these students thought carefully looks like what Barnett (1997) means by critical thinkers not being passive and that critical thinking is purposeful. Students resisted the urge to look to others to solve their problems and instead formulated their own work strategies. Facione (1990) and Paul (1990; 1993) agree with Barnett, suggesting the ability to actively engage thinking is what sets critical thinkers apart from 'aimless' thinkers who might come across solutions by chance, habit or simply follow the example of others. Halpern (1999) also agrees, suggesting a decision to engage in critical thinking is positively influenced by our attitude. Barnaby's comment 'making yourself do it' suggested that engaging in critical thinking was indeed deliberate and required effort. Another student described the potential to get 'stuck' (not think critically) about the task:

> Like if you can't get past the statement [essay question], then you kind of just did something more broad….
>
> (Charles, Group 1, IPR)

Barnaby identified what needed to be done and that this required a degree of reasoning, as did Lewis:

> You're not going to find just one paper that says 'this is it'. It's going to be...a bit along this line, a bit of this, with something else as well...
>
> (Lewis, Group 3, IPR)

Developing autonomy

Developing critical thinking does not appear to end with deciding to engage in critical thinking. Students' comments suggested the critical thinking process was one which also entailed developing a relationship in which they were 'separated' from peers and, importantly, teachers (authority figures). This separation meant that students didn't rely on either peers or teachers for how they went about their work and also felt able to question them about their knowledge:

> Listening to the others there were so many other ways I could have done it, but, like, I didn't. I like the way I did it.
>
> (Amy, Group 1, IPR)

One teacher had obviously made the expectation clear that students develop their own ideas:

> We're told to have an opinion, so we're making an opinion. We're going out there to get it.
>
> (Amy, Group 1, IPR)

Data also suggested that students who thought critically about their work (e.g. an essay) were also influenced by their teachers and peers, using discussions to fine tune their thinking (this idea is introduced in Theme 3 and described in detail in Chapter 4), but students were clear that they hadn't copied ideas but formulated them independently:

> You have your one way of thinking and it [listening to ideas] makes you realize that everyone, nobody thinks the same as you.
>
> (Amy, Group 1, IPR)

It is suggested that this change in relationships with teachers and peers showed students developing autonomy. There have been many definitions of autonomy. Autonomy can be described as a capacity to be an individual agent not governed by others (Boud, 1981) or as a willingness to respond to challenges by being proactive,

making, justifying and acting on independent judgments (Moon, 2008). Barnett (1997) links autonomy to 'metacritical abilities' in the domain of knowledge, in other words the ability to be critical of one's own knowledge. However, that students showed autonomy and an awareness of their own critical abilities suggests autonomy was a key factor in developing critical thinking. Gibbs said that:

> An autonomous individual must have both independence from external authority and mastery of himself and his powers…He must have the freedom to act and work as he chooses...

> (Gibbs, 1979, p. 119)

Gibbs suggests that autonomy not only entails certain competencies and being able to work alone, but that autonomy comes about by realizing independence from authority figures. Such independence was seen as students began to change the way they viewed teachers as knowledge sources:

> It's just his opinion, right?

> (Sam, Group 3, IPR)

Sam went on to say:

> …because he's giving his opinion, really, isn't he? You're more likely to remember that [how to come to your own diagnosis] than call him a guru or something, a king of all knowledge.

> (Sam, Group 3, IPR)

This quote suggested that Sam realized that his thinking was changed when he no longer regarded his teacher as an authority figure but instead formulated his own ideas. The idea that developing autonomy and separation from teachers is essential for critical thinking to develop can be seen even as far back as the work of Socrates (in Shen, 2001) and it is on this basis that participatory learning strategies such as active learning and small groups seek to dissuade students from relying on teachers (Brookfield & Preskill, 1999). The next sections describe how these changed relationships (autonomy) meant students relied more readily on their own reasoning to make critical choices in learning.

Theme 2 Initial evaluation of task

This Theme describes how students began to think about the task ahead. The tasks were an essay and an evaluation of a patient's clinical case. Students described being set these tasks as:

> disappointing…frustrating...unclear
>
> (Group 4, IPR)

> It's not black and white. You're swinging between perhaps and maybe.
>
> (Ben, Group 3, IPR)

Ben then described how be began to think carefully about the task:

> What is this going to do for me?
>
> (Ben, Group 3, IPR)

Ben seems to have developed what Biggs (1999, p. 13) describes as motivation in learning, a 'need to get there' but this simple statement seemed much more personal. The data showed that these initial evaluation statements were followed by students considering the many influences that determined how they went about their work.

Theme 3 Circumstances of inquiry

This theme describes how students considered personal factors when thinking critically about how to go about their work. I have used Facione's phrase 'circumstances of inquiry' to describe these factors. This term is used in the Delphi Report (1990), incorporated thus: '[critical thinkers are] as persistent in seeking results which are as precise as the subject and circumstances of inquiry permit' (Facione, 1990, p. 3). This phrase describes well how students came to make decisions in learning based on various influences and experiences. The data showed that in considering these experiences, students might not necessarily have always done their 'best' in their work (described in detail in Theme 5). Students reported this

process:

> It's not like maths when you have a formula. You get your answer via a
> process.

<div align="right">(Group 3, IPR)</div>

Facione's words suggest that thinking was shaped by 'circumstances' and 'subject' that may be out of a teacher's (and sometimes a student's) control. In a genuine inquiry that seeks critical thinking, for these students, 'subject' could mean essay or assessment but the data suggested there are other personal considerations that come into play when making decisions about learning. There were four factors that impacted on critical thinking:

- Personal ideas about success
- Taking risks
- Learning sacrifices
- Influences of teachers and peers

These factors were all experienced in various ways, for example, 'success' was found to mean scraping through a program, enjoying learning or academic prowess. The first three categories bulleted above are about personal ideas and experiences and the fourth describes how teachers and peers influence thinking. This fourth section is introduced in this Chapter but expanded in Chapter 4 on critical action.

Personal ideas about success

Personal ideas about success influence student choices in critical thinking. Although ideas about success varied, student responses could be categorized in the following three domains:

Practical, for example:

> Passing the course, can't afford to repeat a year
>
> Getting the essay out of the way, more time for family over the holidays
>
> Giving attention to a more demanding assessment

Emotional, for example:

> Doing a job 'well'
>
> Learning deeply for pleasure
>
> Impressing the teacher
>
> Sticking to the rules, doing it 'right'

Intellectual, for example:

> Learning deeply for intellectual satisfaction
>
> Learning how to research
>
> Communicating a point of view
>
> Doing well/using reflective essay to think about own learning

Figure 4. Conceptions of Success in learning This figure illustrates conceptions of success in learning reported in three domains: practical, emotional and intellectual (Student Groups 1, 2, 3 & 4, IPRs)

Practical, emotional and intellectual ideas about success are likely to be foundational to critical thinking. Also of significance were the very few references to teachers or peers that students made when describing what success meant. One student reported wanting to please the teacher but all others reported 'success' as something else, such as getting the essay out of the way. Teachers and peers did have some influence on students' thinking (described later in this theme) but ideas about success seemed personal and independent of others.

Students also made very few references to success related to factual knowledge. It was surprising to find that high achieving students expressed ideas about success outside of factual knowledge, as I began this study with the assumption that students might bow to historical and cultural ideas that high levels of factual knowledge equal success. Society often regards knowledge, rather than thinking or learning as

corresponding to power, status and kudos (Smith, 2003; Harland & Pickering, 2011).

Taking risks

Students described being overwhelmed at times and having to make choices about their learning. Making choices meant that on occasion students seemed to take risks. What emerged was that risks were also described differently by each student and some, depending on their experiences, seemed more prepared to tolerate risk than others. In some cases risks seemed multiple. Risks were described as follows:

- Risks in learning
- Risks in academic achievement
- Cultural risks
- Personal risks (e.g. relationships)

Some contrasting examples were found in the data. One student:

…just Googled it…

(Marvin, Group 1, IPR)

Marvin risked being criticized for his work lacking depth and originality. However he seemed quite tolerant of this, laughing openly about his choice. Similarly another risked losing enjoyment in learning:

I'm a mature student, eight or nine years older...the others can probably afford to mess about… or enjoy learning a bit more.

(Ivan, Group 3, IPR)

Ivan went on to talk about cramming for exams rather than interacting with colleagues. He risked social relationships that might otherwise have impacted positively on his learning. Another student wrote an essay about breastfeeding, a culturally sensitive topic in her home country but one she described feeling strongly about. Later, her teacher reflected on this:

It stunned me that she'd talk about that …

Deirdre's student risked her teacher not viewing her essay as a critical report and also strong reactions of her peers, especially those who shared her cultural background. The teacher showed her surprise at this student's choice:

…she had taken a risk in doing that, and she said she was worried. But she said it, she didn't walk around the topic… said what she actually thought.

Risks are discussed by Grabinger and Dunlap (1995) in their chapter on Rich Environments for Active Learning (REALs) in which they describe encouraging students to take risks (move out of comfort zones) as a means to discover new learning experiences. In this study, students seemed well supported by teachers in discussing and bringing their ideas to groups: on the video tape it was hard to find any derogatory behaviour (e.g. judgmental comments or derision) by teachers or peers in reference to what students brought to group. In fact one student clearly said:

Being a smaller group……you try whatever you want and you don't think twice before asking a question thinking you might sound silly here.

(Libby, Group 3, IPR)

In contrast, Group 3 also described how a different teacher made taking risks or making mistakes difficult by the way they reacted:

For [X] my tutor doesn't make jokes or anything and if you say something stupid then she'll just look at you as if, why did you ask that, [I am] really serious…

(Parcy, Group 3, IPR)

Teachers and some students reported that they put effort and thought into allowing group members to make mistakes and learn from this experience. Students were more

or less prepared to take risks when choosing how to go about their work and it is suggested that students who critically think needed to take, and tolerate, a certain amount of risk.

Learning sacrifices

This section describes how students, in thinking critically, also thought about what they were more or less prepared to sacrifice in learning. This category differs to risks where outcomes were more or less uncertain. In this category, sacrifices were things that 'definitely had to go'. I present two contrasting examples from students in the same discussion:

> I can't afford to miss out on an exam…

> (Ivan, Group 3, IPR)

By contrast:

> I'd rather have a good time learning it, if you know what I mean…..I like to enjoy learning. Cramming for exams wasn't much fun……I wouldn't learn just to pass an exam.

> (Barrie, Group 3, IPR)

Ivan described financial pressures. He could not afford to fail exams and was prepared to sacrifice enjoyment in learning by cramming. In contrast Barrie exhibited a willingness to sacrifice good marks to enjoy his learning more. It is hard to say without following students further what kind of learning experience Ivan or Barrie actually had, but data suggested students made choices that sometimes resulted in missing out.

The theme of Circumstances of inquiry (ideas about success, taking risks and learning sacrifices) showed that students made choices based on their experiences in learning. Whilst in the last two cases it was difficult to find literature related to these phenomena, these factors did seem to play a large part in critical thinking and the choices students made. The fourth category is the influences of teachers and peers.

Influences of teachers and peers

Students were keen to bring their ideas to tutorial groups. Having begun to view both knowledge and peers differently, and having developed autonomy, they also saw group interactions as possible sources of learning about their thinking. They seemed prepared to be further influenced by what teachers and peers brought to the group. Rather than using groups as places to display personal knowledge or play out unequal patterns of communication often seen in wider society (Brookfield & Preskill, 1999), these teachers and students worked together to create a culture in which independent thinking was required and valued, yet change also expected and encouraged:

I'm there just to develop things in them.

(Deirdre, IPR)

…but then Deirdre is good at saying 'I don't know'…and that we make mistakes all the time, it's kind of real.

(Group 3, IPR)

Deirdre reported that 'developing things' in students was the point of her group work and according to her students, obviously modeled this to them. That students and teachers used each other to change and refine thinking could be clearly seen in the data. For example, one student (Group 3, video tape) was so encouraged by group discussions that he changed his thinking and voiced his decision to pursue one particular aspect of learning more deeply.

However, these kinds of group interactions can be difficult, and questioning is often reluctantly undertaken by both teachers and students, especially relating to what is seen as established factual knowledge (Barnett, 1997; Brookfield & Preskill, 1999). Therefore critical thinkers worked hard to develop their thinking and groups invested some effort in establishing a culture in which group members felt able to challenge others and in turn reassess or change their thinking:

Researcher: do you think the group is supportive of your changing opinion or saying something not quite right?

Student: Oooh, they're supportive, yeah....it just feels like normal, what happens in the group.

<div align="right">(Group 1, IPR)</div>

Barnett (1997) comments that critical thinkers think 'in the company of others' and that critical actions 'supply the possibility of learning' (p. 12). Small groups are ideal for challenging and developing thinking through active learning strategies (e.g. discussion). Such strategies expose students to new ideas and knowledge as well as allow students to examine erroneous thinking and enhance thinking in the light of such experiences (Biggs, 1999; Brookfield & Preskill, 1999). The influences of both teachers and peers were obviously significant, as was the thinking that students themselves brought to the group. Therefore it could be said that critical thinking is both essential for, and preparation for critical action. The nature of these interactions and how teachers and students create conditions to change thinking are discussed further in Chapter 4.

The data described in these four categories of Circumstances of inquiry (personal ideas about success, taking risks, learning sacrifices and influences of teachers and peers) seems congruent with Barnett's broader concept that critical thinking is independent thinking. These students were able to consider individual beliefs and influences when choosing how to go about their work instead of adopting received ideas (and that success means factual knowledge), or following the example of their peers. Critical thinkers did not just blindly follow authority figures or others but actively and independently considered what is on offer. This kind of thinking is in direct contrast to narrower constructs of critical thinking (e.g. logic and reasoning) which are about seeking 'correct' or finite answers. In practice, these thinkers were instead skilled in both independent thinking as described by Barnett (1997) but also are able to critically consider their thinking as a result of collaboration and discussion (Brookfield & Preskill, 1999). Paul (1990; 1993) and Barnett (1997; 2006) agree that such critical thinking has great potential as it is likely to be reflective, adaptive and

unique; qualities that are needed in an age of uncertainty.

Theme 4 Deciding when to stop

Students clearly described a stage in which they stopped thinking about choices in learning and began to put ideas into action. Deciding when to stop was illustrated nicely by Barnaby who, in the first section (p. 58) outlined the beginnings of the critical thinking process, but also added that:

> I think most of us do know what we need to do…the bridge between knowing what to do, making yourself do it, and knowing when to stop.
>
> (Barnaby, Group 3, IPR)

Students thought carefully about their choices in learning (e.g. about how to approach an essay), changed their thinking during interactions with peers and teachers and fine tuned their decisions. Coming to final decisions took time and much discussion. However, opportunities could arise to continue this process yet further (e.g. conversations, social media, learning resources) outside of class which engenders possibilities that students continue thinking *ad infinitum* in the pursuit of better or more fitting choices. Instead students realized that at some point they needed to put their thinking into action and formulate work strategies. Some students would have taken longer than others; group interactions seemed to lead to reasonably firm decisions for some but also stimulated others into more research or alternative directions. Whilst it is acknowledged that one of the most important spaces for critical thinking is in writing and redrafting written work (Biggs, 1999), knowing when to commit thinking into writing is also vital, especially for projects with time sensitive elements.

Critical thinking should be useful, reasonable (Ennis, 1987) and 'does the job we set for it' (Paul, 1993, p. 21) and students should not pursue critical thinking in the hope of a perfect solution (as would, say, one using a logic concept). Data in the present study suggested critical thinkers had both a sense of personal context and what was reasonable and what influenced their final work strategy. Such students may have had to come to terms with doing a 'good enough' job of thinking (a term used by

Winnicott, 1971). Kate commented, with what I interpreted as a resigned air:

> [I feel] OK…..normal, because it is what I have done and I just try to present what I think.
>
> (Kate, Group 1, IPR)

Students who thought critically were able to judge when it was appropriate to think critically, a judgment which is in contrast to some concepts of critical thinking which describe such thinking as a simple and finite process (e.g. Cottrell, 2005, Jones & Brown, 1991). Critical thinkers not only purposefully engaged in critical thinking when called for but gauged 'how much' was appropriate. Whilst 'being reasonable' with thinking is mentioned in the work of Paul (1993) and Ennis (1987), Barnett's work (1997) does not address this phenomenon. Instead he recommends teaching for 'critical being' (i.e. one who routinely uses higher order learning, and critical thinking in all three domains) as *the* purpose of a higher education. The data from my study suggests that in practice, critical thinkers chose whether to indulge in further higher order learning and also curtailed critical thinking according to what was required and seen as reasonable. The resulting strategies are described in the next section.

Theme 5 Development of critical thinking strategies

The first four themes in this Chapter described how students came to think critically about their work. Theme 5 now discusses the different kinds of strategies students formulated as a result of their thinking. Students made a wide range of choices about how to go about their work:

> It was way too much for me to do, look at all the information. There was way too much information. Like I had to like, focus on one specific thing…..
>
> (Gemma)

> But I felt I needed to know. I did a lot of reading and a lot of writing before I actually came up with my end essay because I didn't know a lot about the topic to start with.
>
> (Martha)

It's something a bit different because it felt like everyone won't have those same articles. He [the teacher] wanted something interesting to read.

(Jonathan)

…just Googled it! (laughter)

(Marvin)

(All Group 1, IPR)

These quotes emerged from animated discussions in the IPR group. Students reported the various strategies they had formulated. Gemma, perhaps overwhelmed, decided to focus the scope of her essay; Martha inquired deeply, to enhance her knowledge and Jonathan decided to feed the teacher's interest. Marvin elected to research in a perfunctory fashion. Whilst it is not possible to report what exactly drove these final decisions, students seemed to consider their 'circumstances of inquiry'. However, making such choices (e.g. superficial web searches) have obvious implications for learning outcomes, as in practice some of these decisions might result in academic outcomes for critical thinkers which are less than expected by teachers.

Barnett (1997) believes that what is 'higher' about a higher education is that such an education builds in students the ability to engage in higher order learning. But what we see here is rather that critical thinkers sometimes elected to do otherwise, as Facione put it:

…the results of inquiry can be positive, negative, or something in between.

(Facione, 1990. p. 3)

Students made choices about their work based on their experiences. The vast array of responses in the data suggested that they were well equipped with what Barnett (1997) and other authors (e.g. Cottrell, 2005) term 'skills' (i.e. tools of analysis and research). Barnett places these at the lowest level of 'critical thought'. However, for these students, skills were not used blindly, but thoughtfully, according to students' beliefs and appropriateness for the situations they find themselves in. These students

seemed very different to students described by Barr and Tagg (1995) whose research showed students became inflexible or unable to adopt new or different strategies when they experienced one way of thinking or teaching.

The critical thinking in this study is congruent with Barnett's broad suggestions that such thinking is independent and purposeful. However, he does not mention that critical thinkers also make definitive decisions about whether or not to embark on strategies that may or may not lead to further higher order learning, and that critical thinkers also have a sense of what is reasonable in thinking.

The process of critical thinking which has been described in this Chapter is illustrated by the following model.

Task

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│                                             │
│         1. Decision to engage critically    │
│                                             │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│                                             │
│              2. Initial evaluation          │
│                                             │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│          3. Circumstances of inquiry        │
│          Personal ideas about success       │
│                 Taking risks                │
│              Learning sacrifices            │
│         Influences of teachers and peers    │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│                                             │
│            4. Deciding when to stop          │
│                                             │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│                                             │
│   5. Development of critical thinking strategies │
│                                             │
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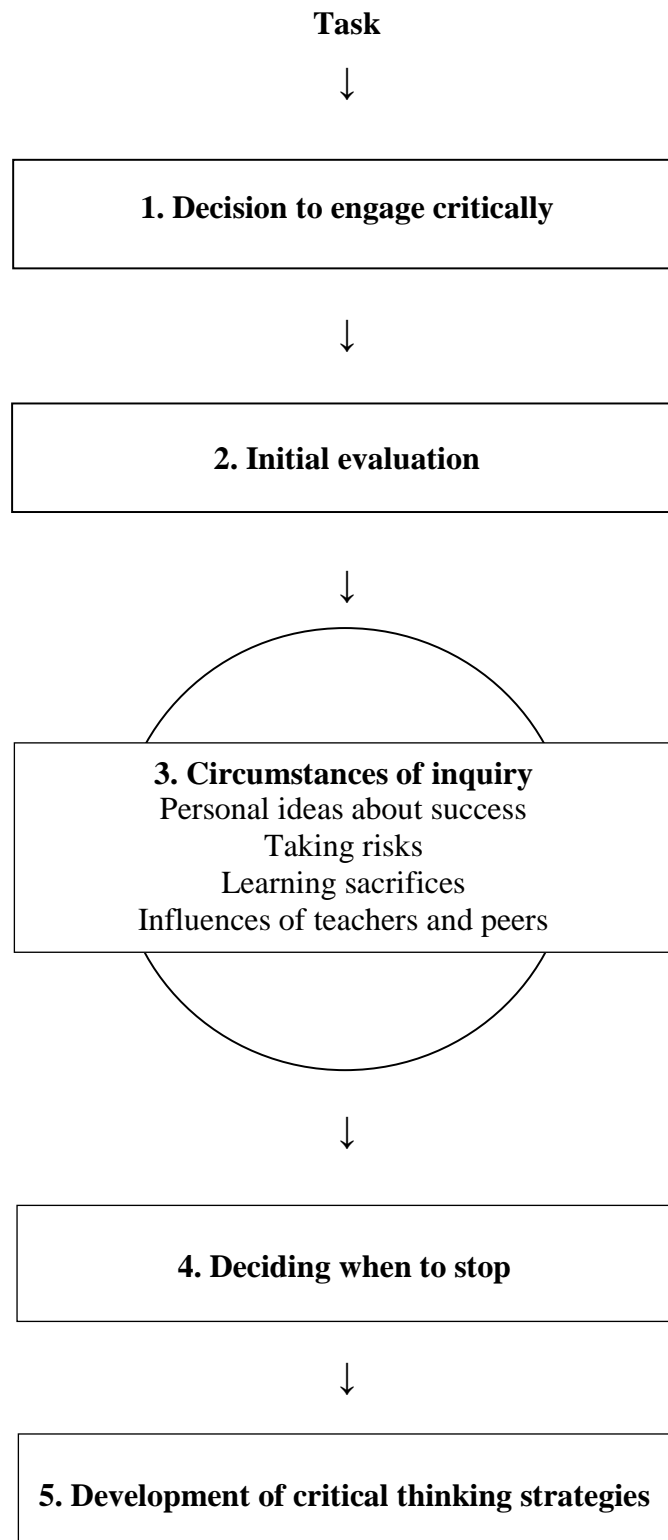
Figure 5. The Critical Thinking Process This model is constructed from student and teacher responses that illustrate the process of critical thinking in group work in the health sciences. This model outlines the stages in a critical thinking strategy that culminate in students decisions for going about their work.

CONCLUSIONS

Data from teachers and students have implications for informing key concepts about critical thinking. The conclusions also offer simple, yet effective suggestions for teachers and students who wish to develop critical thinking. This section is followed by a critique of Barnett's theory and implications for critical thinking theory.

Teaching and learning for critical thinking in higher education

Students developed critical thinking when deciding how to go about their work, selecting strategies thoughtfully instead of blindly using one kind of skill or following the example of teachers or peers. In doing so, students developed strategies which meant they chose whether to engage in further higher order learning or not. Both Barnett (1997) and Facione (2009) agree that a liberal (Western) education is about learning to learn and thinking for oneself, leading students away from a naïve acceptance of authority and culminating in principled and reflective judgment. Teachers in higher education therefore need to understand that students who value higher order learning and critical thinking might, at times, exercise this judgment and make decisions about learning that seem less than optimal.

At the same time teachers need to be clear that students understand what decisions might mean in the long and short term (for both learning and academic success). Approaches not associated with higher order leaning (e.g. rote learning) have utility in practice (Paul, 1990) but students beginning to think critically might need guidance to understand the implications and limitations of various strategies they might employ. The opportunities for personal contact that small groups offer means teachers are well placed for bringing this kind of discussion to group members. Discussions about critical thinking offer two main opportunities: firstly to understand how students arrive at their decisions and secondly to offer, or for students to seek advice on, what critical thinking might mean.

Understanding how students arrive at their decisions in learning means teachers might begin to determine the beginner critical thinker from those who perhaps just go with the flow. A student whose strategies for learning seem superficial (e.g. a Google

search) might have arrived at this decision from thinking critically, just as one who approaches their learning in an analytical, in-depth manner may not. Advice may be needed, especially by students in the early stages of developing critical thinking, to ensure they fully understand any risks (e.g. low marks) they are taking. Such conversations also offer opportunities to hone thinking and change strategy if a student then deems it appropriate. Students who have experienced only one style of learning (e.g. in depth analysis) might also benefit from advice on keeping their strategies appropriate to the assessment (i.e. deciding when to stop). Research shows that well supported students are usually capable of many different ways of learning (Toohey, 1999) and such support might offer alternative or better options for students to consider. For students whose complex experiences mean they sometimes make tough or compromised decisions such discussions might also lend a sense of legitimacy to what they tend to, or need to do, in practice.

Some groups in this study were set a research task (essay) which gave them scope for creativity as well as a little direction. When seeking critical thinking, teachers should consider whether the task allows enough freedom for the student to think critically and develop their own ideas.

Students reported being supported in thinking critically by assessment but also reported that discussions with teachers (e.g. 'I want to read something interesting!') and about the task's philosophy (to develop critical thinking) encouraged them to reconsider their motivations and strategies. Those with limited experiences of learning or to whom 'success' might only mean 'knowing a lot of facts' can struggle to think critically (Biggs, 1999) but teachers who offer even basic guidance can assist students. However, teachers need to think carefully about how critical thinking will be assessed. Students like Ben (Group 3, IPR) seem to understand this idea ('What is this going to do for me?'). Students also need to know their teachers are approachable and open to such discussions on such topics.

Data showed that students developed critical thinking as a result of realizing their autonomy. If autonomy is essential in thinking critically, teachers need to consider how they allow autonomy to develop in their students as it has been suggested (e.g. Boud, 1981) that teachers can substantially influence its development. For students,

autonomy meant changing the way they related to teachers and knowledge and how they went about their work. This change of relationships was enhanced by teachers carefully considering responses to students' questions and in particular avoiding being authority figures. Jaques (2000) described how authoritative teachers inhibit and intimidate students and easily fall into the role of expert and primary talker. However teachers in my study resisted temptations to give answers in discussions but rather chose to develop students' ideas. Whilst guiding students about what was expected, teachers did not take a large role telling students how to go about their work, but instead students were 'told to have an opinion' and began to 'realize[d] that everyone, nobody thinks the same as you' (Amy, Group 1, IPR).

Students reported that strategies for learning developed as a result of thinking critically about beliefs and experiences. It might be helpful for teachers to appreciate that students have broad personal contexts and enquire after them. Such conversations might assist teachers to distinguish between students who are beginner critical thinkers from those who aren't. Broader contexts in the lives of students have also been noted by some researchers as highly influential in students' decision making, yet 'difficult to explain' (e.g. Kieser, et al, 2005, p. 155). An inquiring teacher offers opportunities for students to discuss and rationalize options and gain support. Talking with students about their lives is also a good way to develop positive and productive relationships with them (Tennant, et al, 2010). Teachers in this study reported finding discussions about such ideas (e.g. students' lives) tricky, at least at first, but it seems that investing time and energy in developing a rapport is good for thinking. Tennant et al (2010) also suggest that developing good relationships with our students also means teachers can also find both intellectual and personal rewards in their work. Such rewards can only impact positively on group function and dynamics.

Students who don't think critically might be identified as those who seem to be going with the flow or copying ideas from others and teachers who make inquiries about their studies might also offer beginner critical thinkers suggestions about different learning strategies to get them started in critically thinking. However, teachers also need to consider that too much teacher interference may be detrimental to developing student autonomy.

Evidence suggests that critical thinking is associated with risk taking (e.g. Deirdre's student writing about breast feeding). Teachers therefore need to offer students support in doing so. Students in this study reported instances in which other teachers stifled their ideas and contributions to discussions by making them feel '…stupid…she'll just look at you as if, why did you ask that…?' (Group 3, IPR). Brookfield and Preskill (1999) suggest that students who are made to feel stupid in discussion often don't reveal their ideas or work through them and that teacher disapproval and ridicule of one's peers can be a major deterrent to critical thinking. Small groups offer much opportunity for risk taking but conditions need to be right. Brookfield and Preskill (1999) advocate simple strategies such as clearly stating a group's 'rules' that no questions (etc) are stupid, the teacher modeling these strategies, 'making mistakes' in discussion, and emphasizing confidentiality within the group effectively increase a student's confidence so they are more likely to use and develop, their critical thinking (Brookfield & Preskill, 1999).

In summary, to develop critical thinking in students teachers need to set criteria for critical thinking, reward it, ensure that the task requires it and let students know that critical thinking is their aim. These simple strategies might seem counter intuitive at first as teachers may feel insecure advising on non-content issues (Sutherland, 1996). Traditionally, teachers are content experts first with little training in developing or assessing other skills, yet such skills are often inherently expected from the course. Students too are used to teachers being experts in factual knowledge (Sutherland, 1996) and despite reporting critical thinking as difficult to start with, in this study they found this feeling passed as critical thinking ability developed.

Barnett and the data

This Chapter examined the data for evidence of what it meant to be a critical thinker in health science tutorials and also examined Barnett's (1997) concepts of critical thinking for utility. In other words, the Chapter sought to provide empirical evidence for what Barnett's concepts of critical thinking might look like in practice. I now summarize how results related to Barnett's concept of critical thinking.

Barnett formulated his idea of critical thinking on the premise that many existing theories are limiting; that critical thinking in the 21st century would be a new kind of thinking and that it equips students to think for a complex modern life (Barnett, 1997). Barnett states that what is 'higher' about a higher education is that such an education enables students to consistently engage in higher order learning. Critical thinking is purposeful, not undertaken by default and can also be creative (Barnett, 1997).

The data showed congruence with Barnett's theory. Students reported finding their 'worlds' complex and that they used critical thinking as a means to make sense of this complexity and manage their lives. Their critical thinking was purposeful and set them apart from those who went with the flow, copied others or had limited experiences of learning. Instead, critically thinking students responded to situations by offering independent ideas about learning, calling on appropriate skills and individual experiences. Barnett wrote that critical thinking prepares students for professional and social situations in wider society and the thinking shown by students in this study seemed to lend itself to open mindedness, learning new ways of doing as well as creatively developing strategies in learning. Students seemed fairly well equipped for professional life as a health scientist in which reasoning might be combined with rule-following and with creativity, rather than one way of doing, (e.g. logic concepts) which may not serve the profession well (Jones & Brown, 1991).

The present study also suggested that students develop critical thinking by the realization of autonomy. In particular, that students developed autonomy by forming more equitable relationships with their teachers. In thinking critically, students were substantially influenced by a complex background of personal beliefs and learning experiences as well as the task at hand. Critical thinkers were in command of an array

of skills but were able to determine when such skills were used or, quite distinctly, decide whether they are used at all. Critical thinkers were also able to determine 'how much' thinking was appropriate before putting their ideas into action. Strategies that students devised for their work were also determined by a sense of what was reasonable in thinking or 'does the job we set for it' (Paul, 1993, p. 21). This critical thinking also seemed to prepare students for interactions in group work and data also suggested that critical thinking was usually associated with a certain degree of risk.

In practice critically thinking students developed individual strategies about how to approach their work, however these strategies might not have led to further higher order learning. We can deduce that critical thinking might be easier or more likely for students with experience of different approaches to learning (Trigwell, et al, 1999) but likewise it could be argued that higher order learning might be adopted by passive uncritical thinkers, if this is their singular experience of learning.

This Chapter investigated what it meant to be a critical thinker in practice situations. The discussion now continues in Chapter 4 on critical action which discusses the nature of critical actions from the perspectives of teachers and learners.

CHAPTER 4
CRITICAL ACTION

Barnett on Critical Action

Barnett (1997) argues that as well as critical thinking, critical action has been narrowly construed in critical thinking literature. He believes the world, including higher education, has increased opportunities for critical actions in the guise of the 'critical thinking industry' but that these have been mostly confined to such actions that increase profitability, power and security for industry or personal pecuniary gain. Barnett also argues that critical actions as described in some critical thinking literature (e.g. Schön, 1987) are valued in professional practice yet still contained within known boundaries. Thus we operate only in known social, professional and economic worlds and any personal transformative potential of critical action is limited. Barnett also maintains that critical thinking, on its own, is benign; taking action in the world allows us to execute our critical thinking, but also that critical action offers opportunities for learning. The effect of our actions in the world allows us to both examine and develop our own notions of knowledge and understanding in new ways.

ABSTRACT This Chapter examines how teachers and students experienced critical action. Barnett's theory of critical action is also examined with respect to its relevance. As such the Chapter aims to contribute to a theory of critical action. Data used in this argument come from interviews, IPR, videos and field notes and reflects the views of students and teachers. Two main themes were developed: Collegial peers and Collegial teachers. The key findings were that teachers and students in small groups met collegially, on 'level playing fields'. Level playing fields meant teachers saw their primary purpose as creating conditions (critical actions) that encouraged students to evaluate thinking, were not concerned with simply imparting knowledge, having authority or gaining kudos through teaching but were instead open to examining their ideas. Teachers also treated professional development seriously,

listened to feedback and taught flexibly with strengths and weaknesses in mind. Students created conditions (critical actions) that allowed group members to bring critical thinking for the benefit of everyone. They viewed peers as potential sources of learning and used group interactions to refine or change their thinking. However, this study found taking critical action might also mean limiting such collegial behaviours. Teachers and students on occasion chose to curtail their actions. Teachers did so in order that students looked after their own needs in learning and when they deemed that students needed guidance for safety reasons; students withheld help to ensure that peers brought their own ideas and didn't copy theirs. All these conscious strategies could be construed as critical actions when the main purpose is to help others learn. Data are congruent with Barnett's theory that critical actions offer opportunities for learning. However, critical actions should also occur in a wider sociological context and a critical action might mean not acting at all (putting limits on help). Teachers and students felt they walked a fine line between helping develop the critical thinking of others and ensuring others took responsibility for it themselves.

INTRODUCTION

Chapter 3 described what it meant to be a critical thinker in health science tutorials. Students reported experiencing overwhelming workloads and varied learning experiences (e.g. lectures, small groups). They developed critical thinking in response to these experiences and as a result of developing autonomy in learning. Developing autonomy meant students' relationships with teachers and peers, rather than being based on traditional authoritative roles, became more equitable, and students began to use critical thinking to make independent choices about their learning. Critical thinking was shown to be independent, individualistic and served as preparation for students' interactions in group work. Some basic, but clear ideas for developing critical thinking as a teacher and student were described at the end of the Chapter.

The drive towards mass higher education has meant that a large scale teaching culture forms a substantial part of the formative experience of these students. For students this means less small group teaching and those they experience tend to have larger groups of students and are quite different experiences from the traditional small group. In the present study tutorials had between 10 and 17 students. Comments and

behaviours of students in the study suggested they navigated the difficulties of their groups, chose wisely and used this resource well. Using ideas introduced in Chapter 3, Chapter 4 describes how students and teachers created conditions (critical actions) in which all group members brought ideas (critical thinking) to group discussions. Students and teachers used each other to test the worth of their thinking, and in some cases influence or change thinking. The Chapter is in two themes:

Theme 1 Collegial peers

This theme is presented in three subthemes (level playing fields, changing thinking and drawing the line) and describes how students took critical actions and created conditions in which group members were able to bring thinking and develop ideas in the group.

Theme 2 Collegial teachers

Theme two is also presented in four subthemes (level playing fields, being an expert, teachers as learners, responsibility in teaching and learning) and describes how teachers made critical choices about how they taught (critical actions) for developing thinking.

Both themes are central to the idea of critical action in groups and throughout this Chapter they are explored to gain insight into strategies that students and teachers used to develop thinking. Alongside results and discussion, Barnett's (1997) concepts and other ideas from the critical thinking literature are discussed. Implications for teachers and learners in higher education, and critical action concepts, are detailed in the conclusions section.

RESULTS AND DISCUSSION

Theme 1 Collegial peers

Collegial peers is concerned with how students worked with each other (critical actions) to develop critical thinking. Students reported previously experiencing environments in which peers seemed to work hard at being unhelpful:

> I think it is competitive. X is definitely more competitive [than this course]...people [in our class] used to hide textbooks. Yeah, I've seen it…
>
> (Bob, Group 1, IPR)

However, in field notes from this group's video session, I wrote 'what a lovely bunch of students'. I was prepared for these high achievers to be a little edgy or disinterested in my research, but was pleasantly surprised by willing, helpful students who stayed afterward for discussion and clearly wished to learn from the process. These experiences of 'collegial' behaviours also played out in the data; students readily helped each other so everyone could benefit from their thinking.

The next three sections describe how students chose to create conditions (critical actions) to enhance and influence thinking in the group, and what this actually looked like.

Level playing fields

Level playing fields describes how, in contrast with past experiences, students behaved generously towards each other, seeming to think hard about how they behaved:

> We don't compete in a dirty kind of way as in, like if we've got something, I won't share it with the rest. Like if we've got past papers we share them around and stuff but we compete in a more balanced way.
>
> (Bella, Group 1, IPR)

Students' comments suggested a strong sense of working hard for each other:

> ....you want to let your ideas out. Because I'd expect someone to help me if I do, you know, I'm happy to help anyone else because I'd expect them to help me.
>
> (Bertie, Group 2, IPR)

Bertie's willingness to help was on condition that he received comments on his own ideas. That he was both willing to give and take help suggested a reciprocal, equal relationship that was also demonstrated on the videotape of the tutorial. Students questioned and challenged each other, encouraged each other to think by asking for justification in argument and reflection on answers. Students reported that these processes felt 'comfortable' and 'familiar' (Group 2 & 3, IPRs), having 'lots to offer' each other and being willing to share thinking and knowledge (Group 1, IPR). That this relationship seemed to be an equal one was particularly notable as such relationships were significantly different to students' past experiences which seemed selfish in comparison. Students suggested that useful discussions must be two-way:

> that's what I like and if I'm going to talk, I want people to interrupt me and say what they are thinking rather than just letting you talk.......you don't want all the attention on you.
>
> (Sally, Group 2, IPR)

> It's not a discussion if it's just one person talking.
>
> (Gareth, Group 1, IPR)

Group members also insisted on everyone taking part and one student in Group 3 (IPR) described students who didn't participate with 'dislike'. Mona, also from Group 3 put this down to:

> In this smaller group there's a sense of accountability.
>
> (Mona, Group 3, IPR)

Mona's comment suggested that being accountable entailed a student being somewhat responsible for contributing to thinking development. Whilst students seemed to work hard at developing discussions they also reported that groups took time and effort to function well together. Students recounted experiences from the beginning of semester when taking part was seen as 'not cool' and felt a little 'odd' (Group 2, IPR) and:

We didn't know anyone. It was like, oh my God, I'm not going to talk.

<div align="right">(Group 3, IPR)</div>

Some groups did not work so well and Craig realized that this was partly due to how individuals interacted:

Craig: I think… people in general, like try to make your mistakes make themselves look better, or, I don't know, you just get that impression that they're like, 'I'm awesome and you're wrong' but it's [our group is] not like that....

Researcher: Why do people use things to make themselves feel better?

Craig: Because they've got low self esteem

Melanie: Yeah, low self esteem...or maybe different agendas, like what's actually the agenda is they choose to make themselves look good, or actually help you learn.

<div align="right">(Group 3, IPR)</div>

In reflection, Craig suggested that his group chose to help each other think and learn rather than individuals looking clever, and that 'level playing fields' created a good atmosphere for thinking. Even when they disagreed, (video tape) students did not try to 'score points' off each other but instead politely clarified topics as they contributed to discussion.

Students also commented that even once established, maintaining collegial behaviour was still difficult. Group 1 (IPR) described that in discussions there was often a 'split second' decision between either annoying people by saying too much or letting another student work things out themselves. Whilst aware that their own contributions were useful, students realized peers also needed opportunities to work through their own thinking, 'make mistakes and correct ourselves'... 'take it apart, think about it' (Group 1, IPR). Alternative actions were chosen in order to support critical thinking.

It is difficult to find in Barnett's (1997) work a clear description of what critical

action actually means; he indicates that critical action is informed by critical thinking, that critical action offers a way of putting our thoughts into practice as well as developing thinking. Barnett also describes 'critical but constructive action' (1997, p. 7) and other authors (e.g. Facione, 1990; Paul, 1990) agree, suggesting critical actions are positive in nature.

Data suggested students thought carefully (critically) about how to respond to each other (critical actions). Rather than using group work as an opportunity to display personal knowledge or play out unequal patterns of communication which some authors agree is more usual (e.g. Brookfield & Preskill, 1999; Smith, 2003) students chose 'constructive' actions carefully selected with the purpose of developing thinking. De Bono (1985) seemed to attempt a kind of level playing field with his Six Hats technique, which aims to dissuade group members from competitive behaviour that might be a barrier to critical thinking, but more particularly, this present study showed that level playing fields are maintained by a critical consideration of what is actually happening in the group. This study shows that a critical action could be contributing to a discussion or not depending on what is happening and the needs of all group members. A true critical action could, in some cases, be to do nothing.

Changing thinking

That critical action offers opportunities for changing our thinking and learning is one of Barnett's (1997) fundamental premises for his concepts; data showed group members had key roles in influencing each other's thinking. This section describes how students, meeting on level playing fields, felt supported in changing or fine tuning their thinking. This was a very rich part of the data. One student reported that, following discussion, his thinking was confirmed:

>So far it's backed up what I have done.

>(Group 1 IPR)

Another student found that being allowed space to air his thoughts, and the support he received from his peers was helpful:

So in not understanding or knowing something you have a half-arsed concept of it, it's good you can say it out loud and flesh out what you don't quite understand yet.…it's better doing it in a tutorial than in a lecture because that's what lectures give you, a half arsed idea of what you need to know and then it's up to you to kind of learn it but you can't learn it yourself. That's why it's good like this, talking about it.

(Aiden, Group 3, IPR)

Another student (Group 1, video tape) decided to seek out more research tools as a result of hearing how his peers had researched their topics. The videotape (Group 1) also showed students discussing how to do literature searches, and, in reflection, this group seemed to view this process as sharing:

Vero showed me how to do find it in the journals and then I think I showed someone else.

(Group 1, IPR)

Another student contemplated an alternative approach to their research essay as a result of discussion:

Monique had chosen a really interesting point. I just found it really interesting, like from a view I hadn't really taken.....my research....was boring in comparison..... It's opened me up to thinking there are so many other ways I could take it.

(Group 2, IPR)

The following interchange (described here during a student IPR) shows one student being introduced to new possibilities for his essay:

Pierre: I just took my own interpretation and went real specific on it...it was boring…but you [to Louis] mentioned that it could...be something like vitamin A or D or something?

Louis: We only know about these ones because of their systemic effects....but it could be something.

Researcher: Why did you think your research is boring in comparison?

Pierre: Not boring...but when you learn about predominance and that, there are so many other causes, I'm like, wow, I only looked at one cause.

(Group 1, IPR)

Brookfield and Preskill (1999) agree with Barnett's (1997) view that 'rethinking' is a fundamental part of thinking critically and data suggested students felt supported by peers in doing so. However, data also suggested that the decision whether or not to change thinking was critically considered. Students were flexible and adjusted their views in response to well supported arguments, but more particularly as Brookfield and Preskill suggest, were also able to confidently stick to their original thinking (e.g. 'Just Googled it', Group 2, IPR). Although the decision itself was still based on critical thought, in practice a critical action for either party in the interchange might be not changing thinking at all.

Drawing the line

This section describes how students, whilst willing to help each other think and learn, also limited this help. Bella said:

So it's like were giving each other the resources to do it but not necessarily copying it off someone else.

(Bella, Group 2, IPR)

Bella described students sharing resources but also that she stopped short at letting another student reproduce her work. Withdrawing help might have two functions: allowing Bella to take credit for her own work (not be plagiarized), but as Rob also

suggested, other students should not be helped too much:

> You just don't give them everything, but you can help them along to get there if you want.
>
> <div align="right">(Rob, Group 2, IPR)</div>

These quotes suggested Rob and Bella understood the importance of other students doing work to develop their own thinking and that thinking should be essentially independent and individualistic. Denise (Interview) also suggested that functional groups meant students were not 'carried' but rather thought for themselves. Acting 'critically but constructively' (Barnett, 1997, p. 7) in this case meant limiting the help on offer.

Theme 1 described what it is to take critical action as a student in this study. Critical actions of teachers are now described in Theme 2 'Collegial teachers'.

Theme 2 Collegial teachers

Collegial teachers describes how the four teachers thought carefully about their practice (critical actions) and encouraged students to bring their thinking to the tutorial group. The theme is arranged in four parts and includes quotes from both teachers and students in this study.

Level playing fields

Teachers reported a clear understanding that their role as a teacher in group work was to encourage everyone to bring and develop their thinking. Miles described this particularly clearly:

Miles: I want to hear a position that they can take and they can argue for…argue for their position.

Researcher: Do you counter them with another opinion?

Miles: Oh yes. I like to stir them up a bit (laughs) and offer something at the other end of the spectrum....things from reality or that I just read about…. I dig around what they are suggesting.

Researcher: What are you trying to get them to do, when you 'stir them up'?

Miles: I'm trying to stimulate them to defend their position, or critically think about it.

Researcher: Have you seen them change their position?

Miles: Absolutely, yeah. Either they or I change our position (laughs)

Researcher: So you're happy to show them that you're happy doing that?

Miles: Yes, of course.

(Miles, Interview)

Miles clearly encouraged students to engage in two way discussion. He invited students to defend their ideas, yet was clear that discussions might result in either of them changing their thinking. Miles reported thinking carefully (critically) about what to do and rather than choosing to transmit knowledge or 'win' the argument he simply brought his own ideas to fuel discourse so both teacher and student participated in discussion. His reflections seemed to confirm the idea suggested in Theme 1 that developing thinking thrives in the presence of more equal teacher-student relationships (level playing fields). That Miles viewed teacher-student relationships as equal also seemed to be confirmed by the strategies he used in teaching practice:

What do you think?…it could be…you could be right...I like that.

(Miles, raw video tape)

This observation of Miles' teaching further suggested that what Miles did in practice closely resembled what he said he did, which is not always the case in teaching practice (Martin et al, 2000). Also of significance is that Miles acted against the grain of traditional didactic teaching. Teachers may believe they have information to impart to students or that they need to dominate discussions (Brookfield & Preskill, 1999). Instead, Miles carefully ensured everyone's contributions were heard and, as Barnett

suggests, had opportunities to learn from alternative points of view and 'be enhanced by this interchange' (Barnett, 1997, p. 4).

Students also seemed to confirm that such equal relationships were good for discussions:

> Back home [Asia] your relations with your professor is quite formal, so, I mean you have to be quite careful in what you say.
>
> (Sadie, Group 4, IPR)

> I think one relevant thing is how the teacher perceives their role and whether they're sort of there to facilitate good discussion and learning and thinking or whether they're more to, I don't know, to lecture and to tell you and perhaps hold a position of knowledge and power.
>
> (Group 3, IPR)

Students also reported experiences with other teachers who they described as 'cold…uncaring' and as a result they felt reluctant to contribute to discussions. They reported often feeling like they were in trouble and being particularly fearful of being judged. As well as discouraging discussions, students reported that some strategies used by 'uncaring' teachers also resulted in students behaving badly:

> [the group] tries to look clever...competitive... try to score, try to win.
>
> (Valerie, Group 4, IPR)

Some teachers found more equal relationships with students less easy than Miles. Whilst seeming to value two-way discussions, Denise reported finding such relationships hard to come to terms with. She acknowledged being 'two generations on' from her students and being apprehensive about equality between teachers and students:

> When I was a student I was called Miss Smith. I was never called Denise. I was treated with politeness and dignity. I would never use a first name to any of my teaching staff, ever…they were the teachers and I was a student...there

was a divide.

Denise's comments suggested she previously equated more equal relationships with lack of respect. She confirmed what Brookfield and Preskill (1999) note, that historically teachers and students have not always been viewed as equals. However she also commented that she now 'has tremendous respect for the students' (IPR).

Being an expert

As well as trying to ensure discussions were on a level playing field, Miles employed a particular strategy which meant students didn't look to him for answers but rather thought for themselves. He did this by avoiding being an 'expert':

> ...there could be something I don't know….I haven't worked in this area for a while...you tell me.
>
> (Miles, raw video tape)

> I'm not really seen as having the correct answers or anything….being correct is the opposite of being critical.
>
> (Miles, Interview)

This 'non-expert' strategy meant that Miles easily passed questions back to the group rather than answering them, encouraging students to think for themselves. Without an expert in the group to rely on, members also reported feeling able to:

> You can, you know, just try whatever you want and you don't think twice before asking a question thinking you might sound silly here….
>
> (Miles' Group 4, IPR)

Some interesting comments were made by students about their teacher whom they didn't know so well. During their IPR, students voiced concerns about their teacher's qualifications and later also asked me about her field. Students suggested that if they had known, during class, that the teacher was well qualified in 'their area', they would

have directed more questions to her (Group 4, field notes). Not knowing if this teacher was an expert seemed to have meant that students did not look to her for answers but instead focused on bringing their own thinking and entering into in-depth discussions. These comments seemed to confirm the suggestion that appearing to be 'non expert' was beneficial for developing critical thinking and adopting this stance was an important critical action.

Students in Miles' group reported being able to 'try whatever they want'. In Chapter 3 it was suggested that critical thinking is associated with a certain amount of risk and it is further suggested that equality and being a 'non-expert' are also good ways of allowing this to happen. That being a non-expert is good for developing critical thinking is also confirmed by other research (e.g. Brookfield & Preskill, 1999), which suggests that risk-taking thrives when group members are not influenced by power relationships or knowledge displays.

According to Barnett (1997), critical thinking is essentially independent thinking. Students and teachers reported valuing the development of independent thinking but also that sometimes thinking needs more guidance. In these cases teachers assumed, and were asked to assume, the role of 'expert' once more. This phenomenon of being an occasional expert was reported in a variety of ways:

> But they do need to tell you if you're wrong [in cardiac medicine] because you do need to know.
>
> (Mike, Group 3, IPR)

> Sometimes we just need to be taught something.
>
> (Selene, Group 4, IPR)

> In actual fact, that's the point, is that it [the ligament] doesn't attach there. It actually attaches here and so then I could move on towards explaining why the extension of the toes was so important…in that case it was very important that I received an answer from someone that was right.
>
> (Patrick, IPR)

…basic knowledge they need to have lest they have negative effects on the patient...

(Denise, Interview).

It could be argued that Mike was just lazy or an uncritical thinker but his request for assistance seemed to come from a safety point of view. As such, this phenomenon seemed to make sense, e.g. in clinical work, emergency procedures are developed from years of cumulative research and clinical experience. Practitioners, especially beginners, sometimes need to be able to follow procedures without question, lest they dangerously hamper proceedings and for patient safety. They may need to defer independent thinking until appropriate. As well as developing critical thinking in their students, clinical teachers needed to step in and more firmly guide, or 'rescue' students from time to time.

Teachers undeniably possess knowledge, expertise and experiences that students do not, which to some extent could be viewed as having some kind of power (Brookfield & Preskill, 1999). Power as such is not by nature negative, but rather depends on how it is exercised (hooks, 1994). Rather than wield their power or use expertise as a way of proclaiming their authority, teachers in this study seemed to carefully use knowledge and experiences to arouse interest in the topic, contribute to discussions and yet to look after students when necessary. Teachers critically considered their actions and chose between developing student thinking, and offering guidance for the student (and safety for the patient).

From a teacher's perspective being an 'occasional expert' might also impact positively on students in a different way. There is a danger that students viewed teachers like Miles as displaying disingenuous behavior. Students knew his background in health sciences and could guess what his expertise might be. It might also be important for a teacher's integrity to be an expert once in a while.

Barnett views professional expertise and 'competencies of the discipline' as merely 'faithful rule following', (1997, p. 11) and thus uncritical thinking. However, clinical teachers reported that in group work they found themselves in dual roles; teaching for both developing critical thinking and teaching for standards of care and rule

following. Reilly (2007) notes that students in clinical practice mature vastly when thinking independently, but that the challenge for clinical teachers is knowing 'when to step back and when to step in' (p. 706), allowing freedom to think but without endangering students, or their patients. It is suggested that critical actions in practice mean being able to discern which kind of teaching, and thinking, is appropriate.

Teachers as learners

Deidre reiterated Miles' words in describing how she taught in a way that encouraged students to question her knowledge and learn from her. However she also described how teaching meant that she too learnt from group interactions:

> I'm….someone who has knowledge and is approachable and is inclusive with that knowledge…willing to share it and develop my learning at the same time as they're developing their learning. So they're teaching me too.
>
> (Deirdre, IPR)

This openness to learning looks like what Barnett describes as 'being enhanced by the interchange' but specifically that both parties benefited from group work. Teachers seemed genuinely interested in learning and the subject. Miles indicated that 'either they or I change our position' (Miles, Interview) and his students suggested Miles as:

> …he actually cares about the subject and what's out there and feels passionate about what he does.
>
> (Group 3, IPR)

Reports from teachers and students suggested that teachers carefully selected teaching strategies to emphasize critical thinking and learning but that teachers also learned during this process. Whilst in Chapter 3 it was established that 'truth' and critical thinking are unrelated, Barnett does describe teachers as learners: [a teacher] 'becomes to a considerable degree, a participant in a joint inquiry after truth with [her] students' (Barnett, 1997, p. 4).

However beneficial to both parties, research shows that such teaching strategies can

be difficult to maintain or unwittingly fail even with the best of intentions (Brookfield & Preskill, 1999; Biggs, 1999). For example, a passionate teacher might intimidate some group members or simply draw students into their ways of thinking (what Brookfield & Preskill, 1999 call 'collusion') rather than allow them to develop their own ideas. Such difficulties might mean teachers find it difficult to know whether they are truly successful in taking critical actions that develop critical thinking, and actions of their students.

It is suggested that what a teacher learns from group work ('a joint inquiry') might assist them to know if they are truly teaching for critical thinking in practice. Whilst Chapter 3 discussed ways in which some students critically chose to engage in lower order learning and therefore did not have much to offer group discussions, critical thinking was also shown to be essentially independent, individualistic and likely to be unique even though it was socially constructed. If encouraged to do so, most students are likely to bring new thinking to group work at some point. If teachers select and maintain reflexive strategies that both encourage critical thinking and allow students to bring these ideas to the group, a teacher is highly likely to learn from this exchange of ideas. A teacher thus has confirmation that critical thinking and critical actions have taken place, which, in turn, informs their learning and practice in a critical manner. A teacher who does not teach for critical thinking, or uses ineffective teaching strategies might find they do not learn from any of their students.

Responsibility in teaching and learning

At the same time as teachers worked hard to develop students' thinking, they had expectations that students would work hard to look after themselves. Miles remarked that:

> I think the students would feel profoundly dissatisfied if we spent the whole time focusing on one student trying to get them to contribute.....at some point it's up to them to say 'I don't understand this, can I have another tutorial?'
>
> (Miles, Interview)

Miles was quite clear that whilst his role was to encourage students, if they were

unwilling or unable to work well in the group they needed to take steps to help themselves. There is plenty of literature on effective methods to help teachers encourage students to participate usefully in group work (Ramsden 1992; Brookfield & Preskill, 1999; Biggs, 1999). However, teachers and student groups both described the notion that students at this level were, in fact, expected to take responsibility for their own learning:

> I don't feel I should be saying, 'you need to spend more time doing this'. They're aware of it...
>
> (Deirdre, IPR)

Whilst it seems unclear how teachers encouraged students to take responsibility for their learning, comments suggested they spent less time 'telling students what to do' (Miles, Interview) and also expected that students didn't want to be told. Research has found (e.g. Dart & Boulton-Lewis, 1998) links between teaching that allows students to be in control of their own learning (e.g. making choices) and quality of academic outcomes and thinking development. Therefore I tentatively suggest that students develop this sense of responsibility as a result of non-reliant relationships between teacher and students which also encourages choice in critical and independent thinking.

Despite describing how they enjoyed group work, teachers also reported finding this kind of teaching hard. Teachers described groups having long 'running in phases' and in particular encountering difficulties ensuring everyone was included and engaged (Denise & Miles, Interviews). Such difficulties are widely described in the literature and research suggests that problems occur for a variety of reasons; teachers and students can be unclear about the point of tutorials, group dynamics, student preparation, culture, varying abilities and personalities all may substantially influence participation (Biggs, 1999; Wilkinson & Rudland, 2004).

Teachers in this study described negotiating such difficulties in a variety of ways. Firstly, Miles reported welcoming verbal and written feedback about his teaching from students and often seeking another teacher's point of view when experiencing difficulties. Research shows that being receptive to feedback helps narrow gaps

between a teacher's beliefs and practice (Ramsden, 1992; Brookfield & Preskill, 1999). Miles seemed to have closely aligned beliefs and practice and as Barnett suggests, seemed to believe that his own learning came about through constant 'critical interrogation of practice' (Barnett, 1997, p. 12).

Secondly, teachers described reflecting constantly on their practice, what Barnett (1997) calls critical reflection. In practice, critical reflection means teachers are offered a view of what teaching is, to think carefully about what works and what doesn't, but also what teaching can become (Biggs, 1999). Denise described her reflection in practice:

> You go back and you think, what was wrong? I didn't handle that right. That could have been different. How could I make that better?
>
> (Denise, Interview)

By welcoming feedback and reflecting critically on their practice and skills, teachers thought carefully (critically) about what strategies to engage. Miles reported needing to 'think hard about what to apply' (Interview) in each situation and rather than being 'too busy to stop and think' he seemed to invest time and energy into 'how' and 'why' of teaching practice (Hammond & Collins, 1991, p. 163). What this all meant in practice is that teachers felt able to adapt skills to different dynamics and contexts:

Miles: ...there are so many students, so many things on different levels. I try and apply it [his philosophy of teaching].

Researcher: It's really guided by what comes up, though, isn't it?

Miles: Absolutely, yeah. No, it's very, very variable between different sessions.

(Miles, IPR)

According to Biggs (1999), being able to adapt constantly in teaching practice is what makes a wise, effective 'expert' teacher. Such teachers do not simply apply general rules of teaching but also adapt skills to personal abilities and experiences. Rowland

(2001) suggests that such skills should be expected in teaching practice and that teachers should develop the same kind of sense of critical thinking and personal responsibility about their learning as they expect from their students. It is therefore suggested that in order to take effective critical actions, teachers too need to be thinking critically about their practice and acting on this thinking as appropriate.

> If higher education is a critical business for students, so must it be for their teachers.
>
> (Rowland, 2001, p. 162)

Implications which follow on from Themes 1 and 2, for teachers and students in higher education are now described in the conclusions section, followed by a summary of Barnett's theory in relation to the data.

CONCLUSIONS

In this conclusion I start with teaching and learning for critical action and produce two tables of questions to guide students and teachers who may wish to consider critical action in their university experiences. I conclude with Barnett's theory of critical action and implications for theory.

Teaching and learning for critical action in higher education

Teachers and students developed their thinking primarily as a result of developing equitable relationships, in other words interacting on level playing fields. Teachers and students considered their actions carefully with the express purpose of developing their thinking and helping peers to do so, rather than carry out knowledge displays or revert to traditional teacher-student hierarchies based on power or authority (Smith, 2003).

Students needed to realize the value of interacting in group work. Interacting in groups can benefit a student's learning but also those around them. Whilst students reported that discussions were difficult, at least at first, when they thought carefully about how to interact (critical actions) they reaped many immediate benefits. These included encouraging others to bring their thinking, exposure to different points of view and ways of thinking, opportunities to learn new things, recount and argue what they already know. In the long term, helping each other think and learn also offered opportunities for personal benefits. Being involved in good group processes can mean communication skills are enhanced, self esteem is improved ('I can teach!') and friendships can develop (Ramsden, 1992; Biggs, 1999). While some students appeared more at ease in doing so than others, some were reported by teachers to grow substantially in confidence through their group experiences.

To make the most of group work, students also needed to consider why they interacted in groups and how they responded to classmates. Using group work for knowledge displays or 'looking clever' might result in immediate satisfaction but be unproductive, potentially stifling the development of thinking of all group members. Students need to practice something like 'mindfulness' (suggested by Brookfield &

Preskill, 1999) which these authors view as an essential part of democratic discussion. Mindful students pay close attention to what is being said, why, clarify aspects with the purpose of being clear, resist compulsively conversing with the purpose of proclaiming knowledge, and instead consider the needs of all participants.

Students also need to be aware that not all offers of help are useful. In some cases helping peers might result in another student being lazy, copying their work or becoming an uncritical thinker. Whilst not responding to requests for help might feel unkind, such critical actions can be well meant and legitimate.

Students reported instances that their thinking was influenced as a result of group interactions. Whilst being prepared to reason through their choices with the group, they learned from experiences and adjusted their thinking when necessary. Being prepared to learn requires what Brookfield and Preskill (1999) describe as 'intellectual humility' and this entails admitting that one's own experiences or knowledge might not be complete. Students therefore needed to listen to the ideas of others and also consider that learning from peers might feel uncertain or uneasy (Brookfield & Preskill, 1999) at least at first. Students in this study also reported instances that group interactions did not result in them changing their thinking. In practice this could also be a considered (critical) and legitimate response to group discussions.

Teachers found that developing thinking in students thrived in the presence of more equal student-teacher relationships. Whilst some teachers reported finding this kind of relationship strange at first, when managed well students enjoyed them. However this equality is not straightforward. Students reported being put off discussions by teachers (outside this study) who were authority figures (or as Biggs, 1999, suggests, that use teaching as a vehicle to counteract personal insecurities). However, students also needed expert guidance. With too much guidance there is the danger that students revert to previous convictions that teachers indeed do know everything and become uncritical in their thinking. Students also need reassurance that teachers have integrity and expertise in their subject area. Teachers therefore need to consider carefully why and how they interact with students and teach to a careful balance between 'non expert' and 'expert' or as (Reilly, 2007), p. 706) puts it, consider 'when to stand back

and when to jump in'. As Barnett also said:

> No teacher who places critical thinking at the center of her approach to teaching and learning can teach didactically as a general strategy. The teacher retains her professional control but becomes to a considerable degree, a participant in a joint inquiry after truth with her students.
>
> (Barnett, 1997, p. 4)

Teachers were prepared for and expected to learn from their group interactions. It is argued that good thinking (students) plus good teaching means that teachers as well as student learn from group interactions. Not only do teachers need to consider that their students might teach them (humility), and be ready for it, but if they aren't learning from their own teaching, there might be some adjustments to be made.

Whilst unclear exactly how teachers ensured students took responsibility for their own learning, teachers clearly spent little time 'telling them what to do' but rather assumed students could, and would look after themselves. Students need to accept that their role in learning (e.g. asking for help, organizing themselves) is a significant one and that with responsibility comes learning. Outcomes for students are often better when learning is self driven (Dart & Boulton-Lewis, 1998). Reilly says 'adult education is a tango: it takes two' (2007, p. 706) and in his own practice insists on a student's motivation as a precondition for their involvement. He also stresses that unmotivated learners should carefully consider their involvement in a course. Reilly believes teachers could legitimately curtail their help if students do not take responsibility for their own learning or where attempts to motivate are not met with enthusiasm (Reilly, 2007). Withdrawing help is therefore a critical action.

Teachers and students reported running-in phases and that group work was hard and frustrating at first. Other research also shows that both working in groups and learning to think critically can be uncertain, scary and challenging (Biggs, 1999; Light & Cox, 2001). If this is correct, then teachers should anticipate adverse reactions as students adjust. Teachers can be reassured that these are normal processes and that in time students come on board. If difficulties persist there is great value in seeking help (peer review or simply talking to another teacher) and thinking about how one's own

particular skills might be adapted. Teachers reported readjustment of their own skills to each teaching situation therefore finding a balance between letting the group settle into its new roles, and changing teaching strategies. Teachers in this study showed that they were prepared to think critically about their own practice and take appropriate action based on this.

This section outlined some useful strategies for teachers and learners in taking critical actions as part of group work. In practice strategies for students and teachers seem remarkably similar and are summarized further in Figures 6 and 7. These figures contain seven questions for students and eight for teachers which can be used to help develop critical thinking and inform critical action.

After this figure, the final conclusions section summarizes the Chapter in terms of Barnett's theory, what critical action might look like in practice and the implications for the development of new theory.

Am I	Changes to support critical action
viewing my peers and teacher as my intellectual equal?	In doing so, many barriers to critical thinking and learning are removed.
interacting in group work?	My interactions can benefit both me and the group.
interacting with the purpose of furthering learning, and thinking, or something else?	Knowledge displays can be of little long term use for thinking. Kudos can instead be gained from forming functional relationships with group members.
sharing my ideas collegially, or would my help mean another student isn't thinking independently?	Developing critical thinking is a balance between sharing thinking and withholding assistance. This can be tricky but both are legitimate choices depending on the circumstances.
considering other ideas as a result of discussions?	We are always learning. We learn from other people.
considering sticking with my original thinking as a result of discussions?	This is a legitimate choice as long as it is critically made and based on evidence.
finding group work hard?	Group work and critical thinking are hard. Groups sometimes take a while to get off the ground. Consider talking to your peers or asking your teacher if you are uncertain of how groups work best.

Figure 6. Seven 'Am I' questions for students that focus on critical action

From data used in Chapter 4, strategies for students who wish to develop critical actions have been be isolated and are summarized in the form of questions which serve to inform students about taking critical action in tutorials.

Am I	Changes to support critical action
viewing my students as my intellectual equal?	In doing so, many barriers to critical thinking and learning are removed.
teaching didactically as a primary strategy?	Interactions can benefit both me and the group.
interacting with the purpose of furthering learning, and thinking, or something else?	Knowledge displays, while useful to start discussion, are little use for developing critical thinking. Kudos can instead come from forming functional relationships with group members and developing thinking. Didactic teaching is not a useful long term strategy for developing thinking.
sharing my ideas collegially, or would my help mean students might not think independently?	Developing critical thinking is a balance between sharing critical thinking and withholding assistance. This can be tricky but both are legitimate choices depending on the circumstances. Students need to learn responsibility for their learning and outcomes often improve as a result.
considering other ideas as a result of discussions?	We are always learning. We learn from other people and learning from our students is a good sign that students are thinking critically and we are encouraging them to bring these ideas to the group.
being a 'non-expert'?	This strategy can be a useful way of encouraging students to express their ideas, particularly risky ones in the group.
being an occasional expert?	Students need to know you are in control and sometimes need guidance. Knowing when to step in and guide is tricky.
finding group work hard?	Group work and critical thinking is hard. Sometimes groups take a while to get off the ground. Consider peer review, asking for student feedback and learning new strategies to cope with ever-changing dynamics.

Figure 7. Eight 'Am I' questions for teachers that focus on critical action

From data used in Chapter 4, strategies for teachers who wish to develop critical actions have been isolated and are summarized in the form of questions which serve to inform teachers about taking critical actions in tutorials.

Barnett and the data

This Chapter has examined the evidence for what it meant to take critical action in a health sciences tutorial situation and also examined Barnett's (1997) concepts of critical action for utility. This final section summarizes how the results might fit with Barnett's concepts of critical action.

Barnett (1997) formulated his theory of critical action on the premise that many concepts in the critical thinking literature are narrowly construed, personally limiting and that any actions have been mostly confined to such areas as that increased profitability, power and security for industry or personal gain. Yet it is difficult to find in Barnett's (1997) work a clear description of what critical action means. Instead he describes some topics around critical action suggesting that it is informed by critical thinking or that critical action is a way of putting our critical thinking into practice. In addition critical action offers opportunities for learning and that critical action needs to be constructive action (Barnett, 1997).

The present analysis shows many congruencies with Barnett's ideas. Chapter 3 showed that critical thinking prepared students for critical action, that individuals brought ideas to the class and were prepared for thinking to be influenced through group interactions. Chapter 4 showed how students and teachers worked hard for each other (critical action) in changing thinking. These interactions look like what Barnett describes as being 'enhanced by the exchange' of group work (1997, p. 16). Not only is critical thinking, on its own, benign but that critical action offers opportunities for learning and is therefore necessary for optimizing thinking. Teachers and students also reported that critical thinking and critical action thrived on equal relationships that create spaces that have to be sustained collaboratively and cannot be 'secured in the presence of power' (Barnett, 1997, p. 22).

Barnett also maintained that critical actions confined to those that increase profitability, power and personal gain are different to true critical action. Teachers and students in this study found that choosing their actions wisely meant that both they and their peers benefited from group work. Whilst not entirely selfless, teachers and students resisted temptations to use groups as vehicles for knowledge displays or to

play out power relationships. Barnett mentioned social context in his theories, in that he included the person in the world. In addition, my study showed that a true critical action is one that takes place in a social context and requires an appreciation of personal dynamics and purpose.

Barnett (1997) also discusses self reliance. In the face of change he believes an individual's skills are the only constant factor. My study showed that by self-management, teachers and students supported developing thinking and also created what seemed to be healthy group dynamics. This dynamic meant that students were encouraged to look after their own learning needs as well as take action for others. Teachers too found that reflectively developing their own strategies for teaching based on their strengths worked well.

Data suggested that critical thinking thrives in the absence of power relationships and knowledge displays and that critical action meant encouraging others to consider their thoughts. Critical actions looked primarily like collegial behaviours and were helpful and constructive (see Barnett, 1997, p. 7). However, more specifically, critical action entailed choosing when to limit these behaviours, e.g. when a student deemed that another's independent thinking was threatened or, for teachers, when students did not take responsibility for their own learning. For students and teachers this meant that a considered and constructive critical action might legitimately be no action at all. Critical actions for teachers were also found to mean determining whether the development of independent thinking, or offering more structured expert guidance in the presence of substantial experience or knowledge was required.

Critical actions offer opportunities for reciprocal learning, 'being enhanced by the interchange' (Barnett, 1997, p. 16). Specifically the study showed that students offer each other opportunities to influence thinking but also that students themselves need to judge whether changing thinking is pertinent. Personal critical action might be to make no change at all.

Data also showed that teachers thought carefully about their practice and that their critical actions ensured that students brought critical thinking to the group. Teachers and students entered into joint inquiry but it is argued that such an inquiry has another

function. Critical thinking is essentially independent, individualistic and is likely to be unique. Whilst some students might opt out of critical thinking and engagement, others will not. Therefore, if students are thinking critically and teachers use successful strategies that mean all group members are exposed to this thinking, a teacher who then learns from this exchange of ideas has confirmation that critical thinking and critical actions have taken place, and with which students. A teacher who intends to develop thinking in their students is one who is highly likely to learn from them. A teachers learning from tutorial experiences could be seen as an effective indicator of both critical thinking and critical action.

CHAPTER 5
CRITICAL BEING

Barnett on Critical Being

Critical beings are more than critical thinkers. Critical thinking empowers the development of quality professional competence, self reliance and independent thinking while critical action enables thinking to be enhanced by using the thinking of others as opportunities for learning. But critical beings extend critical engagement outside knowledge to become committed to questioning the impact of themselves, as well as their chosen field on society and the world. Critical beings reflect on themselves, their learning and how they impact on those around them. This reflection means they begin to experience both themselves and the world in new ways and are changed as people. Barnett believes education of the self has been neglected and criticizes education for conceiving critical thinking and action as skills separate to the person. Such an education simply indoctrinates students into demands of market economies or inward-looking frameworks of academic disciplines (Barnett, 1997; Creme, 1999). An education that teaches students to think critically about knowledge has value but a genuinely 'higher' education needs to offer more than this. A higher education should equip students to think carefully about knowledge, their profession and its effect on the world and also to withstand the self critique and hard work that is inevitable living as a critical being (Barnett, 1997).

ABSTRACT This Chapter is about critical being. Barnett's theory is examined with respect to its relevance and the Chapter aims to contribute to a broader theory of critical thinking. Data used in this argument comes from teacher interviews. Themes developed included Extending thinking and Changing people. Key findings were that critical being needs both education and life experience to develop and that the relationship between these lives is uncertain. Critical beings also develop over a

lifetime and might not be seen at undergraduate level but that students have the potential for this. For critical being, critical thinking also needs to be supported in all aspects of one's life. In practice, critical beings might appear differently to what might be expected of a particular professional persona and this was found to be related to a person realizing and living their values fully. Because critical being has the potential to develop at undergraduate level, then it is the obligation of teachers to teach for it. For teachers, developing critical beings means teaching for values by means of realizing their own values and creating conditions in which students feel secure to discuss their own. For learners, developing critical being means entering small groups with feelings of uncertainty, facing challenges in developing as a critical professional and being secure that critical being offers them potential. Data are congruent with Barnett's theory that critical being is a product of critical thinking and critical action, but more exactly, that critical beings need to realize their values, act them fully and at the same time be prepared to subject them to re-evaluation.

INTRODUCTION

Chapters 3 and 4 examined what critical thinking and critical actions looked like for students and teachers in a practice situation. The final component of Barnett's (1997) theory is the concept of the critical being. Barnett formulated this concept on the premise that the 'freeing of the mind' which other critical thinking concepts often promise does not always eventuate (Barnett, 1997, p. 2). For example a critical thinker might think critically about professional life but also make serious errors of judgment. As someone once put it to me 'even brilliant surgeons can be wife beaters'. Barnett believes that critical thinking and action have potential to be extended to other parts of our lives (worlds) and at the same time change us as people, for the better (Barnett, 1997).

Barnett's (1997) critical being (CB) is based upon the supposition that those who possess this quality are simply the product of critical thinking (CT) and critical action (CA), or, mathematically put, CB = CT + CA. However, Barnett intended his theory to mean a person who extends critical thinking into wider social contexts. This theory might work well in one 'world' (e.g. professional life, Barnett, 1997, p. 132) but does not explain why or how a person might extend their thinking further. To validate this

theory completely the relationship between CT, CA and CB needs to be further established as at present it could be argued that CB ≠ CT+ CA.

To explain his theory, Barnett uses the example of a young student standing in front of tanks in Tiananmen Square in the 1989 protests. This image depicts the student in a theoretical state of critical being. The student has taken critical thinking (knowledge about the political structure in China, deep understanding of the concepts of democracy and freedom) and used this thinking to inform his action. Rather than acting blindly he takes an authentic and purposeful stance against the world, confidently fuelled by his own values (Barnett, 1997). However, this is a student of information technology and as such (rather than, say, a student of political science), he has not only thought critically, but extended this thinking into a different knowledge area and significantly broader social context. For a person to bring their thinking usefully and positively from one context to another it could be said that there is something extra to a critical being which might be identified: CB = CT + CA + x. The question can then be asked, 'what is x for a critical person?'

Barnett carefully selected his example of the student in Tiananmen Square to illustrate his concept perfectly. This striking image might assist higher education teachers to envisage Barnett's meaning but such a dramatic example might not be particularly useful to teachers and learners when thinking about their practice. Undergraduate courses can seem a far cry from abstract philosophical ideas yet practice situations might offer some insight into what critical beings might look like (Creme, 1999), what x is for critical being and therefore what it is to educate for critical persons.

Examining health science tutorials for evidence of critical being was harder than I first thought. At the outset of data analysis I found the critical being most elusive in determining what to look for in the data. Barnett's thoughts are buried deep in an extensive text and it has been suggested that he 'needs to provide a shorter version for the hard of thinking' (Wagner, 1998, p. 2).

Chapters 3 and 4 examined the data for what it is to be a critical thinker and take critical action in tutorials. Chapter 5 now examines these same practice situations for evidence of critical being and what this might look like in an attempt to explain the

'missing link' in Barnett's theory. What it might be to teach for critical being is then outlined in the conclusions section. This Chapter is in two themes:

Theme 1 Extending thinking

This theme shows how teachers extend thinking outside professional and academic lives

Theme 2 Changing people shows how teachers are changed as people as a result of critical thinking and critical action

Both themes are central to the idea of critical being and throughout this Chapter they are explored to gain insight into what critical being might look like in practice. Alongside results and discussion, Barnett's (1997) concepts and other ideas from the critical thinking literature are discussed. This section is followed by the conclusions section which describes implications for teachers and students in higher education, and critical thinking theory as a result of this study.

RESULTS AND DISCUSSION

In the social context of this study, two particular features of critical beings appeared. First, critical beings showed themselves extending thinking beyond knowledge and the self in university or professional life. Second, critical beings appeared 'different' as professionals, that, as Barnett suggests, rather than simply being assimilated into any disciplinary community, a critical being might instead challenge or contest a given professional image (Barnett, 1997, summarized in Hilsdon, 2007). Evidence of concepts is sparse but clear and was found in the interview data from the four teachers.

Theme 1 Extending thinking

In data used in this theme, teachers described extending critical thinking into life outside of professional or academic frameworks and from these comments we can deduce what the relationship between these 'lives' might look like. Patrick described the process of extending critical thinking as 'applying' critical thinking:

When you apply critical thinking its difficult to know what comes first. Your critical thinking as a professional is either a reflection of your critical thinking in your life…I think as you get older or further into your career, then one probably matches the other, or they run parallel or are intertwined or the same thing. ...I think your profession in some ways starts to define you as you get further down the track because the way you think on the job helps you in the way you think about your life skills with your family or with, you know, the way you run your home or your sporting life or whatever and those things become intertwined.

(Patrick, Interview)

Patrick's comments showed how the relationship between different aspects of his life might look. He suggested that in extending critical thinking into activities outside work, the relationship between work and non-work becomes complex over time and he seemed unsure whether critical thinking in his professional life began to influence his home life, or vice versa. A substantial amount of professional thinking transfers to home and critical being may take some time to emerge, and seems that critical being continues to grow throughout one's lifetime:

…[being able to think critically] is more experience-based but there's life experience as well. I don't think there's an endpoint, to be honest. You may reach a zenith of critical thinking in a particular aspect or specialty but there's a number of other things you can relate to that or draw into that…you continue to grow and grow.

(Patrick, Interview)

Patrick talked about his students beginning to develop their thinking:

By the time students reach tertiary education they will have fulfilled enough critical thinking criteria to cope with that and get them started on [X] course. If they've done another degree as well that's even better.

(Patrick, Interview)

However he also alluded to influences that other aspects of a student's experiences might have on their thinking – that for critical being, critical thinking needs to be supported in all walks of life:

> Critical thinking needs to be supported at home and if it's not supported at home…what kids study is harder then for them to take further. [ ] Somebody who doesn't have the ability to critically think….it will reflect in the type of work they end up doing. Some people just don't have that ability. I don't know if they are smart enough or they just haven't had the opportunity.
>
> (Patrick, Interview)

These comments support Barnett's (1997) idea that a critical being uses critical thinking in three domains (knowledge, self and the world) and that this thinking becomes integrated and the effect of these experiences on each other is celebrated. Patrick's comments suggested that students who do not have the chance to apply their thinking in another domain might, therefore, not realize their potential.

In summary, data seem congruent with Barnett's theory that a critical being uses critical thinking and action in all domains of life. Further, that a critical being has the potential to begin in undergraduate education, needs life experience and support in thinking critically in different domains to develop to its full potential. It is suggested that critical beings might not appear as such at undergraduate level but instead growth might take place later, or outside of education. However the growth of critical beings might also have no endpoint and, as such, depending on both education and life experience, might offer great potential for some.

Theme 2 Changing people

Theme 2 now describes what 'critical beings' might look like in their professional lives. When asked whether critical thinking changes a person, Patrick (Interview) answered 'of course it does.' Barnett suggests that rather than simply being assimilated or seeking acceptance into profession or community, critical beings might look and behave a little differently (Barnett, 1997; Hilsdon, 2007). Teacher's experiences also suggested critical beings are regarded as a little different to the

conventional norm, and may not always be met with a good reception:

> …the lecturer...the white coat…I can't be that kind of person…even in my practicing life I can't be that kind of person. It's alright…its sort of cool but it's sort of scary too. I think I take risks in what other professionals within academia may think because I don't speak professionally enough with the students at times and maybe because I laugh a lot and smile a lot…
>
> (Deirdre, Interview)

Deirdre suggests that she is regarded by colleagues with a little disdain:

> But I'm 'not very professional'. That's the problem and that's why the other problem I have is that I always feel like I'm not professional enough, people don't look at me as a senior lecturer or a [X] or anything so I'm slightly out of that box too.
>
> (Deirdre, Interview)

Deirdre's experiences are that she has been regarded by the professional community as 'unprofessional', not clever enough and a 'problem'. Her experiences with students are also that they find her a little different to what they are accustomed to:

> I felt they looked at me like I was insane because the way I presented to them…I told them about myself and I tried to get them involved and I think some of the other tutors aren't quite as out there as me.
>
> (Deirdre, Interview)

In all this, Deirdre seemed to have retained a sense of self. She talks about her teaching practice and how she aims to grow this sense of self in her students and what this might mean:

> If they [the students] can do that then they've won because they'll go through life thinking, I can be the kind of practitioner I want to be and it's okay because in [X profession] it's very difficult…because there are lots of things put upon you. And so I think its time we should throw away some of these

things. [ ] I wanted to allow them to be who they want to be but I wanted them to think outside of the box that they are taught here and how to look and how to be… I want them, when they graduate as professionals…to be able to look at something, think about it and take their beliefs or their thoughts, their experiences, the academic reasoning that they've put in place to make a decision.

(Deirdre, Interview)

Denise described how some mass education programs, in her opinion, neglect to focus on growth of the self but rather focus on factual knowledge. To Denise this practice contradicts the aims of higher education:

…these environments are just interested in biffing out professionals. Instead we want these people to come into academia and develop and challenge and run things…With the McDonaldsization of universities and mass lectures the focus has changed from great learning, that you are here to learn…to learning for an end purpose and knowledge's sake rather than for the betterment of yourself.

(Denise, Interview)

Deirdre's comments 'they've won' (above) and 'I take risks in what other professionals within academia may think' suggested that being different as a professional has been a struggle and one she sees repeated for her students. Harland and Pickering (2011, p. 5) note that 'the academic who dares to think differently is often labeled nonconformist or cast as a troublemaker'. There must be a reason why Deirdre is prepared to tolerate such risk-taking rather than simply conform to the professional image. Her comments 'their beliefs, their thoughts' suggest that she is driven by something intensely personal.

In the example used by Barnett (1997, p. 1), he comments that the Tiananmen Square student 'reached this position of brave authenticity….has reached a position of utter assuredness of his own values'. Tisdell (2003, in Kreber, et al, 2007, p. 27) defines authenticity as 'having a sense that one is operating from a sense of self that is defined by oneself as opposed to being defined by other people's expectations'. However,

some authenticity concepts also suggest that an authentic person might be 'authentically evil' (Trilling, 2006, in Kreber, et al, 2007). In contrast to these concepts, the Tiananmen Square student took huge risks for an extremely positive purpose (demanding that government listen to the people). Therefore concepts of authenticity cannot fully explain his behavior.

However, Harland and Pickering (2011) suggest that authenticity is also about living our values fully. It is therefore suggested that what actually drove the Tiananmen Square student (a critical being) is realizing and acting on his values. Values are about making choices. All behaviours and thinking reflect our values. However, Harland and Pickering also note that 'some value decisions are simply better…we know this intuitively' (2011, p. 10). These authors suggest that at the basis of our values is our conscience, the internal voice which tells us right from wrong and ensures we act for good, not evil. A person who realizes and acts on their values therefore must do so with a strong sense of conscience and as Barnett (1997) suggests this means they act positively. That conscience informs our values means that when we need to make choices, justify our decisions, articulate or negotiate a value position, we choose wisely.

CONCLUSIONS

These results have implications for teachers and students as well as for the theory of critical being. I conclude with some remarks on teaching and learning for critical being, followed by a summary of Barnett's theory and implications for critical thinking theory.

Teaching and learning for critical being in higher education

Research data has suggested that students in health science tutorials can think and act critically. According to Barnett (1997) critical thinking and action are the precursors to critical being. Whilst teachers reported critical beings as rare at undergraduate level, Patrick has suggested that critical being potentially begins here.

Whilst data are sparse, theoretically there is an argument that teaching for critical being begins at the start of the undergraduate years. If higher education has the potential to be formative of the critical being, then teachers in higher education need to set the foundations in place so that students are equipped for growth even if this growth takes place outside these experiences. We can try to identify, theoretically what might set the conditions for critical being development.

Evidence of the development of critical being was not found in student participants' data, and so we are left with the theoretical position that if we teach for critical thinking, action and critical being, we can make a difference for students. Without the intervention of higher education, a student may or may not develop critical being. However, evidence suggests critical being development might begin in higher education so, to anticipate its growth, we can focus on 'critical being potential'.

It could also be argued that teachers in higher education have an obligation to society to teach the values of critical being. Values are supported by and influenced substantially by one's conscience – that tells us right from wrong (Harland & Pickering, 2011). Part of educations broader ethos, and in New Zealand written into legislation, is that universities have a role as 'critic and conscience of society' (Education Amendment Act, 1988, p. 162). If education accepts a role as critic and

conscience of society it is therefore the job of our teachers in higher education to teach for critical being.

It is my argument that teachers in higher education fulfill their role as critic and conscience of society by enabling students to act on and realize their values. At present, literature that directly addresses what it is to teach for values in higher education is extremely rare but Harland and Pickering (2011), who expressly addressed values in higher education, suggest that values develop and change. Values can be learnt and therefore taught and these authors also suggest teachers can influence and support students directly by their own actions (Harland & Pickering, 2011). In the present study, the actions and values of teachers were explicit for students and the example they provided would form part of the educational experience. Teachers who are critical beings themselves stand a good chance of their students developing this quality.

Harland and Pickering examined what it is to teach values and deduced that values can be taught as both subject and as subject matter; that teaching for values happens by teachers making their own values explicit but yet that currently it is rare for a teacher to deliberately teach values or valuing (Harland & Pickering, 2011). For those who already discuss values openly – or don't realize that in doing so they are teaching values, knowing this perhaps means no change in practice. But those who have never considered their own values, enhancing their practice might begin with reflecting on and building an awareness of these. To most this reflection would seem natural and fit well with the 'critical traditions' of higher education (Harland & Pickering, 2011, p. 11) but for some such an awareness of 'self' might be rather new.

Harland and Pickering (2011) found that there are no simple solutions to teaching values but suggest 'Six challenges' for the values teacher. These challenges are the result of substantial research and summarize challenges faced by teachers in the study with the purpose that others can learn from these experiences.

Six Challenges for the Values Teacher	
1.	**Teaching explicitly or implicitly** That higher education and teaching is a value laden practice cannot be ignored. What we teach (what's worth knowing?) and how we teach it is an expression of values whether we like it or not. We teach values indirectly by modeling and interacting with students and we learn about values from the actions of our students and peers.
2.	**Living one's values** Living values fully requires careful reflection on values when developing a theory of teaching and higher education. Teachers need to seize opportunities for creating spaces for thinking about values such as those offered by supervisors or peer review – although such opportunities are usually encountered as part of assuring quality teaching for promotion or tenure. Often teachers do not see themselves as teachers but rather specialists in a particular field. They are seldom trained in teaching and often do not view values teaching as part of their directive.
3.	**The separation of morals from values** These terms are often used interchangeably. Participants in this study saw morals as the result of careful values thinking about what is right and wrong, but that values are the overarching concept related to all ideas. Academia is reluctant to teach morals (see Dewey, 1916), however separating morals from values is not so simple and it is difficult to see where the limits to our moral responsibilities lie.
4.	**Indoctrination** has negative connotations yet academics indoctrinate students into their discipline without hesitation. Indoctrination about the instruction of a body of doctrine or principles might be seen as acceptable but instilling students with partisan or ideological points of view may not. We have to therefore consider educating students to recognize and resist unwelcome indoctrination and empower them to critique it.
5.	**When values collide** How do we live and interact with those who have different values? When values are confronted this brings them to the forefront of our thinking and how participants dealt with this process was a substantial part of their experiences. Some more theoretical value clashes might seem easier to deal with but more personal conflicts can divide people and close down discourse.
6.	**Defending values** Standing up for a value requires courage, especially when a personal belief rather than an abstract principle for which we feel less attachment. Standing up for values can cause marginalization yet at the same time being open to critique is how we learn. How do we deal with such personal challenges?

Figure 8. Six Challenges for the Values Teacher as developed by Harland and Pickering (2011, p. 50 – 54)
This table is a condensed version of what these authors summarize from their

substantial research data and the most common challenges facing those who wish to

teach values in higher education.

From the challenges described in Figure 8, conditions for supporting our students in expressing and discussing values can be identified. These conditions look remarkably similar to conditions for development of critical thinking and critical action discussed in Chapters 3 and 4. Conditions include creating safe spaces for all group members to express values by using small groups, using confidentiality and trust to enhance group dynamics and for teachers to use peer review and supervision and reflecting on teaching practice. In particular, that teaching for values means first realizing and living one's values fully. Opening our values to examination, justifying and perhaps changing values requires immense courage.

Values can be expressed simply in the way that we teach. For example a teacher who values honesty might stress rules about, and act quickly on plagiarism. A teacher who values independent thinking might structure such thinking into assessments by including elements of creativity and award marks for it. However, values sit at the very heart of who we are and many values are much more personal and to some expressing values openly may feel intensely unsettling, especially when values are challenged. For groups beginning on their journey together, and, for teachers new to practice in particular, it might be useful to consider that the personal nature of values might mean discussions close down easily. Students enter the spaces we create for discussion on trust and are seldom sure of what group work entails (Harland & Pickering, 2011) therefore it might be pertinent to develop a strategy to ensure explicit or in depth values discussions (especially personal ones), with the objective of developing critical being, are undertaken at a point at which groups are up and running with confidentiality and trust relationships well established.

There also seems an inevitable tension in values teaching. Chapter 4 discussed the need for teachers to be 'occasional experts' (p. 95) in order to guide students in matters of safety and professionalism. It appears to be part of a (particularly clinical) teacher's job to indoctrinate students somewhat into the ways of being in our chosen professions. How to educate for professionalism while educating for freedom of expression of values at the same time is a challenge.

Teachers in the present study also commented that students might be in for a tough

time in professional life. Our students in higher education might also feel a tension in our teaching too, in that they are being educated for freedom of expression on the one hand whilst, as Deirdre and Denise describe, perhaps being viewed as oddities who aren't 'professional enough' on the other. Students who feel the pressures of indoctrination or strong enculturation may find difficulty in developing as critical beings.

Barnett and the data

This Chapter examined the data for evidence of what it means to be a critical being in a practice situation and also examined Barnett's (1997) concepts of critical being for utility. In other words, this Chapter sought to provide evidence of what Barnett's concepts might look like in practice from empirical data. This section summarizes how results might fit with Barnett's concepts of critical being and implications for new theory.

Barnett claims that more than critical thinkers, critical beings extend critical engagement outside knowledge to become committed to questioning the impact of themselves, as well as their chosen field on society and the world. Critical beings reflect on themselves, their learning and how they impact on those around them and thus begin to experience both themselves and the world in new ways; they are changed as people. Barnett claims that a critical being is the result of critical thinking and critical action.

$$CB = CT + CA$$

Barnett (1997) suggested that the construction of the professional self was not easy. Critical professionalism, he says, calls for considerable personal qualities and for a person to withstand pressures in being 'not one of us'. Data showed teachers having a difficult time as critical beings, and these teachers also foresaw considerable difficulties for students in doing so.

Barnett (1997) also describes a critical being as one who, necessarily, uses critical thinking in all three domains (knowledge, self and the world), that this thinking becomes integrated and their effect on each other is celebrated. This thinking was

described clearly by teachers in this study in the way that home (e.g. sports) and professional practice began to influence each other.

More particularly, comments from teachers suggested the potential of students is realized if a student has life experience and is supported in thinking critically in areas outside of professional life. Teachers also note that that a critical being has the potential to begin in undergraduate education, takes some time to establish, develops and grows over one's lifetime. It is suggested that critical beings might not appear as such at undergraduate level but instead growth might take place outside of education (perhaps when life experience has been had). Critical being might also have no endpoint and as such, depending on both education and life experience offers great potential for some.

I have suggested rearranging and completing the equation for critical being so that it can be understood more easily. Critical thinking and action need something else to define critical being. Data suggested in particular that critical being is driven by realizing and re-examining one's values. Values can change and be learnt and, in being driven by one's conscience are subjected to interrogation which ensures that we respond positively and open our values to growth. The missing concept in Barnett's critical being is values:

$$CB = CT + CA + Values$$

CHAPTER 6
CONCLUSION

INTRODUCTION

This final Chapter will summarize the results of this study, describe its limitations and make suggestions for further research. The Chapter then concludes with recommendations for teachers and students in higher education.

The research aims grew out of concerns that teachers in higher education often find the concept of critical thinking difficult to understand and realize in practice. The study was also influenced by Barnett's claims that existing concepts of critical thinking are both limiting and have little utility in practice.

The aim of this research was therefore to examine Barnett's (1997) theories of critical thinking, action and being for utility in small group teaching in the health sciences. This study also examined how teachers and students experienced critical thinking, critical action and critical being in these practice situations and what students and teachers did to enhance these critical processes. Barnett also suggests that critical thinking and critical action are necessary conditions for higher order learning and form part of the foundations of a higher education. This idea was also examined and tools (in the form of a model and suggestions for teachers and students in practice) developed to support teachers' and students' conceptions of critical thinking, action and being. As such the purpose of this research was to make a useful contribution to the theory of teaching and learning for critical thinking.

SUMMARY

I frame the conclusion by summarizing the main outcomes of this research and what these have meant for me as a researcher and teacher of critical thinking in health science tutorials. As a critical project I feel that a personal critical reflection is an appropriate vehicle for communicating research outcomes and my learning.

Critical Reflection

The most surprising outcome was that some students critically chose not to pursue higher order learning, that is, higher order learning and critical thinking can be independent of each other and one can determine whether the other is used. This finding offered insights into what I have witnessed in practice when students did not do as well as anticipated, on some occasions excelling and others not. Especially as a novice clinical teacher I believed that such poor outcomes were my fault and I tried to compensate by adjusting my teaching strategies. I also did not realize the significance of a student taking responsibility for their own learning experiences and that in doing so they might make risky choices.

Throughout my career I have also witnessed undergraduate curricula expanding dramatically, mainly as a product of the profession adopting complex technologies and patient loads diversifying. Demands on teachers and students grew, but time available for quality teaching did not. I felt that despite tutorials being valued, they were increasingly marginalized and often competed with hands-on clinical experience for time. My research confirmed that critical thinking and group work were optimal for developing critical thinking but also that students and teachers needed time and space to develop their ideas, try things out, practice skills and have conversations about why they have done so. My frustration with the added pressures of professional life I now understand to be the result of these critical spaces coming under threat.

I was also surprised that critical being was in fact based in the realization of

one's values and subjecting these values to re-evaluation. I have seen students struggle with values discussions and this research has 'put a name' to this process. I can now see such discussions for what they are, feel more confident to enter into them and encourage students to consider how, and what, they value. I also feel a new confidence in my own practice and how this practice speaks about my values. With this confidence also comes an increased willingness to subject my values (and my practice) to critique when opportunities arise. I have also occasionally felt like a 'square peg in a round hole' when standing up for something I felt important in teaching. Whilst not claiming critical being status in its extreme, it is helpful to know that living one's values fully might be viewed by others as a little out of place and that in order to grow as a person, and a teacher, we need to take risks from time to time. Identifying the theoretical argument for why such difficulties arise has offered me insights into both professional and personal experiences.

One particular insight gained from this research is that I recognize that I value students being supported in thinking critically. This study has helped me further identify many ways in which I might offer that support in all three dimensions of criticality, and do so with added confidence that such guidance helps students develop critical thinking, action and being. Students in this study reported that engaging in critical thinking, identifying personal influences in learning and developing strategies were all difficult. I might, now, be able to distinguish a critically thinking student from one who isn't and assist students to commit to thinking critically rather than take easier options. I might also offer advice regarding implications of choices in learning and enquire about how they find group work. In particular, such discussions might allow students to express frustrations they might feel when needing to compromise or try something risky. I also feel a renewed vigor for supporting students in contributing to group work, now that I am aware that their actions can benefit them, their peers and teachers - and that I should also learn from them. Being aware of the tensions associated with critical actions (to contribute or not?) that both myself and students might feel in discussions will also assist me to more effectively negotiate group dynamics.

Some results were not surprising, especially that critical thinking and critical action in group work can be challenging for students and teachers, and often take some time to work well. However, it has been reassuring to find out, first hand, that even expert teachers find tutorial work tricky and that establishing and maintaining relationships for developing thinking and taking action in groups can be difficult.

I have also found it extremely useful to identify why the effects that students (and teachers) can have on each others' thinking can vary. I have realized that in practice I often assume discussions will lead to students changing their thinking, and in a particular way. This assumption might be because I have often directed discussions in a particular direction and expected a certain answer (I had an agenda). Knowing students can think critically yet choose to stick to their own thinking has meant I have a new confidence to allow my students a little more freedom (critical space) in discussion, and to remember that critical thinkers might also choose not to change their minds. This reflection also tells me that in the past I have not always achieved what I set out to do in teaching and that I might benefit from further feedback from my students. I have found a renewed confidence to ask both colleagues and students for assistance and feedback. I have often approached colleagues for advice but this study has reassured me that this critical dialogue about teaching is an excellent practice and that students' feedback offers an added dimension still.

This research has also lent a sense of legitimacy to my feelings that I am uncomfortable being seen by students as 'knowledgeable'. I now have first hand evidence that in some cases being viewed as knowledgeable or as an authority figure does not always help students in thinking critically so perhaps this discomfort was an unconscious attempt to level the playing field and allow students to develop their thinking. However, I was also pleased to find that students in the study felt able to request guidance and clinical knowledge when required. Whilst we would not expect students to simply assimilate themselves into a disciplinary community (Barnett, 1997) they

carefully (critically) considered how and when to ask for help which was impressive, especially for students early in their careers. Being able to ask for direction is an entirely appropriate response to learning a clinical field, and, in my experience, expected in professional life.

Whilst appearing completely at ease, teachers managed to seamlessly move from one strategy to another throughout their tutorials. They could be a non expert who is developing thinking, or offer more structured guidance (an occasional expert) and seemed to bring out the best in students. In practice, I have witnessed, and undertaken attempts to teach that stifled and then wondered why students simply repeat my own words back to me in exams. In contrast, teachers in this study had considerable expertise in judging when to guide and when to let student have more freedom in thinking. I feel confident that offering guidance or expertise is legitimate and necessary but also that the skill to know what is right requires judgment, and might take considerable effort to maintain in practice.

Problems that occurred in this study were minor and mostly technical. With the support of all participants, problems were ironed out quickly, with little fuss. That participants were so supportive meant my confidence increased significantly and as such had a positive effect on my commitment to the whole project.

As a researcher I have realized, but only recently, that research is a critical process. My critical thinking informed what I chose to research, every decision I made informed my critical actions, and the communities of practice that I had contact with (teachers and students who took part in the study, friends and colleagues) offered opportunities to learn from them. They too were offered opportunities to learn from the research and in some cases discussions with participants are ongoing. The results of my work have already influenced my teaching and as such I have begun to take research thinking into practice and across social contexts. My values also informed my choice of research topic and I am aware that I am acting on my values for both good teaching and useful research. As a result of this study I have also

come to recognize that higher education contains many interconnected elements that influence each other indirectly or directly and that, as Barnett described in his theory of critical being, the opportunities for growth research offers could be limitless.

Whilst there will always be students for whom critical thinking, critical action and critical being come naturally, it is extremely reassuring to know that as teachers in higher education we can offer support to all students in developing these processes. It is exciting to think that we have tools that might effectively develop critical thinking, action and being in our students, and that when they leave our education system they might continue to grow yet further to realize their potential.

Barnett's theories

This section will briefly summarize how Barnett's theory developed throughout this study. Barnett's theory of Critical Being is based on the assumption that Critical Being (CB) is the product of critical thinking (CT) and critical action (CA):

$$CB = CT + CA$$

The study established that critical thinking was individualistic and purposeful even though it was constructed in social situations. Critical thinking was also found to be preparation for critical action, and that both critical thinking and critical action were precursors of critical being. However the study also identified that the relationship between CT, CA and CB was not simplistic. According to Barnett (1997), critical beings do not think critically only in professional lives but, rather, habitually engage in critical thinking and action in other social contexts. Critical beings take this thinking and action into other domains of their life but his theory does not explain how or why this happens. To validate this theory completely the relationship between CT, CA and CB needed to be further established, and I argued that:

$$CB \neq CT + CA$$

From the evidence available to me, I have extended the equation for critical being. Critical thinking and action needed something else to define critical being:

$$CB = CT + CA + x$$

Data suggested in particular that critical being is driven by realizing and re-examining one's values. Values can change and be learnt and, in being driven by one's conscience are subjected to interrogation which ensures that we respond positively and open our values to growth. I proposed that the missing concept in Barnett's critical being is to be found in values:

$$CB = CT + CA + Values$$

Limitations of the study

As a qualitative study, this thesis does not claim generizability but has an intention that teachers and students engage with its results and claims, and seek to use them to construct meaning and thus inform their own practice.

This study does not contain longitudinal data that might further inform the development of new concepts of critical thinking, such as whether students continued on to be critical beings after their higher education experiences and what the outcomes of their particular learning strategies were.

Because of the vast critical thinking literature there were also topics that could not be included in a project of this size (e.g. critical thinking and assessment) which might have something additional to offer to critical thinking concepts and those in practice.

Finally, I would now adopt a new strategy to help understand the idea of critical being more fully, especially from the student's perspective. However I also recognise that I could not have predicted such an outcome in the original study design.

Suggestions for further research

From any research inferences can be drawn about further activity that might be useful based on what has been learned (Merriam, 1998). From the present study, five ideas for further research are identified.

First, it is suggested that students developed critical thinking as a result of realizing their autonomy. This idea might benefit from further investigation to establish how exactly autonomy and critical thinking are related.

Second, students in this study made choices about their learning based on personal experiences and beliefs. Further work might examine what particular factors (personal beliefs about success, risks, sacrifices and influences of teachers and peers) had the most influence on a student. Such data would be useful for teachers to tailor support and advice offered to students who are developing critical thinking.

Students in this study developed critical thinking as a result of taking responsibility for their learning. It is unclear how teachers actually helped this process develop. Responsibility seemed vital for developing thinking and according to other research, also good for improving a range of student outcomes (Dart & Boulton-Lewis, 1998). For teachers, it would be useful to establish what does and does not work well to develop a student's responsibility in learning in order to support the development of critical thinking.

Fourth, teaching for values is still under-researched (Harland & Pickering, 2011). Although these authors are clear that teaching for values starts by realizing one's own values as a teacher, and that values can be taught implicitly or explicitly, teachers also need to know what strategies might work well in their particular practice situations so they can encourage students to grow from their experiences and work towards developing as critical beings.

Finally, it would also be beneficial to examine how students' experience critical being. Data clearly showed that critical thinking and critical action could be supported in small group teaching, and also suggested that higher education experience more

broadly might be a starting point for development as a critical being. To research student experiences of this phenomenon might offer an identification of how, why and when critical being might develop and therefore how we can support critical being as teachers. A study of this kind would entail longitudinal data in addition to reflective and experiential data.

RECOMMENDATIONS

Teachers reported that small groups can be difficult to teach and that they developed their practice via trial and error. Whilst faculty defer to critical thinking as a learning outcome, paradoxically, teaching staff often have no training in it, or no teacher training at all (Grant, 2002; Halx & Reybold, 2005). Research also shows that teachers in higher education often see themselves as subject specialists first and teachers second, and feel insecure teaching in non-content areas (Sutherland, 1996).

Teachers in higher education might also experience peer review: those who took part in this study reported the value of this and especially the kind of advice received from colleagues. These teachers also reported that day to day, formal and informal feedback from students was also vital in guiding their practice.

Data suggests that active learning in small groups is ideal for developing critical thinking and action. The development of critical being, whilst difficult to see in practice, also has potential to develop in higher education and small groups are ideal for entering into values discussions that might signal the growth of critical beings.

Teachers in this study showed evidence that they were trying to be critical beings and take a stance in the way they taught. They realized, or at least were trying to live their values fully in their teaching. Realizing one's values then becomes important for those teachers who wish to teach for critical being.

Students in this study showed that critical thinking was developed as a result of students realizing their autonomy and reflecting on their experiences in order to formulate individual learning strategies. In doing so, students took risks and on occasion compromised. They were also prepared to be influenced by others and, in

taking critical action, worked hard to ensure the needs of all group members were met whilst ensuring their own critical thinking was independent.

This study suggests that higher education can support the needs of teachers and students in developing critical thinking, action and being. Therefore it is the responsibility of higher education establishments to support the conditions necessary if we are to realize the potential of students both professionally and personally.

Finally, teaching for critical thinking should be made explicit for students in small group teaching in health science. Advice to students might include:

1. Barnett (1997) suggests that you should aim, in your own education, to develop your capacity as a critical thinker, to be able to act on this thinking, and to use this thinking in your education, professional and personal life.

2. Research has shown that critical thinking also means carefully considering your own skills, experiences and beliefs. Critical thinking also takes a certain amount of effort and commitment, might feel uncertain and will mean taking risks from time to time.

3. Putting thinking into action means carefully considering why you act as well as what you do. Critical action means thinking about other people as well as yourself and knowledge. Critical action also means thinking about when to act, and when not to, depending on the needs of your peers and your own thinking.

4. Barnett (1997) suggests that developing as a critical being is how we develop our potential as critical thinkers. Critical beings consider their own values and act on them. They open their values to critique and are prepared to reevaluate them, based on evidence and influence of their conscience. Whilst critical being might feel somewhat aspirational, by entering higher education and using our critical thinking in all our experiences we begin a journey of development towards our chosen profession and personal lives.

EPILOGUE

'What are you studying?' I am asked, perhaps for the umpteenth time this year. It's hard to tell exactly what pitch I should take. I'm guessing molecular biologists and neuroscientists suffer the same ailment from time to time. People mostly glaze over during the first sentence and politely feign interest.

'What's your thesis?'

Interested, perhaps? Curious? Polite? How to answer.

'I mean what aspect of higher education'.

I'd forgotten that I was, for once, in the company of similarly interested folk. I've spent years in environments where teaching and learning comes at the bottom of the food chain for money and time, yet the holders of the purse strings wonder where all the learning has gone and why teachers are frustrated.

Most don't even know that people diligently and legitimately study teaching and learning. I used to think that I was the only person in my department concerned with the quality of teaching. If a student was stuck, the solution was 'just give a tutorial on it'. But tutorials were never aimed at critical thinking.

I often give vague answers about my research to reassure politely asked questions, a social formality, but knowing conversation will end without substance or meaning. But this time the question fires a response which takes me by surprise. I'm in a job interview after all, sitting politely, toes together, a little dry mouthed with three copies of my *Curriculum Vitae* balanced on my (freshly laundered) knee.

'Critical thinking in small groups. I love small group teaching. And I love to get students to think. I'm passionate about it. And people. Well, students are people, don't get me wrong, but they end up different to how they start out.'

'How so?'

'I sometimes call the papers I teach 'how not to be a twit 101', between you and me. They are all so very clever. But yet… At the start it's all about knowing stuff. The gaffs they make with patients, and each other, are terrible.

But making cock-ups is part of it...that's why I'm researching critical thinking in small groups, there's something special about being able to make a mistake amongst friends…Well, almost friends. Amidst familiar faces. Learning to think critically in groups.' Gawd. A gabble.

'What do you think critical thinking is?'

'At first I thought it was about assumptions. Then it was about logic. Then with studying the groups I could see so much thinking going on that was more than that, broader.'

'What do you think it is now?'

'Well, that's the thing. I can now see it's something much bigger, more to do with people and who they are, as well as how they think. But most of all I've found that researching an area that you are passionate about is really quite tricky. Sometimes I start thinking about my day at work, and my study groups and my writing and I can't remember what came from where. Who said what. It gets mixed up and I get caught up in it all. But I guess that's the best bit.'

'Why?'

'Well, I guess it proves the point. Barnett, the chap I'm studying, was mostly right. That he has a point. Critical thinking does change you. I'm such a different teacher now. I've grown and changed…started to think differently about lots of things…'

I got the job ☺

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APPENDIX A

Ethics Consent form for Participants

Critical Thinking in Clinical Teaching
CONSENT FORM FOR
PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:-

1. My participation in the project is entirely voluntary;

2. I am free to withdraw from the project at any time without any disadvantage;

3. Personal identifying information - *video-tapes and audio-tapes* - will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years, after which they will be destroyed;

4. This project involves an open-questioning technique. The general line of questioning includes critical thinking in health science teaching. The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops and that in the event that the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s) and/or may withdraw from the project without any disadvantage of any kind.

5. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

I agree to take part in this project.

....
     (Signature of participant)   (Date)

This study has been approved by the University of Otago Human Ethics Committee. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph. 03 479 8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

APPENDIX B

Information sheet for Participants

Reference Number:
Date:
Critical Thinking in Clinical Teaching
INFORMATION SHEET FOR PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind and we thank you for considering our request.

What is the aim of the project?
This project is being undertaken as part of the requirements for a Masters degree in Health Science. It aims to examine how 'critical thinking' is experienced in group teaching situations in the health sciences and develop a tool for use by both students and teachers to help put critical thinking into action.

What type of Participants are being sought?
Three groups of students and their teachers in the health sciences are to be selected, who take part in small groups as part of their teaching and learning.

What will Participants be asked to do?
Should you agree to take part in this project, you will be asked to take part in the following:

Teachers: A one hour interview will take place with each teacher to explore their conceptions of critical thinking. This interview will be taped and then transcribed. This interview involves an open-questioning technique. The general line of questioning includes:
What do you think critical thinking is?
How do you think it occurs in the class?
How do you know it has happened?

The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops. Consequently, although the University of Otago Human Ethics Committee is aware of the general areas to be explored in the interview, the Committee has not been able to review the precise questions to be used. In the event that the line of questioning does develop in such a way that you feel hesitant or uncomfortable you are reminded of your right to decline to answer any particular question(s) and also that you may withdraw from the project at any stage without any disadvantage to yourself of any kind.

Teachers and students: Each class will each be videotaped in a single teaching/learning situation of approximately one hour duration. The researcher will not be present.
The teachers and student volunteers will then remain after class and watch the video of their own session. The teacher's session and the students' sessions will be separate. There will be an interpersonal process recall* (IPR) with the researcher. There will be an opportunity for any student or teacher to stop the video at any point (via remote) to discuss what they were thinking or feeling at that moment and then discussion will be developed around issues important to the students. This recall session will be recorded

on audio tape and then transcribed. The length of this session will be guided by the volunteers but is typically of one hour duration. Volunteers will be free to withdraw at any time, and will not be pressured to reveal information if they do not wish to do so.

*The interpersonal process recall (IPR) model is comprised of specific techniques for recalling thoughts, feelings, intentions, expectations, and images that occur during an interpersonal interaction.

Data gathered from these sessions will be analysed and discussed with relation to current literature, with the aim of producing the following documents:
- Concise guidelines for the self-evaluation of teaching critical thinking skills
- A useful definition of critical thinking for use by students and teachers

Can participants change their mind and withdraw from the project?
You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What data or information will be collected and what use will be made of it?
Teacher interviews will be recorded on audiotape. Teaching sessions will be recorded on videotape. IPR sessions will be recorded on audiotape. All sets of data will be transcribed. Raw data will therefore be accessed by the following:
The researcher
The researcher's supervisors (2)
University of Otago transcribers.

When not in use by the above, raw data tapes, transcripts and video recordings from this research will be kept locked at the Higher Education Development Centre, University of Otago. They will be identified by code only. After this research is completed they will be kept as required by the University of Otago's Research Policy and destroyed after five years. Data constructed with their use will be stored in a password- protected computer. No personal identifiers will be used on any data.

The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve your anonymity.

You are most welcome to request a copy of the results of the project should you wish. You may also view the transcribed data from the IPR session of your own group if you wish. Teachers may also view the transcription of their interview.

What if Participants have any Questions?

If you have any questions about our project, either now or in the future, please feel free to contact either:-

Althea Blakey   or   Associate Professor Tony Harland
Higher Education Development Centre   Higher Education Development Centre
65 Union St   65 Union St
Dunedin   Dunedin
Ph: (03) 479 8510   Ph: (03) 4798136

or:

Professor Jules Kieser
Department of Oral Sciences
Faculty of Dentistry
University of Otago
Dunedin
New Zealand
Ph: (03) 479 7083

This study has been approved by the University of Otago Human Ethics Committee. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph: 03 479 8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.