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**Conceptualisations of critical thinking in academic  
writing at a master's level**

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**Doctor of Philosophy**



THE UNIVERSITY  
*of* EDINBURGH

**2019**

### **Declaration of authorship**

I confirm that this thesis presented for the degree of a Doctor in Philosophy has

- i) been composed entirely by myself
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NAME: Andrew Gordon Drybrough

**Wisdom is the principal thing, therefore get wisdom, and with all thy getting, get understanding. Exalt her and she shall bring thee to honour.**

[Proverbs 4:7]

Inscription on the inside dome of a university graduation hall

## **Acknowledgements**

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## Abstract

Critical thinking is often considered to involve a set of skills required by graduates of higher educational institutions in the UK. However, the conceptualisation of critical thinking by university tutors varies across disciplines and is not always particularly clear. In a UK higher educational context where proportionally increasing numbers of postgraduate students are international, often from educational traditions where critical thinking is less of a priority, it is important to compare international student understanding of critical thinking with that of postgraduate course tutors.

This thesis aimed to compare the conceptualisations of critical thinking skills by postgraduate students and tutors, and gauge how these skills are connected to academic writing at a UK Russell Group university. To do this, a mixed methods approach was adopted involving three main stages: a student questionnaire, focus groups and interviews with students, and interviews with tutors. The questionnaire asked 235 students to rate the importance of different statements describing features of academic writing based on aspects of written argumentation and cognitive skills. Results show that clear argumentation was ranked highly, alongside the skills of comparing and evaluating content.

Analysis of the findings from the focus groups and interviews with students and tutors resulted in three main themes: that critical reading was an essential component of critical writing; that clear argumentation and voice are important features of critical academic writing, and that there was what appeared to be a phase in the process of academic writing which I have labelled as a '(re)construction' phase. For students, this involved the importance of comparing and evaluating different viewpoints and perspectives, while for tutors it involved the need for academic writers to make connections between theory, evidence and practice.

A final question looked at what were perceived to be the most effective approaches to teaching and learning critical thinking at a postgraduate master's level. Both students and tutors agreed that an 'infusion' approach to teaching critical thinking could be most effective. This involves the teaching of critical thinking skills explicitly within specific disciplines. Although a separate generic course on critical thinking was less popular, the role of current research methods courses and (to a limited extent) study skills courses were key elements involved in the second most popular response, which involved a mixture of different approaches.

Pedagogical implications of these findings include the need to focus on the role of tutors in teaching explicitly what it means to be critical within a discipline, and the role that research methods courses can have in reinforcing more generic aspects of critical thinking.

## Lay summary

Critical thinking is often considered to involve a set of skills required by graduates of universities in the UK. However, how tutors and students understand critical thinking at a postgraduate level is not always particularly clear. In a UK university context where increasing numbers of postgraduate students are international, often from educational backgrounds where critical thinking is less of a priority, it is important to compare international student understanding of critical thinking with that of postgraduate course tutors.

This thesis therefore aimed to compare postgraduate student and tutor understanding of critical thinking skills in academic writing at a UK research intensive university. To do this, a mixed methods approach was used involving three main stages: a student questionnaire, focus groups and interviews with students, and interviews with tutors.

The questionnaire asked 235 students to rate the importance of different statements describing features of academic writing based on aspects of written argumentation and cognitive skills. Results show that clear argumentation was ranked highly, alongside the skills of comparing and evaluating content.

Analysis of the findings from the focus groups and interviews with students and tutors resulted in three main themes: that critical reading was an essential component of critical writing; that clear argumentation and voice are important features of critical academic writing, and that there was a phase in the process of academic writing which I have labelled as a '(re)construction' phase. For students, this involved the importance of comparing and evaluating different viewpoints and perspectives, while for tutors it involved the need for academic writers to make connections between theory, evidence and practice.

A final question looked at what were perceived to be the most effective approaches to teaching and learning critical thinking. Both students and tutors agreed that an 'infusion' approach to teaching critical thinking could be most effective. This involves the teaching of critical thinking skills explicitly within specific disciplines. Although a separate generic course on critical thinking was less popular, the role of current research methods courses and (to a limited extent) study skills courses were key elements involved in the second most popular response, which involved a mixture of different approaches.

Pedagogical implications of these findings include the need to focus on the role of tutors in teaching explicitly what it means to be critical within a discipline, and the role that research methods courses can have in reinforcing more generic aspects of critical thinking.

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## Acronyms and Abbreviations

BALEAP	British Association of Lecturers in English for Academic Purposes
BERA	British Educational Research Association
CT	Critical thinking
CTM	Critical thinking movement
EAP	English for academic purposes
EC	European Commission
EGAP	English for general academic purposes
EHEA	European Higher Education Area
ELE	English Language Education
EU	European Union
HEI	Higher education institution
HESA	Higher Education Statistics Agency
IAD	Institute of Academic Development
IELTS	International English Language Testing System
MBA	Masters of Business Administration
OBTL	Outcomes-based teaching and learning
PCA	Principal component analysis
PhD	Doctorate in Philosophy
PGT	Postgraduate taught
PGR	Postgraduate research
PT	Personal tutor
QAA	Quality Assurance Agency for Higher Education
QCF	Qualification and Credit Framework
RQ	Research question
SCQF	Scottish Credit and Qualification Framework
SOLO	Structure of observed learning outcomes
SPMID	Sports, Policy, Management and International Development
TESOL	Teaching English to speakers of other languages
TOEFL	Test of English as a Foreign Language
UK	United Kingdom
UoE	University of Edinburgh
UoM	University of Manchester
USA	United States of America
WEF	World Economic Forum
CoEv	Comparing and evaluating
DeSu	Describing and summarising
DeEx	Describing and explaining
ExII	Explaining and illustrating
PrSo	Problem solving
Re	Reflection
VoSt	Voice and stance







# 1. Introduction

## 1.1 Chapter introduction

Student: For the first assignment I received ... feedback ..., 'you need to be more critical'...

Interviewer: And did they explain how? And was it useful?

Student: It was useful to receive the feedback, but they didn't really explain how I can, how I can be more critical.

The above comment from my research reflects an initial lack of understanding of critical thinking that is not uncommon among international postgraduate students. As a comment by a student from another study also highlighted, "They [tutors] just say critical, critical, critical! What do they mean?" (Fakunle, Allison, & Fordyce, 2016, p. 33).

While working as an English language tutor and lecturer in South Korea and while studying Chinese students during my master's dissertation in the UK, there was one re-occurring theme that stood out. It was something that tutors and students who I had worked with in different higher education institutions (HEIs) in different parts of the world had observed; it was the question of whether students were displaying 'critical thinking'.

But what exactly did tutors mean by this term? And what did students understand it to mean? As someone whose first language is English (L1), I was not sure what it meant and why it was so important, even though as a master's student I knew it was supposed to be an important feature of my written assignments. As an English language tutor, I was also keen to know how students could be taught to become more effective critical thinkers. Viewing the world of academic writing from the perspectives of both a student and teacher led me to reflect, and ultimately led me to make *critical thinking* (CT) the subject of this thesis.

Both quotations above are from international postgraduate taught (PGT) master's students (one Belgian and the other Chinese). Based on data from the Higher Education Statistics Agency (HESA), HEIs in the UK have experienced rapid growth in international student enrolment over the last ten years (HESA, 2018a; Universities UK, 2016). This is especially the case in the UK at the PGT level.

Another trend in higher education is an increasing focus on the quality of teaching and learning. The Bologna Process (EC, 2005) and numerous national qualification frameworks have been instrumental in driving an outcomes-based approach to teaching and learning (Biggs & Tang, 2011). Increasingly, universities have issued statements of 'graduate attributes' (Barrie, 2004), often in the context of an 'employability' agenda, which are driving institutions of higher education to market themselves to prospective students (Davies & Barnett, 2015) and to future employers who view "critical thinking and analysis" as one of the top skills required by employees (World Economic Forum, 2018, p. 12). Universities across the world are competing for students, not only within their own countries of origin but also for an increasingly lucrative international market (Universities UK, 2016).

One key feature of higher education in the UK, Australasia and North America is the expectation that students should be critical in their thinking and in their academic engagement (Atkinson, 1997; Barnett, 1997; Davies & Barnett, 2015). This has led to the need to examine how students who do not come from those educational backgrounds above (and where criticality may be conceptualised differently) should be taught (Fakunle, et al., 2016; Hammersley-Fletcher & Hanley, 2016).

Another major trend is the *massification* of higher education (Altbach, 2004). This refers not only to the increasing number and diversity of students enrolling into higher education, but also to the range of motives students have to learn and to acquire a degree. These trends have led to new pedagogical challenges; one of which is how universities, colleges, faculties and departments can teach CT to this increasingly diverse student body.

The first part of this chapter (1.2) briefly surveys the trends in international student numbers studying in the UK, followed by student experiences of adapting to a new academic environment where CT is required. The second (1.3) briefly reviews trends in the embeddedness of CT within graduate attributes and national qualification frameworks in the context of the massification of HEIs, focusing in on whether disciplines or whole institutions have the responsibility to teach CT. The conclusion of this chapter brings together the various strands above and maps out the remainder of this thesis.

## **1.2 Trends in students studying in UK and Scottish HEIs**

Since the late 20<sup>th</sup> century and into the early 21<sup>st</sup> century UK higher education had experienced an expansion of student numbers. Since the turn of the 21<sup>st</sup> century, UK universities have also experienced a more specific increase in *non-UK* students. The UK is one of the top-three host countries of international students in the world. Between 2003 and 2013 it saw a 63% increase, compared to a 33% increase in the USA (Universities UK, 2016), with over 400,000 students in 2013. Furthermore, international (non-UK domicile) students account for a higher proportion of students in UK HEIs compared to most other OECD countries, accounting for around 19% of all students (HESA, 2018b). Furthermore, the university where this research was conducted is located in Scotland, which has devolved autonomous legislature in the area of education and is keen to attract more international (non-EU) fee paying students (Scottish Government, 2018).

### **1.2.1 International students at the PGT master's level**

The proportion of international students is even greater at the PGT master's level compared to undergraduate level. Non-UK PGT students still accounted for 55% of all full-time master's students in the UK in 2016/17 (58% in Scotland) despite a reduction from the proportional peak of over 60% in 2014/15. This is in contrast to the proportion of non-UK students studying first degrees in 2016/17 which accounted for just over 14% of full-time students (HESA, 2018c).

The recent reduction in non-UK PGT students reflects uncertainties in an ever changing and competitive environment. Although between the academic years 2012/13 and 2016/17 there was an increase in full-time taught master's enrolment in UK universities (from just under 217,000 to just over 236,000), non-UK students reduced slightly (from just over 130,000 to just over 129,000) between 2012/13 and 2016/17 with a peak at in the academic year 2013/14 of 134,735 (HESA, 2018b). At the same time, UK higher education appears to remain competitive, with relatively low tuition fees compared to other Anglophone countries such as Australia and the USA (Universities UK, 2016).

When focusing on the specifics of the international students studying degrees in the UK it is clear that one nationality dominates, the 'mainland' Chinese from the People's Republic of China (from henceforth known as 'China'). In the

academic year 2016/17 there were over 95,000 mainland Chinese nationals studying in the UK (HESA, 2018d). This accounted for around one third of all non-EU international students and a fifth of all international students (HESA, 2018a, Universities UK, 2017). In the most recent data I could find for the university in this study (2014/15), the Chinese accounted for the largest percentage of the international students, accounting for 23% of all international students (EU and non-EU) in a university where (non-UK) international students accounted for around 30% of the total student body (UoE, 2016a). Statistical data for the student cohort year for the students I studied in my research (2015/16) are summarised in Appendix A.

Student mobility has been promoted by national governments for a number of reasons. Iannelli and Huang (2013) outline four such “push and pull factors” (p. 807) which involved the ‘sending’ government policy that encouraged students to study abroad (push), host government policy or study environments that attracted students to study in those countries (pull), or a combination of both. These are for ‘mutual understanding’ (e.g. the European Erasmus programme), ‘skilled migration’ to contribute to a host economy (pull), ‘revenue generation’ to boost the funds of host HEIs, and ‘capacity building’ to bolster the knowledge economy of the sending countries (push). According to Iannelli and Huang (2013), the main purpose of having international students in the UK (and specifically Chinese students) is as a source of revenue generation. This is also acknowledged by UK university and governmental organisations (Fakunle, et al., 2016; Universities UK, 2016). Other ‘pull’ factors could also be added to this such as the shorter one-year master’s degree programmes in the UK (compared to North America) and the added cultural and travel opportunities due to the UK’s close proximity to continental Europe.

### **1.2.2 Massification of UK higher education**

University systems throughout the world had experienced a process of massification since the 1990s (Altbach, 2004; Biggs & Tang, 2011), prior to the more recent influx of international students into the UK. This trend has continued, at least in terms of full-time student enrolment to UK universities. For example, between 2004 and 2014 undergraduate full-time enrolment increased from 360,000 to 460,000 students, while postgraduate full-time enrolment increased from 130,000 to over 180,000 students (Universities UK, 2015). There has also been a trend of widening participation with more students from state schools (HESA, 2018e), and

students from areas of lower participation enrolling in universities (Universities UK, 2017).

Massification is not just a matter of an increasing number and types of people participating in higher education, but it also involves the emergence of different types of student with different learning motivations (Biggs & Tang, 2011; Kreber, 2009). For example, Biggs and Tang (2011), write about the difference between the 'Susans' and the 'Roberts'. Susans are students who are academic in orientation, intrinsically motivated to learn and rarely need much help from teaching staff on how to learn. In contrast, Roberts are extrinsically motivated to study at university. For them university is an opportunity to improve their career opportunities. Massification has increased the numbers and proportions of the Roberts in higher education. However, in order to reach a similar level of achievement as the Susans, they may require more assistance. Of course, Biggs and Tang's (2011) two archetypical students are an oversimplification of the diverse student body, but these caricatures of two 'types' of students are designed to challenge educators to accommodate their teaching more to the Roberts.

### **1.3 CT and the growth of international students in UK HEIs**

The internationalisation of UK higher education should also be placed within the context of other trends which all have direct impact on the further institutionalisation and sedimentation of CT in higher education. Berger and Luckman's (1966) concept of 'institutionalization' implies that "actions of type X" are "performed by actors of type X" (p. 72). In the case of my research, 'CT' is the (type X) action required of 'master's students' (Type X actors) within the wider institutions of postgraduate higher education (type X institutions). 'Sedimentation' occurs when social experiences are embedded in a common understanding (Berger & Luckman, p. 85) and are often defined and embedded in language and through language.

I would argue that CT is such a concept that exists in language as well as being demonstrated through language. It is therefore possible to demonstrate that someone is using their CT skills in how they write or speak. CT has been further institutionalised through actions and in the language embedded in those actions; namely the development of graduate attributes and generic and transferable skills, and the development of national qualification frameworks in higher education in

which CT skills are embedded (or sedimented). In this sense CT can be conceived as a social construct and a social practice (Atkinson, 1997).

There are also perceptive and pedagogical consequences of this sedimentation in terms of how students and tutors are able to learn and teach CT. This relates to the perceptions of CT skills among international students, and the pedagogical consequences this has in terms of whose responsibility it is to teach students how to be critical thinkers within the academy, and beyond. The remainder of this section will highlight some of the ways in which CT has been institutionalised and sedimented within HEIs, and some of the effects this may have on international learners who may not be as familiar with CT, and on those who may have to teach them about CT.

### **1.3.1 CT and graduate attributes in UK universities**

In UK universities, CT is evident from an undergraduate level, at least in policy documentation and statements of intent. This is often embedded in 'graduate attributes' or transferable skills statements made by universities, often connected to the concept of 'employability'. Barrie (2004) defined graduate attributes as "the skills, knowledge and abilities of university graduates, beyond disciplinary content knowledge, which are applicable to a range of contexts" (p. 262).

A brief survey I made of the websites of 23 Russell Group research intensive universities in the UK yielded interesting results. When I searched for 'graduate attributes' and 'transferable skills' under each of the university websites in 2018, I managed to find 18 universities that had clear statements relating to graduate attributes, transferable skills, or another phrase with the same implied meaning, such as 'transkills' or 'skills for life'.

Out of these 18 universities, 15 included the phrases 'critical thinking' or some variation such as 'engage critically' and 'critical intelligence'. Another term that was also frequently used and often associated with employability was 'problem solving'. The importance of 'analytical' skills, the ability to 'synthesise', and 'creativity' and 'innovation' were also used, as was the importance of good argument.

For example, the University of Manchester had quite detailed statements that highlighted graduate attributes which related to different features of CT highlighted

in this thesis. One of the purposes of its university education was, “to develop critical thinking and higher order conceptual reasoning and analytical skills” (UoM, 2018). The university in this study also had a statement of ‘graduate attributes’ which included a declaration that graduates should be “critical and reflective thinkers” (UoE, 2018). What this cursory survey would suggest, at least in theory, is that on completion of their undergraduate degrees in the UK, students from the majority of these universities should have at least developed some understanding of what it means to be a critical thinker. This is also linked to an employability agenda where employers throughout the world (WEF, 2018) who are looking for employees who are capable of high levels of ‘analytical thinking’, ‘problem-solving’ and ‘critical thinking’ skills.

The importance of being critical is also a key feature of Australian (Davies, 2011; Moore, 2013) and US (Facione, 1990, 2015) universities at an undergraduate level and beyond. However, the effectiveness of universities in actually teaching and developing CT skills among undergraduate students is still open to debate (Aram & Roska, 2011).

### **1.3.2 CT in national and international qualification frameworks**

The expectation is often that as learners progress through university they become more critical. The word ‘critical’ is used as part of the descriptors in educational frameworks throughout the UK and the European Union. In the European Commission’s *Framework for Qualifications of the European Higher Education Area* (EHEA), more commonly known as the ‘Bologna Process’ (EC, 2005), students are expected to be “capable of critical analysis, evaluation and synthesis of new and complex ideas” (p. 69) in the ‘third cycle’ of higher education qualification descriptors (equivalent to PhD).

In the English, Welsh and Northern Irish Regulatory Arrangements for the Qualification and Credit Framework (QCF, 2008) by Level 7 (postgraduate master’s) students are also expected to “critically evaluate actions, methods and results” (p. 50), as well “critically analyse, interpret and evaluate complex information” (p. 50). In the Qualification Assurance Agency for Higher Education’s *Framework for Higher Education* (QAA, 2008) master’s students are expected to “evaluate critically current research” (p. 20). It is especially from the postgraduate master’s level and above that students are expected to be critical. More specific to the context of my research,

*The Scottish Credit and Qualification Framework* includes the word ‘critical’ numerous times as part of its Level 11 (postgraduate masters) descriptors. For example, master’s students are expected to demonstrate a “critical awareness of current problems” (SCQF, 2012, p. 16).

### **1.3.3 CT and (Chinese) international students**

According to Bedenlier, Kondakci, and Zawacki-Richter (2018), research on the internationalisation of higher education in the last 20 years has two main strands: the application and management of internationalisation in higher educational institutions, and a focus on the perspectives of those involved, such as the international students. As noted above, mainland Chinese students account for the largest single national group of non-UK students. Edwards and Ran (2006) highlighted some of the common difficulties Chinese students had studying and adapting to the UK. Of specific relevance to this research were issues identified under the academic issue sub-heading of ‘study skills’. As they highlight:

The match between the learning strategies encouraged in China and the study skills explicitly taught in British schools and universities is limited. Skills considered important in a British context include the ability to read critically, to form arguments and to structure essays and reports. .... [C]ritical analysis and problem solving are often identified as areas of weakness. (p. iv)

Critical thinking skills are considered to be a key weakness of international students studying in Australian, US and UK universities, especially students from Asia, Latin America and Africa (Fox, 1994), South and East Asia (Vangermensbrugge, 2004; Melles, 2009) and China (Ramanathan & Atkinson, 1999). However, others would contend with this opinion, regarding it as a case of overgeneralisation and poor stereotyping in the case of Indian students (Kumaravadivelu, 2003). Moreover, US college and high school students have been shown to be weak at distinguishing between warranted and unwarranted arguments (Larson, Britt, & Kurby, 2009), a key aspect of CT.

Some researchers therefore maintain that it is an oversimplification to claim that students from Asia display limited CT skills in such a diverse continent where there is much evidence of criticality in the case of Japan for example (Stapleton, 2001; 2002). Critical reflection is also part of a deeper Confucian heritage of learning, though often neglected in the contemporary Chinese education system (Jin

& Cortazzi, 2006), and attitudes towards learning in China are rapidly changing and becoming more interactive and questioning (Shi, 2006).

Furthermore, the 'Confucian cultural heritage' argument against CT is often considered to be less applicable to contemporary China and East Asia (Dong, 2015; O'Dwyer, 2016; Tian & Low, 2016). Rather, a lack of experience in being critical in academic writing (O'Dwyer, 2016) and the difficulties of communicating critically in another language (Floyd, 2011), as well as an educational system where critical engagement is frowned upon, are viewed as more important factors than a traditional unquestioning attitude to knowledge transferred from tutor to student (Tian & Low, 2011). At the same time, while there may be difficulties in developing CT within the Chinese educational system of today (Dong, 2015), there is evidence that Chinese students are able to adapt to changing educational environments a lot more effectively than their 'western' counterparts (Wang, 2013).

At the same time, Dong (2015) and Durkin (2008) also provided some further explanations of why there may be 'resistance' to the adoption of a particular western conceptualisation of CT (Atkinson, 1997) among the Chinese. Dong explains the resistance of Chinese students to adopting a critical approach to two main forces: a traditional "cognitive orientation" and a "materialistic, egoistic society" (p. 362). The cognitive orientation tends to encourage a focus on theoretical knowledge, at the expense of practical application, while the materialistic benefits of a higher education are foregrounded above any higher 'search for truth' mandate. Durkin (2008), on the other hand, focuses on the resistance of Chinese postgraduate students in fully adopting a western conceptualisation of CT.

However, as important as they are, especially at the postgraduate level, Chinese students still only account for a fifth of all non-UK students. More research is therefore also needed on how the many different nationalities - from *all* parts of the world - conceptualise CT in their masters.

#### **1.3.4 Teaching CT within a discipline or across disciplines**

While Biggs and Tang (2011) emphasise that tutors will have to accommodate for the Roberts if they want them to reach a similar level as the Susans (referred to in section 1.2.2), there is also a need to evaluate to what extent tutors need to adapt their teaching to the international postgraduate students. This

research focuses on mainly international postgraduate students and on their understanding of CT in one research intensive Russell Group university in the UK, the type of university where more and more international postgraduate students are to be found (Iannelli & Huang, 2013).

How these international students can be taught to be more effective critical thinkers within their specific disciplines and beyond their postgraduate studies, is also a matter of debate. Kreber (2009), for example, contrasts 'context-specific' skills based around learning within a discipline with those that are 'context transcendent' and go beyond disciplinary learning. Where responsibility lies in how to teach students of all backgrounds to be critical within a discipline, and beyond disciplines as generic and transferable skills, remains very much dependent on - and within - individual HEIs.

Barrie (2006), for example, differentiates between four different levels of 'generic graduate attributes', from those that are a 'precursor' to engaging in any degree (e.g. English language literacy skills) to those that are integral and inseparable from disciplinary knowledge and 'enable' all learning within that discipline. Barrie's 'second level' generic attributes 'complement' disciplinary knowledge. In this thesis, the assumption and focus is on generic CT skills that complement disciplinary knowledge and can be transferable across disciplines.

#### **1.4 Chapter conclusion**

This Introduction has aimed to set the scene for the remainder of this thesis. In a time where universities aim to attract talent and revenue from all over the world, they still have the responsibility to educate their graduates to be more effective critical thinkers (Barnett, 1997; Davies & Barnett, 2015). This can be seen as part of a university specific and a wider graduate attributes and transferable skills agenda (Barrie, 2004) and is embedded in national and international frameworks (BALEAP, 2008; EC, 2005; QAA, 2008; QAA Scotland, 2014).

This is even more the case at the *postgraduate* level where being a critical thinker is further embedded within the various national frameworks, and where there is relatively little research compared to at the undergraduate level. However, there remain uncertainties over what institutions exactly mean by CT (Davies & Barnett, 2015). There is also a need to look beyond the views of CT 'experts' alone and find

out what tutors and students within different disciplines understand CT to mean at the postgraduate level (Moore, 2013; Paul, 2011). There is also a need to find out from tutors and students how to teach CT most effectively at this level.

The remainder of this thesis therefore endeavours to fulfil these tasks. The following two chapters (2 and 3) provide a literature review that covers the different conceptualisations of CT before focusing on three key aspects: CT as logical reasoning and argumentation, as cognitive skills, and as dispositions and epistemological development. This is followed by an examination of some of the key debates relating to how to teach CT in higher education, including to what extent it is generic and to what extent it is disciplinary dependent. It also presents four different approaches to teaching CT.

An initial framework which connects the teaching of academic writing with specific conceptualisations of CT is then presented (Table 3.1). This is followed by a more general framework that is developed in three stages throughout the Literature Review (Tables 2.1, 2.3 and 3.2), which highlights key features of CT which inform the research design of this thesis.

The research questions that will be address in this thesis are therefore as follows:

- 1. What do master's students consider to be the most important features of academic writing that relate to critical thinking?*
- 2. How do students and tutors in different departments compare in their conceptualisation of critical thinking as embedded in academic writing at a postgraduate master's level?*
- 3. How do tutors and students in different departments compare in their perception of how best to teach critical thinking at a postgraduate master's level?*

The purpose of the Methodology chapter (4) is to outline how the research design in this thesis aims to answer these questions. A pragmatic mixed method approach is adopted involving four different stages: a questionnaire to 235 students, focus groups and interviews with 21 students, and interviews with 14 tutors. The three Findings chapters (5-7) present the results of the research, with each chapter aiming to answer a research question.

The Discussion chapter (8) synthesises and reflects on the findings and themes that emerge from my research. These findings are placed in the context of previous research. The Discussion chapter also highlights the extent to which my research builds upon and adds to previous research. Finally, the conclusion chapter (9) provides a final reflective summary of the themes in the research, notes some of its limitations, and highlights some potential future research and pedagogical implications.

## 2. Literature Review A

### 2.1 Chapter introduction

Critical thinking is considered to be an essential feature of higher education in many parts of the world (Barnett, 1997; Davies & Barnett, 2015; Fox, 1994; van der Wal, 1999). Being critical is embedded in the European, UK and Scottish educational qualification frameworks at PGT and postgraduate research (PGR) levels (EC, 2005; QCF, 2008; SCQF, 2012). Yet CT is often considered to be a vague and elusive concept where there is little actual agreement over its definition (Abrami et al., 2008; Allegretti & Frederick 1995; Cheung et al., 2002; Davis & Barnett, 2015; Halonen, 1995; Moore, 2013; Paul, 2011; Vangermensbrugge, 2004). Key concepts like CT often have multiple meanings (Moore, 2013; Williams, 1976). The word 'critical' has numerous collocations and lexical associations, often with subtly different meanings; for example, to *criticise*, to *critique*, to *critically* analyse, to *critically* assess, to *critically* reflect, *criticality*, *critical* theory, *critical* literacy, and *critical* pedagogy.

While there exist multiple conceptualisations of CT, some writers have tried to provide more definitive statements of what it entails. One of the more succinct definitions is Ennis's (2015) "reasonable reflective thinking focused on deciding what to believe or do" (p. 32). While Lipman (1988) describes CT as "skilful, responsible thinking that facilitates good judgement because it 1) relies on criteria 2) is self-correcting and 3) is sensitive to context" (p. 39), a more comprehensive definition is provided by Scriven and Paul (2015) who define it as:

[T]he intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

What is being stressed by these writers is the desire to highlight the essential features of CT. Having a relatively clear conceptualisation of CT does also have pedagogical implications; if tutors cannot clearly conceptualise CT, or at least its key attributes, it can be more problematic for them to teach and assess, and for students to understand and apply.

What it means to be critical in higher education may also vary by knowledge domain and academic discipline (McPeck, 1981; 1990). Moreover, the specific views

of experts on CT may not always match with discipline practitioners in higher education. These practitioners may have quite different conceptualisations of CT embedded within their disciplines (Jones, 2015; Moore, 2011). It is also important to understand how students conceptualise CT (Durkin, 2008; Phillips & Bond, 2004).

Another difficulty faced when studying the topic of CT is that the conceptualisation of what it means to be *critical* in higher education is an ever-widening circle. It is therefore necessary to make it clear what type of 'critical' this thesis is concerned with. There are various ways of demarcating the various schools of thought around CT. Paul (2011) describes three different 'waves' chronologically. The first is based on logic and argumentation and is dominated by philosophers. The second wave is a lot more eclectic and not fixed in one particular discipline, and according to Paul varies in research quality. The third wave attempts to overcome the weaknesses of the previous two and reinforce their strengths by incorporating the breadth of the second wave with the depth and rigor of the first.

More recently, a slightly different framework of understanding CT within higher education has been presented by Davies (2015) and Davies and Barnett (2015). They outline three major 'movements' in CT that exist today. These three movements are: the 'critical thinking movement' (CTM), the 'criticality movement', and the 'critical pedagogy movement' (Davies & Barnett, 2015). The first part of this chapter will outline key features of the CTM. Although they are not the focus of this research, some of the insights of the criticality movement and critical pedagogy movement will also be outlined.

## **2.2 The critical thinking movement (CTM)**

Davies and Barnett (2015) state that the CTM is characterised by two broad approaches based on Facione (1990); these involve 'cognitive elements' and 'propensity elements'. According to Davies and Barnett, The first can be divided up into the skills of "inference making and argumentation", combined with "critical thinking as (reflective) judgment formation" (p. 10); while the second is characterised by "a variety of dispositions and attitudes" (p. 11). Thomas and Lok (2015) also make the distinction between CT 'skills' and 'dispositions', while Ennis (1987; 2001; 2015) makes a two-part distinction between CT 'abilities' and 'dispositions'.

Notably, there appears to be a slight difference in the use of the word 'ability' between Davies and Barnett (where they place 'abilities' as a feature of the propensity element), and Ennis (where it appears to be similar to a skill). In this research, the word 'skill' will be used, rather than ability. This is based on the conceptualisation of a skill as a type of learning interaction (Svensson, 1997), based on the seminal work of Bartlett (1958) where thinking is conceived as a "complex and high level skill" (p.11). In this sense, a skill is not a permanent attribute, but can be reduced or lost as a result of lack of practice.

Unlike Davies and Barnett (2015), who seem to merge the logical reasoning and cognitive skills traditions into one cognitive element, Lipman (2003) and Paul (2011) divide the understanding of CT historically between the informal logical (first) wave and the more eclectic (second) wave which includes the views of cognitive psychologists. For the purpose of this Literature Review, three broad aspects of CT are highlighted, these are CT as:

- (a) Logical reasoning and argumentation
- (b) Cognitive skills
- (c) Dispositions, attitudes and epistemological development

The remaining sections of this chapter will present the different approaches and evaluate their contribution towards our deeper understanding of CT. This is followed by a brief outline of other approaches which provide a critique of the CTM.

### **2.2.1 Logical reasoning and argumentation**

The roots of an approach that equates informal logic with CT can be traced back to Glaser (1941) and Black (1952), who both used the term 'critical thinking' in the titles of their books. More recently, this approach stems from educational philosophy and the journal *Informal Logic* founded in 1978 (Lipman, 2003). The logical reasoning and argumentation approach to CT has a certain conceptualisation of CT originating in an attempt to apply logical processes and reasoning in order to evaluate arguments in natural language contexts.

Informal logic emerged in response to the limitations of applying formal logic in natural language arguments (Govier, 1987). Limitations of formal logic include

what Govier termed a 'positivist' view, that arguments are either deductive or inductive. In formal logic, deductive and inductive arguments have different criteria for evaluating them (Bowell & Kemp, 2002; Copi & Cohen, 1990; Rescher, 1964). According to Govier, formal logic failed to take into consideration other types of arguments, or whether pure deductive and inductive arguments really exist beyond the logic of mathematics and philosophy (Ennis, 2001). Moreover, although it did have some contributions to make, the restrictive nature of formal logic was deemed to be inappropriate to natural language arguments. As Blair (2013) notes:

The recognition of arguments in texts and the analysis of their component elements and structures may legitimately rely on non-formal methods, including such things as knowledge of the background and context of the discourse, understanding of the linguistic and other communicative conventions, sensitivity to ambiguity and vagueness, and a sense for a "logical flow" of reasoning and argument. (pp. 94-95)

Examples of literature that explicitly link logic or argumentation to CT include the work of Bowell and Kemp (2002) and Swatridge (2014). This literature and courses in informal logic and argumentation essentially equate it to CT. According to Robinson (2011), common topics covered in textbooks at undergraduate level that approach CT from this perspective include the language of valid argumentation, inductive and deductive reasoning and argumentation fallacies using real world examples, often from political speeches and commercial advertisements.

In terms of evaluating the validity of written (or spoken) arguments the first stage may be to identify the component parts. For example, Bowell and Kemp (2002), Swatridge (2014), and Halpern (2014) all provide various ways of doing this with echoes of Toulmin's (2003) seminal work. Toulmin highlighted key features of an argument to create what is sometimes known as the 'Toulmin argument pattern' (Simon, 2008). This involves six key parts:

**Data:** The facts or evidence

**Warrant:** Logical statement(s) that bridge(s) the claim and the data

**Backing:** Statements (or assumptions) that support the warrant

**Claim:** The main argument statement

**Qualifiers:** Conditions under which the claim holds true, or limitations to the claim

**Rebuttals:** Statements that provide circumstances where the claim is not true

In this model the *claim* represents the main conclusion of an argument, the *warrants*, *backing* and *data* represent different types of support for the claim. What makes this model transferable across disciplines, however, is that warrants and backing may be 'field-dependent', in that the logical statements that bridge the claims and the data and the backing that support those statements may vary across disciplines. In addition to these key elements, the *qualifiers* and *rebuttal* represent the conditions under which the claims are valid.

Toulmin (2003) gives a specific example of the claim, warrant, backing and data in the right of a fictional person named 'Harry' who claims to be a 'British subject'. Harry's claim to be a British subject is based on the factual 'data' that he "was born in Bermuda"; the 'warrant' or reason that supports the claims that "a man born on Bermuda will generally be a British subject" and the 'backing' or explanation is "on account of the following statutes and legal provisions" (p. 97). The reason why Harry is a British subject is therefore supported by the explanation found in the legal statutes, and supported by the fact that he was born in Bermuda.

Toulmin's argument pattern has certainly been very influential and widely used, especially in the US undergraduate courses (Harrell & Wetzel, 2015). It provides a relatively simple one-model pattern that can be used to analyse all arguments (in theory). However, the Toulmin model can also be difficult to teach because the concept of the warrant is not always clear (Harrell & Wetzel, 2015). In this thesis I understand Toulmin's 'warrant' to mean the *reasons* for why data supports a claim, while the 'backing' includes the *explanation* that support the warrant.

An alternative model is that of Beardsley-Freeman, based on the work of Beardsley (1966) and Freeman (1999) (cited in Harrell & Wetzel, 2015). One advantage of the Beardsley-Freeman model is the relative simplicity of its *premise-conclusion* structure. While Beardsley-Freeman's *conclusion* equates to Toulmin's claim, their *premise* incorporates Toulmin's warrant, backing and data. However, rather than consisting of one main type of argument with numerous different components (as in Toulmin's model), it focuses on the different possible combinations of premise-conclusion argument structures. In all, the Beardsley-Freeman model presents four types of basic argument structure. These can be combined to a greater or lesser extent to map different arguments (Figure 2.1).

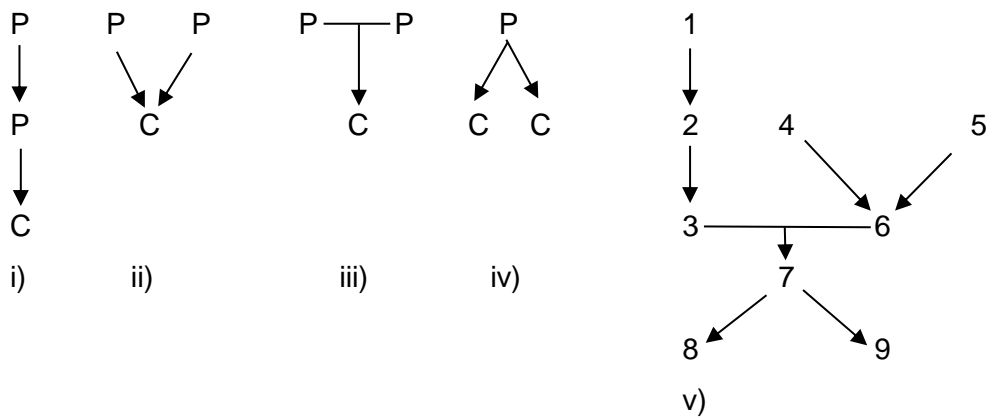


Figure 2.1 Beardley-Freeman model of argument patterns

In this model, all arguments consist of premise(s) and conclusion(s). The first type of argument pattern is known as a *serial* pattern (i) where one premise supports another premise which in turn supports a conclusion. For example: All swans are white (P1), Jilli is a swan (P2), therefore Jilli must be white (C). The third is a *convergent* pattern (ii) where two separate premises lead to the same conclusion; the fourth is a *linked* pattern (iii) where two premises work together to lead to a conclusion; while the final pattern is a *divergent* one (iv) where a premise may result in two different conclusions. These different patterns can be combined to describe different types of more complicated arguments (v).

One advantage of the Beardsley-Freeman model is its simplicity and flexibility compared to the Toulmin model. Their conclusion equates to Toulmin's claim, but whereas the distinction between Toulmin's warrants and backing can sometimes be confusing (Harrell & Wetzels, 2015), Beardsley-Freeman encompass these notions (and Toulmin's data) in the concept of the premise.

Bowell and Kemp (2002) also appear to highlight the central importance of having good reasons (warrants or premises) in good arguments when they point out that: "Critical thinking enables us to ensure that we have **good reasons** to believe or do that which people attempt to persuade us to do or to believe" (p. 35) [Emphasis in original]. Good arguments are therefore synonymous with good reasoning (Harman, 1986).

One of the successes of the informal logic approach was to try to adapt a more systematic approach of formal logic onto arguments used in the real world. Paul (2011), however, highlights some of the limitations of an informal logical approach to critically evaluating arguments. This is mainly directed at the narrowness of their approach. For Paul (2011):

If one views 'logical structures' as omnipresent in virtually all human thought, emotion and behaviour, the framework and writings of most informal logic theorists strikes one as generally narrow and specialized.

For other writers, informal logic and the study of argumentation and reasoning does not equate to CT. McPeck (1981) noted that informal logic "plays a comparatively minor role" (p. 8) in CT, and Meyer (1986) claimed it has "serious limitations" (p. 4) as a way of teaching CT. Brookfield (1987) also observed that being a critical thinker is not just limited to "logical reasoning" (p.13).

Although Moore (2013) considers the rational aspect of CT to be one of seven key features of CT based on interviews with university tutors, it was a minor one. At the same time, Toulmin's model does take into consideration the differences in rational and logical systems across knowledge domains. It therefore acknowledges that the nature of sound argument may vary across disciplines, and it does have practical applications in analysing *single* arguments. However, if CT is more than just logical reasoning and argumentation, it is necessary to go beyond this conceptualisation of it and find out what else it involves. There was therefore a need to develop CT skills beyond the boundaries of informal logic.

### **2.2.2 Cognitive skills and abilities**

There are a number of approaches that conceptualise CT as a set of cognitive skills which can be taught and applied. From this perspective, Cottrell summarise CT skills as follows:

Critical thinking is a cognitive activity, associated with using the mind. Learning to think critically... means using mental processes such as attention, categorisation, selection and judgement. (Cottrell, 2001, p.1)

Much of the cognitive skills approach was based on the opinions of 46 academics based in North America and mainly from the disciplines of education, philosophy and psychology (Facione, 1990). In Facione's seminal research the Delphi method was used; it is a qualitative research method characterised by an interactive 'panel of experts' who met regularly with the aim of coming to a consensus over the main features of CT. The results of the research identified six core 'cognitive critical thinking skills': *interpretation, explanation, analysis, inference, evaluation and self-regulation*.

Thomas and Lok (2015) compared writings on CT to assess how often these six skills were highlighted in other literature based on 16 writers from the disciplines of philosophy, psychology and education. They found that *analysis, inference, evaluation* and *self-regulation* were the most common features among ten or more of the 16 experts who highlighted these cognitive skills. Davies and Barnett (2015) note that although Facione's (1990) categories were designed for assessment and instruction of undergraduate students, they are at times over descriptive and difficult to apply in real world pedagogical environments.

To help overcome this difficulty in the practical application of Facione's categories I have turned to the work of Anderson et al. (2014). I think that parts of Anderson et al.'s taxonomy provide clearer definitions and more practical applications of CT skills because it was designed to aid in the learning, teaching and assessment of cognitive skills. Anderson et al.'s taxonomy is a revision and updated version of Bloom's taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956; Krathwohl, 2002) (Figure 2.2 and Figure 2.3).

Anderson et al.'s taxonomy consists of two main dimensions: the knowledge dimension and the cognitive process dimension. They divide knowledge into four types: 'Factual Knowledge', 'Conceptual Knowledge', 'Procedural Knowledge' and 'Meta-cognitive Knowledge'. In their 'Cognitive Process Dimension' they have six categories which form a hierarchy from 'Remember' to 'Create' (Figure 2.2). They also make a distinction between the 'Remember' category, which focuses on (all types of) past knowledge and the remaining five categories, which are considered to be *transferable* across disciplines. The division between the knowledge and cognitive skills dimension of Anderson et al. also seems to fit well into Thomas and Lok's (2015) 'operational framework' for teaching CT which includes 'skills' and 'knowledge' as two of its three key components.

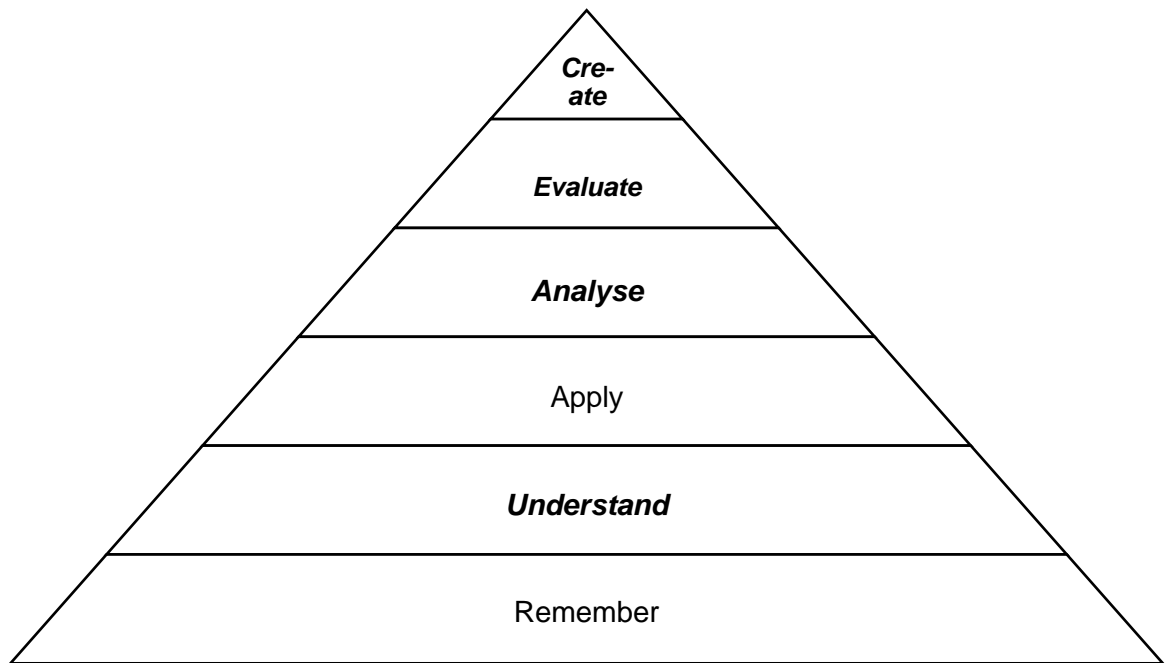


Figure 2.2 *Different cognitive process categories (based on Anderson et al., 2014)*

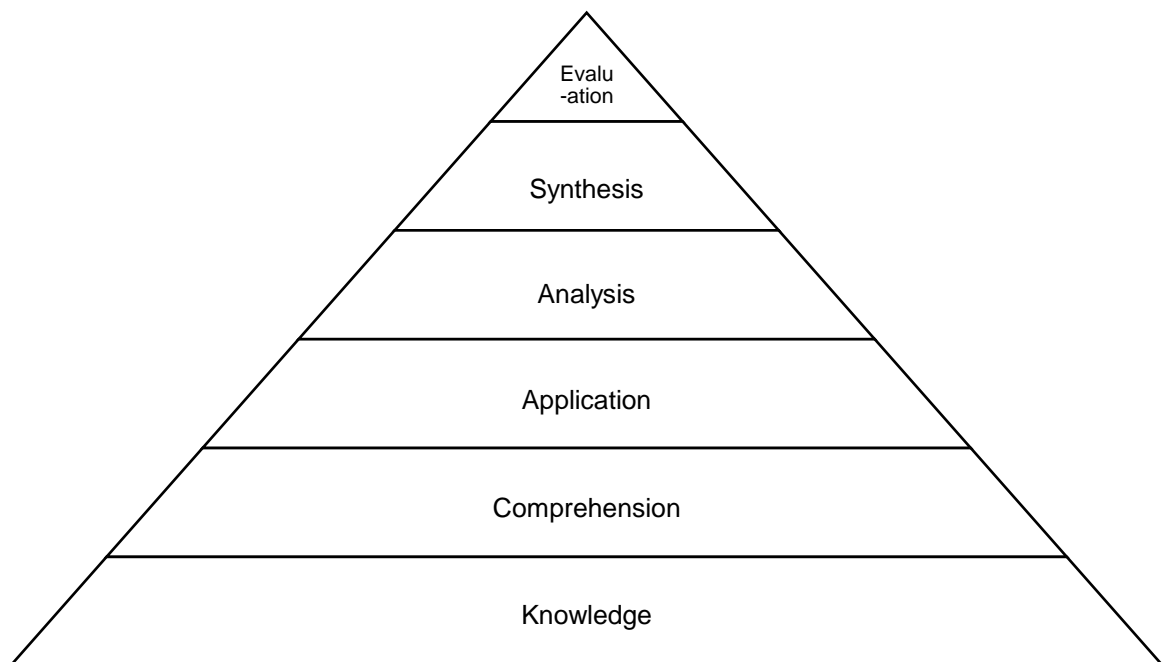


Figure 2.3 *Taxonomy of educational objectives (based on Bloom et al., 1956)*

Anderson et al. specifically refer to the six categories in their *verb* forms in order to stress their active nature (Figure 2.2). I, on the other hand, will use the noun or gerund forms to focus on them as 'characteristics' of CT skills. Moreover, in

my opinion, four of Anderson et al.'s categories are most directly related to CT. These four features are (in my adapted terminology): *understanding, analysis, evaluation and creative synthesis*.

It should also be noted that the relatively low status of the 'remember' category in Anderson et al.'s typology may reflect a cultural bias in relation to the status of 'memorisation' in the learning process. For example, in Chinese educational culture a high level of memorisation (i.e. remembering) is a *prerequisite* to understanding and mastery of a subject (Floyd, 2011). At the same time, remembering and applying are not included in my CT cognitive skills category for the following reasons. First, I partly agree with Anderson et al. that remembering in the way they define it is not a transferable CT skill, and hence it is not included. Secondly, as I have focused on these four features as 'concepts' (rather than 'actions' as the verb forms would imply), there is a separate category which I have labelled as 'practical application' (E2 in Table 3.2) where these cognitive CT skills are actively applied. We will now look at the four CT cognitive skills in more detail.

### ***Understanding***

The ability to understand knowledge provides the foundation of CT. Anderson et al. (2014) define understanding as the ability to "construct meaning from instructional messages" (p. 70). Understanding is based on Conceptual Knowledge where students are able to display understanding of new knowledge on top of previous knowledge. In Anderson et al.'s taxonomy three of Facione's (1990, 2015) cognitive skills also fall into the understanding category. These are: interpretation, inference, and explanation.

The cognitive skill of *interpretation* relates to an ability to correctly understand content through the conversion from one representative form to another (e.g. from words to words through paraphrasing, or from words to numbers, pictures etc.). Cottrell (2011) also notes that accurate interpretation is "particularly important" (p.152) to CT.

*Inference* refers to the ability to distinguish a pattern among a series of examples. For example, in order to identify which number comes next in a series of numbers a student needs to *infer*. In this definition, determining a writer's point of view in a piece of writing (or 'reading between the lines') is not classified as inferring

(see *attributing* below). Inference is also a construct that is assessed in different tests of CT (Ennis, Millman, & Tomko, 1985; Facione & Facione, 1994; Watson & Glaser, 1994). According to Thomas and Lok (2015), inference is a key 'functional attribute' of CT and was the only one of Facione's six that was agreed to be an important feature of CT by all 16 papers reviewed on that subject (Thomas & Lok, 2015). However, it is not completely clear whether these writers were referring to Anderson et al.'s concept of 'inferring' or 'attributing'.

*Explanation* is also important in order to display understanding. More specifically, for Anderson et al., it is when a student is able to use and/or create a cause-effect model based on theory, their own research or experience. For Cottrell (2011) explanation should only account for *why* something occurs. It is similar to 'giving reasons' (Bowell & Kemp, 2002), or the warrants and backing of Toulmin's (2003) argument pattern. It was also agreed upon by 13 out of 16 of Thomas and Lok's (2015) writers as an important feature of CT.

### ***Analysis***

The remaining two of Facione's (1990) cognitive CT skills that match with Anderson et al.'s are larger categories in Anderson et al.'s taxonomy. For them, *analysis* relates to the ability to divide subjects or objects into different parts and identify relationships between and among them. For Chaffee (1992) "carefully analysing situations with appropriate questions" (p. 3) is a key cognitive aspect of CT, and for Anderson et al., cognitive processes associated with analysis include differentiating, organising and attributing.

*Differentiating* involves the skill of distinguishing between what is important and not important; *organising* involves identifying how elements of a structure fit together coherently, while *attributing* is the skill of being able to determine bias, intentions and values in communication (i.e. 'reading between the lines'). Analytical sub-skills may also involve the ability to 'examine ideas' through for example comparing and contrasting (Cottrell, 2011; Ennis, 1987; Facione, 1990; 2015). In contrast to Anderson et al., while they include 'comparing' in the Understand category, I place the sub-skill of *comparing* in the Analysis category. My placing of comparing in the Analysis category fits more into Facione's (2015) definition of analysis which involves, "identifying similarities and differences between two approaches" (p. 5).

## ***Evaluation***

Evaluation is the second highest cognitive process category in Anderson et al.'s (2014) hierarchical taxonomy (Figure 2.2) and according to them it is synonymous with a rather narrow (in my opinion) conceptualisation of 'critical thinking', which define it as "making judgements based on criteria and standards" (p. 83). They include two cognitive processes. The first is *checking* which involves testing for inconsistencies or fallacies, and appears to be similar to Facione's (1990, 2015) narrower understanding of evaluation as the assessment of the claims or arguments. Facione distinguishes between the 'assessment of claims' which include evaluating the credibility and contextual relevance of claims; and the 'assessment of arguments' by evaluating the credibility of different types of reasoning and the assumptions behind the arguments. It is also in the evaluation of arguments where a Toulmin or Beardley-Freeman model of argument patterns may be useful (Figure 2.1). Evaluation can also relate to an 'evaluation' of sources of evidence (Cottrell, 2011).

There is also overlap in the logical reasoning and argumentation approach and the cognitive skills approach in this area, as both approaches stress the importance of the *evaluation* of an *argument*, and Davies and Barnett (2015) do actually combine the argumentation and cognitive skills traditions together in their classification of CT in higher education under the CTM label.

The second cognitive skill component of evaluation involves what Anderson et al. (2014) term *critiquing*, which involves "judging a product or operation based on externally imposed criteria and standards" (p. 84). They consider critiquing to be a core feature of CT. There are also similarities between this definition and aspects of the definitions of Ennis, (2015), Lipman (1988) and Scriven and Paul (2015) at the beginning of this chapter. For some, evaluation is the most important feature of CT (Allegretti & Frederick, 1995; Bloom et al., 1956), and 13 of those surveyed by Thomas and Lok's (2015) agreed that evaluation is important. Although I have opted for a wider conceptualisation of CT than Anderson et al., in this thesis I would agree that *evaluation* is at its core.

## ***Creative synthesis***

Another concept often associated with CT is *creativity* (Davies 2015; Halpern, 2014; Lau, 2011). Davies (2015) describes the creative dimension as the next in a widening circle of conceptualisations beyond the CT, criticality and critical pedagogy movements. It is based on a *synthesis* of previous ideas, but can also involve thinking outside the common frameworks of understanding. In many ways Anderson et al.'s (2014) 'create' replaced Bloom et al.'s (1956) 'synthesis'. One difference, however, is that whereas 'synthesis' was second in Bloom et al.'s hierarchy (below 'evaluation'), create is at the top of Anderson et al.'s one with 'evaluate' demoted to second (Figures 2.2 and 2.3).

For Anderson et al., the creation process involves the combining together of different elements to form something new and whole. They divide the creation process into three parts: generating, planning and producing. Like Lau's (2011) conceptualisation of creativity in the context of CT, it is closely related to problem solving. *Generating* involves re-presenting a problem and providing alternative solutions. *Planning* involves creating a solution that aids in solving a problem based on appropriate criteria, while *producing* involves the execution of the plan. Anderson et al. and Lau provide quite a procedural understanding of creative thinking. It appears to be less about inspiration, more about perseverance in thought and action. Although useful, this seems to be quite a limited conceptualisation of creativity.

The work of de Bono (1984) provides an alternative understanding of creativity in relation to CT. De Bono's creative thinking is similar to 'lateral thinking', which according to him, in combination with CT (in the logical argument sense), leads to 'good thinking'. For Paul (1993), CT also has a creative dimension. According to Paul, intellectual work involves a combination of *creative* and *critical* thinking. Lau (2011; 2015) and Halpern (2014) also relate creativity directly to CT and problem solving. However, I still believe that the skill of synthesis is important. It relates to how ideas can be brought together (synthesised) to create something new. Ideas can be synthesised in a creative way to solve problems; this is why I use the term 'creative synthesis' to highlight both the creative and the synthesis aspects of this skill (Table 2.1).

In terms of teaching creativity, Halpern (2014) uses de Bono's idea of lateral thinking and calls for students "to think of different ways to accomplish an objective

and then how to select the best one” (p. 549). Based on Anderson et al.’s hierarchical taxonomy - where the lower cognitive process categories provide the foundation for the higher ones - the preceding cognitive (critical) thinking skills involved in *understanding, analysing and evaluating* provide foundations for a creative form of CT.

All but one of Facione’s (1990; 2015) six core skills are also found in Anderson et al.’s taxonomy. These are: *interpretation, inference, analysis, explanation and evaluation*. However, there are often slight differences in meaning between Facione’s terms and Anderson et al.’s ones. The one set of cognitive skills that does not appear in Anderson’s et al.’s taxonomy, but does in Facione’s (1990) is ‘self-regulation’. This is defined as “self-consciously to monitor one’s cognitive activities, the elements used in those activities, and the results educed” (p. 7). This also has a lot of similarities with the concept of meta-cognitive skills.

### ***Meta-cognitive skills***

Hanley (1995) compared cognitive with meta-cognitive skills, where meta-cognitive skills involve, “strategies used to monitor and control one’s state of knowledge” (p. 68). One purpose of meta-cognitive thinking practice is to change how we think. The cognitive and meta-cognitive processes also appear to be evident in two other skill-sets associated with CT: *problem solving* and *reflectivity*.

### ***Problem solving***

Problem solving is also considered to be an important feature of CT by many writers (Halpern, 2014; Kek & Huijser, 2011; Quellmaiz, 1987; Scriven & Paul, 2015), and as noted above it is connected to creativity (Anderson et al., 2014; Lau, 2011). Dewey (1933) saw problem solving as a key component of the scientific method. It is a process whereby solutions to defined problems are presented. It involves more complex levels of cognition (Davies, 2015) and combines higher level cognitive skills (Anderson et al., 2014; Davies 2015). It is sometimes considered as a separate generic skill from CT, but it is also still considered an essential element of CT (Lau, 2015).

Laurillard (1997) divides problem solving up into two main traditions. The first is based on the problem solving that is embedded in a cognitive psychologist

perspective and draws on Newell and Simon's (1972) work which involves a problem-solving procedure. Halpern (2014) for example appears to use this procedural approach when she links problem solving to CT. There are also links between this conceptualisation of problem solving and the creative cognitive process of CT (Anderson et al., 2014; Lau, 2011). The second type of problem solving that Laurillard (1997) highlights is based on Gestalt psychology. Gestalt psychology emphasises the structural quality of our perception of problems based on Wertheimer's (1959) work. It is less about following a procedure, and more about approaching a problem from a different angle to find new solutions.

### ***Reflectivity***

Being reflective is considered here to be a set of skills that is cognitive and meta-cognitive in nature. Reflection can also be useful in helping transform how we think and act through the process of self-reflection and self-regulation. Self-regulation refers to the willingness and ability to reflect and change your position in light of new evidence (Facione, 1990). Reflective thinking has long been a major aspect of CT (Dewey, 1933; Ennis, 1987; Nickerson, 1987; Lipman, 2003; Moon, 2008). Both McPeck's (1981) and Ennis's (1987, 2015) definitions of CT embed the importance of reflectivity as a key element of CT. For Dewey (1933) it is the 'best' way of thinking. He defined 'reflection' as:

[N]ot simply a sequence of ideas, but a *con*-sequence – a consecutive ordering in such a way that each determines the next as its proper outcome, while each outcome in turn leans back on or refers to, its predecessors. (p. 4)

Van Manen (1977) highlights three main approaches to reflection in educational practice: as 'technical-instrumental', 'hermeneutic-interpretivist', and as 'politico-ethical emancipatory'. In the technical-instrumental approach the aim is to improve performance in future by reflecting on past 'incidents'. This appears to be quite similar to Schön's (1983, 1987) reflection in practice based on his concept of 'reflection-on-action'. The hermeneutic-interpretivist approach focuses on providing learners with the opportunity to reflect on their experiences, and their assumptions and how these may have changed. The third type of reflection in van Manen's (1977) model involves critical reflection based on the Habermasian tradition where reflection is based on a political and emancipatory agenda (Habermas, 1984). The

Criticality and the Critical Pedagogy movements below are examples of critical reflective practice in this latter tradition.

Notably, 'reflection' in my research can be distinguished from a similar term known as 'reflexivity'. As D'Cruz, Gillingham, and Mellendez (2007) point out, although 'reflectivity' and 'reflexivity' are sometimes used interchangeably, one key difference is that while reflexivity tends to occur at the moment of practice (similar to Shön's 'reflection-in-action'), reflectivity tends to be more retrospective (similar to Shön's 'reflection-on-action').

Reflective scepticism and reflective thinking are key components of McPeck's (1981) and Ennis's (1987, 2015) concise definitions of CT, and critical reflection takes up a whole chapter of Cottrell's (2011) book on CT skills. It is also fundamental to Barnett's (1997) 'critical being'. Being reflective involves different cognitive skills, but also meta-cognitive thinking skills in that it can involve thinking about how you think.

It is suggested here that the processes of *problem solving* and *reflection* are key CT skills. Both require some element of meta-cognition involving the reflection on the thinking process. However, whereas meta-cognition is very much embedded in reflection, the procedural approach to problem solving is less reflective in nature. In this sense, problem solving can be conceptualised as a 'multi-cognitive' process as much as a meta-cognitive one. This is because it involves the use of different cognitive processes (e.g. understanding, analysis and evaluation). There also appears to be crossover between problem solving skills and creative cognition (Anderson et al., 2014; Lau, 2015). A more Gestalt approach to problem solving that involves approaching a problem from a completely different angle, however, may involve more of a meta-cognitive approach to problem solving. Having to re-thinking how you have thought about a problem may be more valuable in solving a problem in this approach.

### ***The purpose of CT***

A purpose of CT as cognitive skills (and as logical reasoning and argumentation) appears to be conceptualised as some kind of reasonable judgement based on appropriate criteria (Anderson, et al. 2014; Davies & Barnett, 2015). The three definitions of CT on the first page of this chapter each included

some aspect of judgement and decision (Ennis, 2015; Lipman, 1988; Scriven & Paul, 2015). Anderson et al. (2014) link CT with evaluation, while Moore, (2013) sees “critical thinking fundamentally as the making of judgements” (p. 510), which he considered to be the most significant feature expressed by university tutors.

Critical thinking is therefore rarely conceptualised as passive and purely reflective, but rather it is generally considered to be purposeful and active. Moreover, those who advocate a cognitive skills approach to CT believe that these skills may represent some type of higher order thinking that is cognitive and meta-cognitive in nature. In addition to this, there is an assumption that these skills are both generic and transferable across academic disciplines.

### ***Limitations of the cognitive skills approach***

Paul (2011) has criticised what he terms the ‘second wave’ of critical thinkers which include some of the ‘critical thinking-as-cognitive skills’ advocates. The first criticism is in the push to reject the logic and reasoned argument approaches, rather than to expand upon it. Paul acknowledges that the first wave of the CT movement (focusing on the application of informal logic) was limited on three main fronts. First, it was too narrowly focused. Secondly, and related to the first criticism, it was an approach that was difficult to apply in different disciplines where there were different understandings of ‘logic’. Thirdly, it neglected intuition and creativity.

The second wave of CT skills was also weak in failing to acknowledge what the informal logical movement could bring to CT, such as the depth of argument analysis. In Paul’s view, there was often little attempt to combine the insights of both approaches. Paul also criticises the negative affect this has had at some educational levels with the development of quick-fix pseudo CT programmes and tests. Paul’s ‘third’ wave is a call for more theoretically informed approaches to bring depth to the second wave. Insights from various experts on the key features of CT and argumentation (Facione, 1990; 2015; Thomas & Lok, 2015; Toulmin, 2003), and the use of appropriate parts of Anderson et al.’s (2014) taxonomy can help guide tutors, students and assessors in how to teach, apply and measure different aspects of CT that can help add to this third wave.

Paul (2011) also highlights the overemphasis on the views of experts on CT at the neglect of other disciplinary practitioners. As a result, he points to the need for

further research on novice learners in higher education, as well whether CT can be applied in real world higher educational situations across disciplines. For example, little research has been done on students' conceptualisation of CT.

There is also criticism of the assumptions behind the 'skills' and 'cognitive process' approaches to CT. For example, Bailin, Case, Coombs, and Daniels (1999) question the so-called cognitive processes such as 'evaluating' and 'synthesising'. In Bailin et al.'s words the "so-called 'processes' are hypothesized, and then reified after the fact of these upshots" (p. 273). The products of the 'cognitive skills' may be caused by mental processes that have occurred in the brain, but it is difficult to measure these cognitive processes, we just have to assume that the 'products' reflect the cognitive skill 'processes' (Anderson et al., 2014; Bartlett, 1958). We can only measure the products of those cognitive processes that may be represented in written form (e.g. through an essay), graphically (through graphs, tables, maps or other statistical data), orally (through presentations), or a combination of these (e.g. a poster presentation).

Another criticism of the skills approach to CT relates to what should be the end goal of CT. This critique tends to come from the criticality and critical pedagogy movements who highlight that the focus on skills is often exclusive and reductive (Atkinson, 1997) and detracts from the bigger goals of an improved life, greater understanding and an emancipatory agenda (Barnett 1997), and its neglect of unequal power relations in society and how these can be transformed through critical pedagogy and action (Burbles & Berk, 1999). It also neglects the social, cultural and educational context of learning, with the focus on individual learners (Davies & Barnett, 2015).

Currently, literature in the CTM combines the insights of the logical reasoning and argumentation approach with the cognitive skills approach (Facione, 2013; Halpern, 2014; Robinson, 2011). However, these approaches do have their limitations. First, there are ambiguities relating to whether what is being measured are actual cognitive skills, or just the product of those skills. Secondly, there has been a focus on the normative view of experts on CT, rather than the actual practice of CT among discipline practitioners, whether they be tutors or students. Third, there are assumptions behind the generic and transferable aspects of argumentation and cognitive skills across disciplines. These do not always acknowledge that there may be differing conceptualisations of CT across disciplines (see chapter 3). Finally,

there is a focus on the individual development of CT skills, with little consideration of the social, political, cultural and disciplinary context in which those skills are learned.

By combining the insights of Facione (1990; 2015), Thomas and Lok (2015), Anderson et al.'s (2014) taxonomy and others who have written within the cognitive skills tradition (e.g. Ennis, 2015; Cottrell, 2011; Halpern, 2014), I have created an initial framework (Table 2.1) that can be used in my research. This framework incorporates the important features of argumentation [A1], cognitive and meta-cognitive skills [B1-B6] and knowledge and practical applications of CT [E1-E2] in Table 2.1, as discussed above.

Table 2.1

*Understanding CT in academic writing in higher education v.1*

<i>Categories and sub-categories</i>
A. Argumentation
A1 Logical argument
B. Cognitive and meta-cognitive skills
B1 Understanding
B2 Analysis
B3 Evaluation
B4 Creative synthesis
B5 Reflectivity
B6 Problem solving
E. Knowledge and application
E1 Knowledge
E2 Practical application

### **2.2.3 CT dispositions, attitudes and epistemological development**

A third broad set of features often juxtaposed alongside knowledge and CT skills is CT dispositions and attitudes. In addition to these, is the question of how a student's understanding of knowledge (of specific disciplines) may develop over time. Whereas a student's disposition can be conceptualised as something inherent to their personality, attitude is something that is more changeable and falls into the

'affective domain' (Bloom, Krathwohl, & Masia, 1964). For Hamby (2015) a "willingness to think critically" (p. 77) is fundamental to the development of CT skills. This is also connected to motivation (Cheung et al., 2002) in learning how to think critically. This section will therefore address three related areas of CT: the concept of a critical *disposition*, the importance of how *attitude* to learning and motivation to learn can affect the acquisition of CT skills, and the broader notion of *epistemological development*, and how this is connected to CT.

### ***Dispositional features***

Although having a critical 'disposition', or 'propensity' to be critical, is highlighted by various writers (e.g. Davies, 2015; Ennis, 2015; Thomas & Lok, 2015), there is no clear agreement about its constituent parts in relation to CT. To begin with, however, it is necessary to clarify how it is meant in the context of my research. A succinct yet broad definition will be used based on Perkins, Jay, and Tishman (1993) and Ennis (1996) who agree that a disposition is a *propensity* towards something, or a "behavioural tendency" (Perkins et al., 1993, p. 2). The next assumption in this research is that it is predominantly based on someone's personality and is fundamentally fixed. In this sense some people will be more disposed to be critical than others.

There is less agreement on what constitutes specific CT dispositions. Numerous writers provide examples of different features. For Facione (1990) CT dispositions refer to a "critical spirit" involving specific habits of mind, attitudes and aptitudes, characterised by "inquisitiveness", "dedication to reason" and for "reliable information" (p. 11). For Coles and Robinson (1991), CT as a disposition includes a "respect for persons", a "readiness to consider alternative explanations" and a "readiness to listen to others" (p. 13), while Perkins et al. (1993) write about three key aspects consisting of "inclinations, sensitivities and abilities" (p. 2). More recently, and based on interviews with tutors, Moore (2013) reported that an attitude of mind that reflects a sceptical view of knowledge is a core feature of CT.

Thomas and Lok (2015) summarised the dispositions related to CT based on a survey of seven writers on that subject. The three types of dispositions agreed by six of these writers were: being 'inquisitive', 'systematic' and 'analytical'. Two further dispositions were agreed upon by five writers. These were being 'truth-seeking' and 'meta-cognitive'.

There are at least two limitations of the dispositional approach to CT. First, if it is assumed that dispositions are inherent to someone's personality then it is difficult to change them. Someone is either disposed to be critical, or they are not. If someone is not critically disposed, that person may have the type of personality that could struggle to engage fully in a higher educational environment that encourages a critical mind-set. Secondly, the mere critique of the *status quo* for the sake of critique which reflects a sceptical disposition could also be tempered (Goldman 1984), as there is a danger of the critique becoming mere criticism in Williams's (1976) sense of 'fault finding'. This is also often how CT is first interpreted by students (Durkin 2008; Fakunle et al., 2016), forgetting that critique involves highlighting *strengths* as well as weaknesses (Cottrell, 2011).

### ***Affective features: attitudes and motivation towards learning***

Another side of the dispositional aspect of a learner's personality is the affective - or attitudinal - side. This relates to a student's motivation to learn and to engage critically in what he or she learns (Cheung et al., 2002). Ennis (1996) highlights the importance of this attitudinal aspect of someone's disposition. Someone may be disposed to be critical, but they may not necessarily apply this tendency (or the various CT skills) in every situation they encounter.

The learner's 'attitude' is considered to be an essential part of CT by Halpern (2014). Therefore, a student's development of CT skills may be partly dependent on their attitude towards a given task. This means that it is potentially changeable (Nickerson, 1987; Facione, 1990). However, even if a critical attitude-of-mind is developed within an academic discipline, there is no guarantee that it will transfer outside that discipline (Atkinson, 1997; Green, 2015); despite this being a desirable learning outcome of higher education (EC, 2005; QCF, 2008; SCQF, 2012).

Marton et al. (1997) and Biggs and Tang (2011) focus on different approaches to learning by students in higher education which relate directly to a student's attitude towards learning and how that could affect the development of their CT ability. Entwistle (1997) contrasts *surface* and *deep* approaches to learning. Surface approaches are characterised by a focus on coping with the requirements of a course without reflection, and by a struggle to understand and integrate new ideas. A deep approach, on the other hand, is characterised by demonstrating a deeper interest in course content, focusing on understanding ideas, connecting

ideas to wider knowledge and experience, searching for pattern and principles, linking conclusions to evidence and critically evaluating arguments. Entwistle also outlines a third *strategic* approach to learning where students work efficiently to produce the desired results in terms of academic achievement without necessarily having a desire for a deep understanding of the subject.

It is the contrast between a surface and deep approach to learning that seems to relate most to the development of CT skills in a higher educational context. For example, how students engaged in the reading of a text was evidence of how critical they were. Marton and Säljö (1997) focused on the reading process and they conclude that, "*the students who did not get "the point" failed to do so simply because they were not looking for it*" (p. 43) [emphasis in original]. The difference between the surface readers and the deep readers was that students who read using a surface approach focused too much on the texts, and not enough on what the text was about. Whereas the deeper readers focused more on the intention of the author and the main point and conclusion of a text. Students who were reading with a purpose to discover the main point of a text tended to be more *critical* readers.

Dahlgren (1997) reported on research where students had to summarise an article that did not require specialist knowledge. He highlighted four categories of responses (or outcomes) to one article. These he labelled: A, B, C and D. The types of responses ranged from descriptive accounts (D and C), to more critical accounts of the articles that link evidence to conclusions (B and A). The most critical summaries are characterised by the students who understood the *purpose* of the article most clearly (A). Dahlgren's research on how different students respond to a text is similar in some ways to Biggs and Collis' "Structure of Observed Learning Outcomes" (SOLO) (as cited in Biggs & Tang, 2011, p. 87). The SOLO is broader in that it attempts to account for the different ways in which students engage in their learning based broadly on two phases: a "quantitative phase" and a "qualitative phase" (Biggs & Tang, 2011, p. 91). The quantitative phase focuses on increasing knowledge, while the qualitative phase involves a deeper understanding, and a connecting of ideas in more abstract ways.

It is not always clear whether CT *dispositions* (or propensities) are inherent to someone's personality. However, it is an assumption in this research that dispositions are inherent to someone's personality in order to distinguish it from CT

*skills* which can be taught, practiced and improved, and *attitudes* towards learning, which are affective and changeable. It is therefore assumed that a learner's *disposition* towards being critical, cannot change in the same way as a learner's (affective) *attitude* towards learning. At the same time, the *affective* nature of learning (to be critical) means that there is no guarantee that students will apply a critical stance on a specific topic at a particular point in time. How students may *develop* a more *general critical position* towards the disciplinary knowledge that they engage with at university is therefore also important.

### ***Developmental approaches***

Another way of approaching CT is not so much to focus on how it is conceptualised, but to focus on how students become critical thinkers in the way that they understand knowledge. This area of research also brings together different research traditions which are important in the logical reasoning and argumentation (philosophical) approaches and the cognitive (psychological) skills approach, and combines these with insights from the field of developmental psychology (Greene, Azevedo & Torney-Purta, 2008). This is related to how students' ability to think critically may *develop* over time, and specifically during a period of study in higher education (Moon, 2008).

Different terminology has been used to describe what is often considered to be a developmental process in the understanding of knowledge from adolescence to young adulthood; from 'epistemological position' (Perry, 1970), 'epistemological belief' (Schommer, 1990; 1993), 'personal epistemology' (Hofer, 2001), 'epistemological reflection' (Baxter-Magolda, 2004), 'reflective judgement' (King & Kitchener, 2004) to 'epistemic cognition' (Greene et al., 2008). In this review, the term *epistemological development* is used to describe two interweaving processes; firstly a process where student understanding of knowledge changes from an 'absolutist position' to a 'contextual position' (Table 2.2). Secondly, the way that students *justify* their epistemological positions also changes from a 'realist' (absolute) position where knowledge is viewed as simple and certain, to a 'rationalist' position where (contextual) knowledge claims are based on two forms of justification: by a recall to authority, and through personal justification (Table 2.2).

Longitudinal studies of male (Perry, 1970) and female (Belenky, Clinchy, Goldberger, & Tarule, 1986) students illustrate how student understanding of

knowledge learned at university can change. Based in part on the above two studies, Baxter Magolda's (1996; 2004) 'Epistemological Reflection' model outlines four stages of development (Table 2.2). She outlines a shift from 'absolute' knowing, which views knowledge as certain, to 'transitional' knowing which acknowledges that some areas of knowledge are uncertain, to the relativist position of 'independent' knowing which views knowledge as largely uncertain, and finally to 'contextual knowing' which is a view that knowledge is determined by the evaluation of contextual evidence.

Table 2.2

*Epistemological development model*

<i>Epistemological position</i> (Baxter-Magolda)	Absolute knowing	Transitional knowing	Independent knowing	Contextual knowing
<i>Justification of this position</i> (Greene et al.)	Realist: Simple and certain knowledge	Dogmatic: Justification by authority	Sceptical: Personal justification	Rationalist: Justification by authority/personal justification

There are, however, some limitations to Perry's (1970) and Baxter Magolda's (1996; 2004) models of student epistemological development. First, they seem to assume that students are entering university with an absolutist position, when it is often the case that students have already developed their understanding of knowledge beyond an absolutist position prior to entering university (Chandler, Boyes, & Ball, 1990; Schommer, 1993). A second limitation of the epistemological development approach is that there is an assumption that these different stages occur at the same rate among different disciplines when this does not appear to be the case. In some disciplines, students may be encouraged to develop more independent, subjective and relativist positions than in others.

Greene et al. (2008) take into consideration how different positions towards knowledge may vary by discipline, or knowledge domain. They divide knowledge domains into two basic types which they label as 'ill-structured' and 'well-structured domains'. An example of an *ill-structured* domain would be English literature where there is a greater expectation for students to engage subjectively with the literature as early as secondary school. A *well-structured* domain would be a subject like

chemistry where knowledge is based more on what they have been taught at the same (secondary school) stage.

It is also possible to gauge how students justify the validity of their knowledge claims (Greene et al., 2008; Hofer & Pintrich, 1997). Greene et al. (2008) describe a shift in 'epistemic cognition' from a 'realist' position, through 'dogmatic' and 'sceptical' positions to a 'rationalist' position (Table 2.2). The realist position is very similar to Baxter Magolda's (2004) absolute position, and the sceptical position is similar to her independent position. However, the 'dogmatic' position is based on the justification of knowledge through an appeal to authority. An authority might be a teacher (in secondary school), or an academic (in university). The final phase, or 'rationalist' position, is where the student can draw on the dogmatic position and the sceptical position in order to justify their view. Table 2.2 combines Baxter Magolda's and Greene et al.'s frameworks and outlines the shift of epistemological positions and the justifications of those positions. 'Rationalism' is seen as the ideal position for *postgraduate* students (Greene et al., 2008) where they are combining knowledge taught by authorities in a discipline with their own (informed) position. However, the shift towards a rationalist position is dependent on context. In this case the context is the subject domain (and possibly the educational culture) where they are studying. Baxter Magolda's contextual knowing is therefore aptly named for this stage.

This model appears to connect the *logical reasoning and argumentation*, *cognitive skills* and *developmental* aspects of CT at a postgraduate level. It takes into account that understanding of the knowledge of a discipline and a student's justification of that understanding can vary by individual, and is based on what is expected in a particular disciplinary and educational context. This model can also be useful to help understand what should be expected of postgraduate students in how they engage in the knowledge of their discipline. Postgraduate students should be expected to express their *voice* and *position* through the development of opinions based on an *analysis*, *synthesis* and *evaluation* of different authoritative perspectives. This ability is directly related to the conceptualisation of CT presented in this thesis thus far.

Table 2.3

*Understanding CT in academic writing in higher education v.2*

<i>Categories and sub-categories</i>
A. Argumentation
A1 Logical argument
B. Cognitive and meta-cognitive skills
B1 Understanding
B2 Analysis
B3 Evaluation
B4 Creative synthesis
B5 Reflectivity
B6 Problem solving
C. Disposition and attitudinal development
C1 CT dispositions
C2 Attitude to learning
C3 Epistemological development
E. Knowledge and application
E1 Knowledge
E2 Practical application

A more developed framework for understanding CT in higher education is therefore presented in Table 2.3 that incorporates the importance of CT dispositions, attitudes to learning and epistemological development in addition to the main concepts presented in Table 2.1.

***Cognitive dissonance and CT***

The development of someone's CT skills may also be the result of some sort of *cognitive dissonance* within academia or through a life event that challenges their own self. Cognitive dissonance is a psychological conflict that occurs through having to accept contradictory beliefs. According to Brookfield (1987), a significant change in circumstances has a direct relationship to the development of CT. Meyer (1996) also notes that:

Development of critical thinking skills is not a dispassionate learning process, in which students need only be shown a new way of perceiving things in

order to follow it, but a threatening encounter that challenges one's very "selfhood" (p. 96).

Examples of this process of cognitive dissonance has been observed in higher education, at undergraduate and postgraduate level, where students may initially struggle to adapt to a new academic culture, discourse community and way of thinking and studying because their expectations of higher education clash with their underlying beliefs of what higher education should consist of (Durkin, 2008, Fakunle et al., 2016; Perry, 1970; Turner, 2011). For example, this might occur when students expect a tutor to tell them the 'right answer', while tutors might tell the students that there is 'no right answer', or that they have to 'find out the answer for themselves'. It may also involve the expectations by tutors that students should critically engage in evaluating the strengths and limitations of a specific study, rather than just summarising and comparing different research.

### ***Rationality, emotions and ethics***

Through the processes of CT involved in making important 'rational' decisions, *emotions* do also play a part (Moon, 2008). Brookfield (1987) stressed that for adults CT is not just a rational activity. Instead, he sees feelings and emotions as 'central' to CT. For example, Shaw (1994) illustrated the breadth and depth of emotion involved in decisions scientists have to make in their research. When people make well-informed and well-reasoned decisions, to assume that there is no emotional involvement is to neglect a key feature of being both human and critically reflective. Being overly emotionally involved in a critical decision can also cloud reasonable judgement, but this does not mean that emotions should not be involved in CT.

Furthermore, there is debate over whether *ethics* should be included in CT. This was a contentious issue in both Facione's (1990) research and more recently in Moore's (2013) research; in both cases there was not a consensus of agreement. This is in contrast to the criticality and critical pedagogical movement where ethics is a key feature (Davies, 2015). In the rational discourse of the CTM it is possible to rationalise certain activities that others may consider to be unethical. For example, arguments for the genocide of different groups in history may have been justified 'rationally' by governments, despite what most people would consider to be unethical and immoral practice.

## **2.3 The criticality, critical pedagogy and 'postmodern' perspectives**

Whereas the focus of the CTM is on developing the skills and dispositions of an individual, the criticality and critical pedagogic movement conceive the world in terms of social relations. The criticality movement is based on the works of Barnett (1997) and stands somewhere between the CTM and the critical pedagogy movements (Davies, 2015; Davies & Barnett, 2015), while the critical pedagogy movement is neo-Marxist in orientation and based on the works of Freire (1972, 1973) and Giroux (1988; 1994).

### **2.3.1 The criticality movement**

The criticality movement focuses on a shift from 'critical reason' (which corresponds to the aims of the CTM) to critical 'self-reflection' which then leads to 'critical action' (Barnett, 1997; 2015). Influenced by Schön's (1987) 'reflective practitioner' and Marx's 'praxis' as a world constructed through action, Barnett argues that in institutions of higher education too much stress has been put on the systemic knowledge of disciplines, and not enough on self-reflection and critical action. An example of self-reflection in academic disciplines is that of 'metacritique' where discipline practitioners reflect on the assumptions behind disciplinary knowledge and practice. For Barnett, mass education could generate more critical thought that is self-reflective and that can affect society.

Barnett's criticality movement differs from the CTM in its stress on 'action' and its explicit moral and ethical dimension (Davies, 2015). Whereas the question of ethics is not necessarily essential in the CTM (Facione, 1990), for Barnett it is. Barnett's perspective on higher education has been lauded for its aim to refocus the purpose of higher education to develop critical students (Wagner, 1998). However, his views have also been criticised for not taking into consideration alternative conceptualisations of what it means to be critical, mainly from more postmodern feminist and post-colonial traditions (Edwards, 1999).

### **2.3.2 Critical pedagogy**

Barnett's (1997) concept of critical action is also similar to features of the critical pedagogical movement. Like the criticality movement, it stresses the importance of praxis (a combination of reflection and action). However, the critical

pedagogy movement is based on the belief that social relations are a key aspect of CT. Critical pedagogy is influenced by the neo-Marxist writings of the early Critical Theorist of the Frankfurt School who highlight the role of culture and media in maintaining and perpetuating capitalist economic relations (Stanley, 1992, as cited in Burbles & Berk, 1999). They apply the insights of Critical Theory to education, and view education as a system that functions to reinforce the social relations of capitalism through concepts such as meritocracy, assessment, tracking and vocational training.

For the advocates of the critical pedagogy movement, CT is less about developing skills and dispositions, and more about first making students aware of their subordinate place in an oppressive capitalist system through the development of a 'critical consciousness'. This in turn will lead to praxis which in Freire's view, will lead to 'emancipatory' and 'transformative' education (Freire, 1972; 1973). These ideas are further developed by Giroux (1988), who focuses on how language is used in education to perpetuate unequal relationships of power and social injustices in a capitalist system through a "language of critique" (Giroux, 1988, p.177). Giroux, instead calls for the development of a "language of possibility" which aims to develop a language of "counter hegemonic discourse" in schools (ibid, pp.111-112).

The criticality, critical pedagogy movement and CTM do share the need for reflection and action, but in different ways. While the CTM aims to justify actions based on the evaluation of evidence-based claims, the actions of the critical pedagogy movement are based on perceived injustices in a system of relationships of oppression and domination. From the points of view of its critics, the critical pedagogy movement 'indoctrinates' students into thinking politically, not critically. However, according to Burbles and Berk (1999), for the critical pedagogy movement there is no distinction between teaching students to think critically and teaching them to think and act politically.

### **2.3.3 'Postmodern' perspectives**

Both the criticality and critical pedagogy movements have also been challenged by more postmodern approaches to CT that highlight feminist and post-colonial perspectives (Atkinson, 1997; Belenky et al., 1986; Durkin, 2008; Ellsworth, 1989). I use Lyotard's (1984) broad definition of the postmodern as an 'incredulity towards meta-narratives' which challenges the assumptions underlying grand

narratives from Enlightenment rationalism to neo-Marxism, and emphasises a shift from universal questions of truth and reality to more pragmatic questions of whose interest is promoted in the production and reproduction of knowledge. In this tradition, feminist and post-colonial approaches challenge the 'masculine' nature both of the logic of the CTM and the universalistic and progressive approaches of the critical pedagogy movements, to the detriment of women and other marginalised groups, with their own understandings and perspectives of the world (Ellsworth, 1989).

However, there have been some attempts to engage with the critical pedagogical and postmodern traditions by some who traditionally were from the CTM. For example, Paul, (2011) emphasised the importance of dialogical thinking and the social, gendered, cultural and relational aspect of thinking. Paul (1984) also made a distinction between *micro-logical* and *macro-logical* CT skills. Micro-logical skills are conceived as skills in a *weak* sense in that they are discrete and can be attached to learning logical skills in a technical sense through the study of argument for example. In the *strong* sense CT skills are considered to be *macro-logical* skills that are connected to the character of a person, both in an affective and dispositional sense, and which involve real life decisions. Moreover, macro-logical skills are based on *dialectic thinking*. Paul (1984) defines dialectic thinking as a higher order thinking skill that is characterised by:

... dialogic, point-counter-point, argument for and argument against, scrutiny of individual event against the back ground of this or that global "totalizing" of it into one's life. What is called for is liberating emancipatory reason, the ability to reason across, between, and beyond the easily marshalled data of any given technical domain. (p. 11)

Paul outlines a generic macro-skill based on listening to, considering and evaluating different views based on dialogue and with the aim of developing the thinking and moral self. He certainly seemed to have considered the contribution of other critical approaches in this respect.

While most of my research is based on the CTM approach, there is an acknowledgement that the critical pedagogy and postmodern perspectives can provide insights into this research. However, one rationale for focusing on a CTM approach is that I consider it to be the *core* approach to CT (Davies, 2015; Davies & Barnett, 2015). If students are unable to understand the core (and potentially

generic and transferable) features of CT, which are essential features of postgraduate education as outlined in the various national qualification frameworks in the UK, then they cannot be seen to have fully engaged at an appropriate level in their higher educational experience.

Moreover, in the UK university context, it is my assumption that CT courses are rarely taught separately and universally at undergraduate level, except in specific disciplines (e.g. philosophy and law), and even more rarely at the postgraduate level; unlike critical pedagogy and feminism which often have courses especially dedicated to those perspectives. There is therefore a possible gap in the curriculum, and a lack of clarity in how educators do, could and should teach CT in the UK higher educational system. Another part of the rationale for this research is therefore to discover where and how that gap is being plugged at a postgraduate master's level.

## **2.4 Conceptualisations of CT among subject tutors and students**

There is seminal research and more recent empirical research on the conceptualisations of CT by 'experts' in the field of CT (e.g. Facione, 1990; Thomas & Lok, 2015). Paul (2011) also called for further research on how different subject specialists conceptualise CT within their disciplines. This disciplinary aspect of CT is examined in more detail in the next chapter. However, subject specialists can also be divided up into at least two major groups: 'expert' tutors or lecturers in specific disciplines, and 'novice' students of those disciplines.

Although the empirical studies of Jones (2007; 2009; 2015) and Moore (2011; 2013), tend to support an understanding of CT that highlight the different conceptualisations of it across disciplines, they also acknowledge more generic aspects of CT. Jones' (2015) research was based on 37 interviews with lecturers in five disciplines (economics, history, law, medicine and physics). Despite arguing for different conceptualisations of CT across these disciplines, she concedes in the discussion that there are generic CT skills which include the "use of logic and evidence, evaluation of claims and explanations, analyzing arguments for clarity and precision, and making reasoned judgments" (p. 178).

In a similar vein to Jones' work, Moore (2013) interviewed 17 lecturers across three disciplines (history, philosophy, literary/cultural studies). Four 'major

themes' and three 'minor themes' were highlighted in answer to the question of how those subject lecturers conceptualised CT in their disciplines. The four strongest themes referred to CT as 'the making of judgements', 'a sceptical and provisional view of knowledge', 'originality' in the production of ideas and 'a careful and sensitive reading of text'. These four core themes seem to fit quite well into the 'evaluative', 'dispositional', 'creative' and 'understanding' elements of my framework (Table 2.3). However, there was less agreement across disciplines on the three minor themes. These were CT as 'rationality', the adoption of an 'ethical and activist stance', and as 'self-reflexivity'. Like the four major themes above, rationality and self-reflexivity are elements found in Table 2.3. The ethical and activist feature is also debatable within the CTM (Facione, 1990), but is an essential component of the criticality and critical pedagogy movements (Barnett, 1997; Burbles & Berk, 1999).

Students studying specific subjects can also be considered to be non-specialists in the practice of CT. Phillips and Bond's (2004) phenomenological research with 13 undergraduate management students in a New Zealand university enquired into how those students conceptualised 'critical reflection' in their studies. Based on interviews and think aloud problem-solving tasks they found that there were four broad conceptualisations; from the more basic 'weighing up' to the more sophisticated 'looking beyond what is there'. Weighing up appears to match well with the cognitive skills of 'analysis' and 'evaluation' (Table 2.3). The two middle categories were 'looking at it from all the angles' which involved a consideration of different viewpoints, and 'looking back' which was more reflective in nature. Finally, their highest level ('looking beyond') involved looking beyond the face value of phenomena. One key difference between the more basic conceptualisations and the more sophisticated conceptualisations of the critical reflective process highlighted by Phillips and Bond was the importance of voice and agency.

Phillips and Bond (2004) reported that they were 'disappointed' at the quality of criticality display among the participants. However, these were mainly home students who were mid-way through a (three-year) undergraduate degree where CT was not taught explicitly as part of their course, but rather appeared to be taught implicitly within their discipline. Despite being disappointed they acknowledge that their results were probably typical of the level of critical engagement of students in this course and at this level within the university.

However, the focus of my research is specifically at the *postgraduate master's* level. To this end, Durkin's (2008) research on the conceptualisation and application of 'critical evaluation' by East Asian postgraduate master's students provides an insightful contribution. Based on interviews with 42 East Asians (and six British students) across two British and one Chinese university, they argue that East Asian students do not adopt a full-on 'battlefield' CT mentality in their studies, but rather adopt a more conciliatory approach which they characterise as a 'middle way' between this western conceptualisation of CT and a 'consensus' oriented approach common in East Asia that involves a focus on harmony of opinion and conflict avoidance. The East Asian students appear to be aware of what is expected of them, but due to their resistance towards a full cultural appropriation of the norms of a western CT mentality, they opt for a more pragmatic compromise.

Durkin's (2008) research does add to the literature on how East Asian students adopt a critical stance in their postgraduate studies. However, it does not focus on CT in academic writing per se, and seems to over-simplify the nature of 'western critical thinking', focusing mainly on the work of Ennis (1987) and earlier work of Paul (1993), but neglecting more recent work in the CT tradition which has sought to integrate more diverse perspectives of the world (e.g. Moon, 2008; Scriven & Paul, 2015). It also only focused on one nationality group – the Chinese.

More recent research conducted on a range of international students at undergraduate and postgraduate levels in the UK suggests that the educational and cultural background of such students were viewed as major factors hindering the application of CT skills in their academic writing (Brown, 2008; Shaheen, 2012; 2016). This includes a lack of critical analysis and critical evaluation, and a lack a student voice. However, Shaheen's (2012) research does not seem to make much of a distinction between the different expectations of undergraduate and postgraduate study, which are already embedded in policy literature (EC, 2005; QAA, 2008; SCQF, 2012). There is therefore a need for more specific research on students' conceptualisation of CT in academic writing at a master's level.

## **2.5 Chapter conclusion**

This chapter has introduced three broad approaches to CT in higher education based on the CTM (Davies & Barnett, 2015). These were: a logical

reasoning and argumentation approach based on the informal logic movement in philosophy; an approach based on different and distinguishable cognitive and meta-cognitive processes and skills based on cognitive psychology, and a third highlighting the importance of CT dispositions, the affective and motivational nature of criticality within higher education, and the relevance of epistemological development among young adults. While it is acknowledged that these are not the only ways of understanding and conceptualising CT, they will be the focus of the research in this thesis.

The CTM has provided insights into generic concepts of sound argumentation and the importance of applying cognitive processes in a skills-based approach to CT. Two models were presented in the argumentation tradition: the Toulmin and Beardley-Freeman argument patterns. Both can be used to teach and evaluate generic CT patterns of argumentation and can be incorporated into part 'A' of the framework for this research (Table 2.3). Moreover, a combination of the insights on the conceptualisation of CT by Facione (1990), and the work of Anderson et al. (2014) (with its focus on learning, teaching and assessing cognitive skills), has allowed me to develop part 'B' of the framework (Table 2.3). This stresses the link between the cognitive processes involved in understanding, analysis, evaluation and creative synthesis; and the meta-cognitive and multi-cognitive processes of reflection and problem solving.

The insights from the dispositional, affective, motivational and epistemological developmental approaches also provide awareness of how students can learn more effectively using a deep approach to learning (Entwistle, 1997). This can be combined with a contextual engagement with disciplinary knowledge (Baxter Magolda, 2004), based on justification by authority and personal justification dimensions (Greene et al., 2008) which have implications for the development of student voice and position at the postgraduate level.

However, the CTM has been criticised for focusing too much on the cognitive processes of individual learners, and neglecting the importance of social relations, cultural context and ethical considerations in the learning experience; critiques directed at them from the criticality and critical pedagogical movements. The CTM has faced further criticism from more postmodern approaches for attempting to be too universal in its stress on logical and reasoned evaluation of argument, at the

neglect of alternative ways of understanding the world based on feminist and post-colonial perspectives.

Furthermore, the understanding and conceptualisation of CT in higher education by 'experts' on the subject is most prominent in the CT literature, while student conceptualisation of CT is relatively sparse. Moreover, most of the literature on CT in higher education focuses on the undergraduate curriculum and learning experience in the USA and Australasia at the neglect of other higher educational contexts with different educational cultures where CT may be conceptualised quite differently, if at all. It also seems to neglect the increasingly internationalised postgraduate higher educational environment of the UK where students from different educational cultures are having to adapt and engage in new and foreign learning environments in one-year intensive masters programmes.

Finally, the practice of CT in higher education is not located purely in the realm of cognition or meta-cognition, but needs to be manifest in some form of practice within the higher education. That practice includes the skills of reading and writing critically within the academy. It is in the area of the academy that we must now turn, for it is in that area that we can search further for insight into how CT is applied in higher education.



## **3. Literature Review B**

### **3.1 Chapter introduction**

This chapter focuses in on the teaching of CT in HEIs at the PGT level through academic writing. It begins by examining some of the key issues in teaching CT in general, and then presents different approaches to teaching CT (3.2). The following section (3.3) examines and evaluates how the logical argumentation and cognitive skills approaches to CT fit with a 'text and product', and 'mind and process' approaches to academic writing respectively. This is followed by an outline of broader 'contextual' approaches to CT in academic writing. Section 3.4 highlights the importance of positioning, stance and voice and their relationship to CT in academic writing. Finally, the conclusion brings together key aspects of chapter 2 and 3 into the final version of the research framework that will be used to inform the research design of this thesis.

### **3.2 Teaching CT at university level**

This section will review more generally questions of how to teach CT in HEIs. It begins by discussing some contested issues in its teaching, followed by a presentation of four different approaches to teaching CT based on Ennis (1989). These four approaches are then evaluated in relation to their pedagogical applications.

#### **3.2.1 General issues of pedagogy**

The main contested issues relating to the teaching of CT in HEIs focus on whether CT skills are generic and transferable across disciplines, or whether different conceptualisations of CT are embedded within different disciplines (Davies, 2006; Moore, 2013).

#### ***CT(s) within and across disciplines***

The view that the conceptualisation of CT varies across disciplines is known as the 'specificist' perspective (Davies, 2006). How CT is perceived also has implications for how it can and should be taught in institutes of higher education. There may be difficulties in trying to teach generic courses in CT across disciplines

(based on an understanding of CT as logical reasoning) as different disciplines use different types of 'logic'. McPeck (1981) claims that there are a "variety of things we can and do reason about" and that "no one set of skills can produce competence in reasoning about them" (pp. 84-5). Even Toulmin (2003) conceded that the "force of the conclusion" of an argument is "field-dependent" (p. 36). What is a strong and valid conclusion to an argument in one field may not be so strong in another, and traditional modes of argument analysis are not sensitive to the fluidity of human discourse (Scriven, 1976). According to this view, as well as having a different knowledge base, each field or academic discipline uses a slightly different language of reasoning as criteria to judge the credibility of an argument presented within that field or discipline.

There is evidence that students studying different disciplines in university fit into different 'academic tribes' (Becher, 1989), and that different disciplines focus on different aspects of knowledge, from the abstract to the concrete, and from living to non-living systems (Biglan, 1973a; 1973b). For example, van der Vaal (1999) makes a distinction between "situational critical thinking" and "epistemological critical thinking" (p. 4). The former refers to a thinking process that relates to specific situations, such as decision-making used in practice based subjects such as nursing and social work, while the latter refers to epistemological and theoretical problems more commonly found in more theoretical subjects. Donald (2009) contrasts the different ways of thinking between students training to be lawyers and engineers, while Hounsell and Anderson (2009) contrast the ways of thinking between bioscience and history. What these examples seem to illustrate is that academics in different disciplines appear to think differently, and this could have an effect on how they conceptualise what it means to be critical in their discipline.

For instance, Jones (2007; 2015) and Moore (2004; 2011) have highlighted the different conceptualisations of CT across disciplines. Jones, (2007; 2015), concludes that there are clear differences in the ways CT is conceptualised by tutors in history, economics, law, medicine and physics in two different institutions of higher education in Australia. Moreover, according to Moore (2011), teaching about what constitutes a critical argument from the perspective of philosophy will not necessarily help a history or literary studies student to be more critical in the subject because conceptions of criticality differs across disciplines.

It is useful to compare the conceptualisation of CT across disciplines to gauge to what extent fields or disciplines differ in their understanding. The research in this thesis therefore initially focused on understanding CT in two 'Schools' in one university: the Business School, and the School of Education.

### ***Problem solving in business disciplines***

In the disciplines of business and economics, CT is often conceived as following specific procedures in order to solve problems (Jones, 2007; Hammer & Green, 2011). After examining a case study involving a business report writing programme designed to improve critical writing skills, Hammer and Green (2011) note,

Such a focus on problem solving ... is characteristic of teaching and learning in the business disciplines. Typically business faculty engage students in productive dialogue around case studies and model critical thinking through processes of problem solving (p. 307).

According to Meisel and Fearon (2006), problem solving and CT are conceived in a very narrow sense in business departments. Moreover, they are critical of the problem solving focus in business departments in universities. For example, Meisel and Fearon (2006) observe that, "Although business students learn a variety of decision-making techniques ... these are often more about cracking problems than problem identification" (p. 154). For them, business education tends to focus more on the 'treatment' of a problem, rather than 'diagnosis' or 'prevention'. This seems to imply that a more procedural approach to problem solving (Newell & Simon, 1972) is most common in business schools.

### ***Reflection in educational disciplines***

In education, on the other hand, there has been a long tradition in reflective thinking (Bleakley, 1999; Brookfield, 1987; Dewey, 1933; Ecclestone, 1996; Hatton & Smith, 1995; Schön, 1983; van Manen, 1977). Ecclestone (1996) and Bleakley (1999) highlight two main approaches to reflection and reflective practice in education. The first is a *technical-rational* approach common in more vocational teacher training courses in colleges of education, and based on a 'learning outcomes' and functional competences approach to learning. Ecclestone (1996) is

critical of these approaches, as in her view they tend to reaffirm existing beliefs rather than critically reflect on practice, and they focus on technique at the expense of values. Bleakley (1999), however, argues that values do exist within the technical-rational approaches, but these values are essentially utilitarian (e.g. how to teach students most effectively).

The second approach is a form of critical reflection based on *emancipatory liberal humanism* which, according to Bleakley (1999), is more favoured by educationalists. This approach often aims to challenge the *status quo* with its focus on empowerment and emancipation and the encouragement of more autonomous learning (Ecclestone, 1996). Ecclestone views the use of a technical-rational approach as appropriate for 'novice' teachers studying vocational teaching education courses. According to her, as teachers develop and become more 'competent' and autonomous they should be encouraged to become more critically reflective, engage more with theory and adopt a more ethical and emancipatory approach.

However, the emancipatory approach has also been criticised on a number of fronts. First, Bleakley (1999) does not see it as being particularly critically *self-reflective* on its own assumptions about the nature of reflection. It also displays a strong sense of progressivism common to the critical pedagogical approaches, with its emphasis on teachers progressing from a 'lower' type of reflection to a 'higher' form, when in practice teachers may not want to 'progress' in this critical sense. There is also an over emphasis on the individual at the expense of social and cultural determinants of reflection and reflective practice (Bleakley, 1999).

### ***Problem solving in business and critical reflection in education(?)***

The contrast highlighted here between the importance of *problem solving* in business disciplines, and the stress on *reflective practice* in educational disciplines does not imply that there is no reflective practice in business studies, or that there is not any problem solving involved in educational disciplines. Rather, the suggestion is that these two discipline areas tend to foreground specific aspects of CT over others. This would lead to an expectation that tutors and students studying in the Business School would put greater stress on the importance of problems solving (over reflective practice), while tutors and students in the School of Education would put greater stress on the importance of reflective practice (over problem solving).

### ***Generic views of CT and transferability***

The view that CT skills are generic is held by the 'generalists' (Davies, 2006; 2011a; Ennis, 1990, 2015; Robinson, 2011; Moore, 2004). The generalists' assumption that there are generic CT skills lead to the question of transferability. This relates to whether CT skills can be transferred from a generic course on CT across to discipline specific courses, and whether CT skills are transferable beyond graduation. Perkins (1987b) points out one of the difficulties of transferability when he states:

The principal risk is the problem of transfer. ... [I]nstruction offered in one context often does not transfer to other contexts, so that thinking skills taught out of context of subject matter instruction may well have little impact on performance in the subject area. (p. 63).

Although this problem of transfer could be applied to any conceptualisation of CT, in this citation above he does refer to 'skills'. Aware of this issue, Ennis (1990) concedes that transfer of CT skills from one subject to another is unlikely without practice of CT in those subjects because skills tend to be more effectively learned within specific contexts.

Green (2015) also makes a distinction between "near transfer" and "far transfer" (p. 110). Near transfer involves the transfer of CT skills from study in a course to exams, while far transfer involves the transfer of those skills into a different context. According to Green, one goal of higher education is for *far* transfer. Green also offers a solution based on how students are motivated to learn. Based on Nilson (2003) and Pink's (2009) research on motivation, he points out that teaching students CT is most effective in developing far transfer if they are intrinsically motivated to learn. This is in contrast to encouraging extrinsic motivational rewards, such as high grades or certificates as a result of passing a test.

According to Pink (2009), there are three main types of intrinsic motivators: "autonomy", "mastery", and "purpose". When students have control over an activity (autonomy), have a high level of aptitude in it (mastery) and see value in it (purpose) then they find it intrinsically rewarding. Green (2015) proposes that if the teaching of CT is based on developing intrinsic motivation, then there is a greater chance of far transfer, beyond a single course in CT.

### ***Conceptual clarity***

One of the difficulties of understanding CT is that of its lack of conceptual clarity and lack of consensus over what it consists of (Davies & Barnett, 2015). What is understood as constituting the different elements of CT is important because it has pedagogical implications (Thomas & Lok, 2015). If tutors in higher education are unsure of what CT consists of then how are students going to understand?

Thomas and Lok (2015) try to address this multifaceted nature of CT by providing an 'operational framework' to teach CT based around skills, dispositions and knowledge. Fox (1997), Moore (2013) and Barnett (2015) also emphasise this need for conceptual clarity, as do Barnett and Davies (2015) when they make a distinction between the CTM, the criticality movement and critical pedagogical movement (See chapter 2, section 2.1).

In a possible answer to the question of conceptual clarity, the work of Anderson et al. (2014), and Biggs and Tang (2011) provide more detailed frameworks relating to learning, teaching and assessment that can be linked to the learning outcomes expected of students and to wider qualification frameworks at a postgraduate level in the UK (e.g. EC, 2005; QCF, 2008; QAA Scotland, 2014). Assessment criteria within disciplines are often linked to national qualification frameworks, but programmes, departments and disciplines may have varying levels of autonomy in terms of how they fit their assessment criteria to these frameworks. Utilising clear and generic criteria for teaching and evaluating CT within academic writing can help students understand how well they are progressing in terms of their critical academic writing.

### **3.2.2 Approaches to teaching CT**

Ennis (1989) provides a clear outline of four broad idealised approaches to teaching CT. The first approach is labelled the 'general approach'. This involves the separate teaching of CT skills. Ennis further divides this approach into two types, an 'abstract' type which focuses on logical argumentation using generic and abstract examples, and a more 'concrete' approach where general examples are used based on day-to-day examples and other non-academic illustrations. Bowell and Kemp (2002), Halpern (2014) and Swatridge (2014) appear to provide examples of the latter approach, which all represent concrete general examples from the world of

politics and advertising for example. Separate courses on CT are also more common as part of undergraduate programmes in North America (Robinson, 2011; Harrell & Wetzel, 2015).

Some research has highlighted the benefits and limitations of courses that teach CT separately. A number of researchers have tried to evaluate how effective such courses are in improving CT skills. Research from the early period of implementation of separate courses in informal logic/CT at university level in North America show little improvement in CT skills (Annis & Annis, 1979; Pascarella, 1989; Stenning, Cox, & Oberlander, 1995). As Walton (2000) noted:

I wish I could say that I had a method or technique [for teaching Introductory CT] that has proved successful. But I do not, and from what I can see, especially by looking at the abundance of textbooks on critical thinking, I don't think anyone else has solved this problem either (as cited in Twardy, 2004, p.101).

More recently, Arum and Roksa (2011) reported minimal gains in CT skills among students after studying a course in CT in the USA.

Most of the above research used quasi-experimental designs involving pre- and post-tests, and control and experimental group methodology. Usually the tests used were either the Watson-Glaser CT Appraisal, (Watson & Glaser, 1994), The Cornell CT Test (Ennis et al., 1985) or the Californian CT Skills Test (Facione & Facione, 1994); tests which are mainly multiple-choice reading tests of reasoning, informal logic and argument. Sternberg (1987), has cautioned against the use of this methodology to evaluate CT programmes, "Simply giving a few intelligence tests as a pre-test and a post-test does not constitute an adequate formal evaluation, especially if they are given without an untrained control group" (p. 256).

Although some previous research on the effectiveness of courses on CT included other methods of evaluating, such as self-reporting (e.g. Davies, 2009), the fact that both control and experimental groups had already done pre-tests could have affected the result of the post-test because they had a *history* of doing the test. Most of the above research did also show awareness of the *maturation* effect which relates to other factors that have helped improve CT abilities of student outside the courses in CT (Campbell & Stanley, 1966).

Despite these methodological limitations, Abrami et al.'s (2008) meta-analysis of 117 mainly quasi-experimental and experimental studies based on a variety of age levels found that the instruction of CT skills to students did have a 'moderate' positive effect in improving CT skills. Furthermore, results using computer assisted argument mapping in classes on reasoning and informal logic have also shown an improvement in CT ability in a short time frame (Davies, 2009; Harrell, 2011; Hitchcock, 2015; Twardy, 2004, van Gelder, Bissett, & Cumming, 2004; van Gelder, 2015). They do, however, tend to be more effective with students who have lower levels of CT skills in the first place (Davies, 2009; Harrell, 2011; Stenning et al., 1995). Moreover, most of this research is based on undergraduate students who may have still been at a stage where their understanding of knowledge was a lot more malleable and therefore more open to improvement in terms of CT ability (Greene et al., 2008; Perry, 1970). Despite the great amount of research that has been done on the effectiveness of specific CT courses, the conclusions often remain inconclusive.

An alternative to the general approach is an 'infusion' approach (Ennis, 1989). This involves in-depth instruction in a subject, where students are taught explicitly how to think critically and develop CT skills and dispositions as part of the course. Davies (2006) advocates this approach, and in their empirical research Jones's (2007; 2015) and Moore's (2013) lecturers appear to encourage students to develop their CT within their discipline.

A third approach involves 'immersion' in the knowledge of a subject and in the practice of that subject (Ennis, 1989). However, in this case, students are not taught about CT explicitly. The assumption is that students will be expected to acquire CT skills through in-depth study of a subject. Bailin and Battersby (2015) indicate that this is still a common way in which students learn to be critical in undergraduate courses, even when they have been taught about CT through specific courses on that subject.

The final 'mixed approach' (Ennis, 1989) involves a combination of a general approach and an infusion and/or immersion approach, where there is a separate course on CT as well as content courses where CT may be infused through the content. Perkins (1987b) advocates this type of course, and it is common in US undergraduate liberal art colleges (Robinson, 2011; Green, 2015). Hitchcock (2015) also seems to advocate this approach when he notes that:

[T]he most effective method [to teach CT] may be a unit of CT instruction by a purpose-trained instructor in the context of subject-matter instruction with student discussion, engagement with a problem, and coaching. (p. 293)

Abrami et al.'s (2008) research also endorsed a mixed approach. When comparing the four of the approaches above, they found that:

The mixed method ...had the largest effect [on improving CT skills], whereas the immersion method ... had the smallest effect. Moderate effects were found for both the general approach ... and the infusion approach. (p. 1121)

Based on previous research, a mixed approach seems to be the most effective in improving CT skills in higher education, at least at the undergraduate level (Abrami et al., 2008; Bailin & Battersby, 2015; Davies, 2006; Hitchcock, 2015). To what extent these approaches can be applied at a postgraduate level is still open to question.

### ***CT as a graduate attribute***

If we consider CT as an example of a graduate attribute commonly found in research intensive UK universities (as suggested in chapter 1, section 1.3.1), then Barrie's (2006) typology of different conceptualisations of graduate attributes can be combined with Ennis's (1989) typology. Based on interviews with 15 academics from five different disciplinary domains questioning them on the nature of generic graduate attributes, Barrie (2006) found that there were four broad conceptualisations of graduate attributes. *Three* of these appear to have pedagogical relevance to this thesis.

The first of these three is a set of generic attributes which are 'complementary' to disciplinary knowledge. They are: "generic skills acquired as the result of a university education and ... are part of the university syllabus but separate and secondary to the learning of disciplinary knowledge" (p. 226). An example Barrie gives of this is generic essay writing skills required to produce a coherent written argument. At an undergraduate level some students would probably need additional support in essay writing, but at a postgraduate level it is expected that students would rarely require additional support. There are some exceptions to this however, which might include international students who may need additional academic writing support.

A second type of generic attribute outlined by Barrie are 'translation' attributes which graduates obtain in the study of their discipline. These include CT

skills embedded within a deeper understanding of a discipline, and are most likely learned through an infusion or immersion approach to learning, or a combination. Barrie gives the example of more technical and specific laboratory report writing for biology where a deep understanding of the subject is required.

The final type of graduate attribute that is highlighted are those that are initially embedded within disciplinary knowledge, yet transcend those disciplines. This 'enabling' type of graduate attribute, is "an integral substrate of discipline knowledge" and is at "the core of all scholarly knowledge and learning" (p. 229). However, this type of generic attribute (unlike the previous two) is not bounded by academia, but transcends it. Barrie also gives the example of "critical reading skills" (p. 231) as this type of generic attribute. He also implies that these types of attributes are generally taught through an immersed approach when he states that these type of attributes are rarely taught explicitly, "they may be so embedded that they are rarely articulated or made explicit as course learning outcomes" (p. 236). The difficulty is that if this type of graduate attribute is taught implicitly through immersion over a longer (undergraduate) period, can it be taught more explicitly and more efficiently over a shorter (postgraduate) period to students?

### ***Embedding CT skills in the curriculum***

At the curriculum planning level, it is possible to embed CT skills within the expected learning outcomes of teaching and learning. Biggs and Tang (2011) highlight the importance of what they term 'outcomes-based teaching and learning' (OBTL) which they equate to graduate attributes. The brief survey of the UK Russell Group universities in the Introduction chapter indicates that CT is often considered to be a key graduate attribute. Where Biggs and Tang (2011) appear to go a little further is in benchmarking teaching and assessment to specific cognitive levels of learning activities focusing on developing a 'deep approach' to learning based on Marton and Säljö's (1997) work.

Specific (cognitive) CT skills, such as 'analysis', 'evaluation' and 'creative synthesis', 'reflectivity' and 'problem solving' can fit into Biggs and Tang's OBTL model. However, it is also important to be careful not to over-apply these concepts across disciplines, but allow disciplines to define what these terms entail within their knowledge domains. Abrami et al.'s (2008) research also indicates that having CT embedded in learning outcomes in themselves has no significant effect on the

improvement of CT skills. Both tutors and students need to make these explicit in their learning. In other words, an OBTL approach could allow specific CT skill terminology to be embedded within disciplines, but students had to be taught what they were, and practice them.

Biggs and Tang (2011) also stress the importance of moving away from norm reference assessment to criterion reference assessment based on various cognitive skills. Assessment criteria can therefore reflect the CT skills being taught among other things. Assessment criteria are also often based on national qualification frameworks (QCF, 2008; SCQF, 2014) and wider international frameworks (EC, 2005). Moreover, as has been previously noted in the Introduction chapter, these national and supranational qualification frameworks do contain elements of cognitive CT skills. It is therefore quite possible to embed key CT skills in assessment criteria that are benchmarked to national qualification framework, and that can have a positive washback to teaching and learning (Messick, 1996).

### ***Section summary***

Despite the blurring of disciplinary boundaries within academia (Barnett, 2003; Ryan, 2002), separate disciplines still remain strong and central to academic identity (Henkel, 2000; Kreber, 2009; Neumann, Parry, & Becher 2002). Moreover, different disciplines often conceptualise and practice CT in different ways (Bath et al., 2004; Christensen & Cuffe, 2002; Jones, 2007; 2015). At the same time, Davies (2006; 2013), in a rebuttal to Moore (2004; 2011), argues that there are still generic CT skills that apply to different disciplines, such as sound reasoning. For Davies (2006), the generalist versus specificist debate is an example of a fallacy of the false alternative. Instead, he argues for an infusion approach where generic CT skills are combined with disciplinary knowledge which can be taught within a discipline; while Abrami et al. (2008) meta-analysis suggest that a mixed approach where CT is taught separately alongside content courses is the most effective approach.

Although research literature suggests that disciplines have different ways of thinking, knowing, studying and practicing and different conceptualisations of CT in their discipline, even Jones (2015) concedes that there are generic features of CT, such as the evaluation of claims. Moore's (2013) empirical research also seems to imply an element of generic CT attributes that cuts across disciplines, such as

making informed judgements, despite a stronger emphasis on some of these in some disciplines.

Embedding generic cognitive CT skills terminology within disciplines while at the same time fulfilling national qualification framework criteria for assessment, teaching and learning at different levels of university allows for positive washback of CT skills into their teaching and learning, especially at the master's level where it is required even more so than at an undergraduate level.

In my view, there appear to be some features of CT that are generic, such as clear argumentation and fundamental cognitive skills such as understanding, analysis, and evaluation. Moreover, there are higher-level cognitive skills such as creativity as well as meta-cognitive skills and multi-cognitive skills - such as critical reflection and problem solving - that are important across disciplines. While the nature of critical reflection and problem solving, or problem identification may vary across disciplines (Shön, 1983), the initial assumption behind this research is that there *are* generic graduate attributes that are applicable across disciplines within universities. At the same time, the specific characteristics of those generic features have to be embedded within specific disciplines for them to be workable within those specific knowledge domains. For example, 'analysis' in business studies may not necessarily have the same features as 'analysis' in sports science.

### **3.3 Teaching CT in academic writing**

In higher education in the UK, the success of a student is often measured by the quality of their academic writing output, and it is common for students to be assessed through written assignments in the UK and USA (Cho, 2003; Wingate, 2012). Writing assessment criteria will often make reference to specific aspects of CT explicitly or implicitly, which may be benchmarked to learning outcomes or national frameworks. There are also several features of academic writing which overlap with the logical argumentation and cognitive skills conceptualisations of CT. Both involve purposeful, goal directed thinking and involve planning and organising (Bensley & Haynes, 1995), both can be used to refine thought (Nickerson, Perkins, & Smith, 1985) and both promote more self-reflection because they allow for the revision and refinement of ideas (Wade, 1995).

I suggest that there are parallels between the conceptualisations of CT highlighted in chapter 2 and the embedded nature of CT within disciplines discussed in this chapter. Tribble (2009; 2015) divides up the teaching of EAP writing into two broad approaches based on surveys of various textbook publications which included EAP writing. These he labelled as the 'Intellectual/Rhetorical' and the 'Social/Genre' approaches. There is also a third approach focused mainly on the study of academic writing in university, known as the 'Academic Literacies' approach (Lea & Street, 1998; Tribble, 2015; Wingate & Tribble, 2012).

Most approaches to teaching academic English are based on what Wingate (2012) labels the 'Genre/EAP' approach, which appears to be a combination of Tribble's (2015) Intellectual/Rhetorical and Social/Genre approaches above. It should be emphasised that most of my review of academic writing literature is based on research into teaching writing to students whose first language is *not* English, often within an EAP context. Moreover, the focus of my research is at a postgraduate level where in UK universities there is a higher percentage of international students whose L1 is not English (see chapter 1, section 1.2.1).

The parallels between the CT in academic writing research traditions are summarised in Table 3.1. Four broad threads run through the literature in both research traditions. These are CT as logical argumentation and academic writing as a product, and CT as a cognitive process and the process approach to writing. Both of these approaches would fall into Tribble's (2015) Intellectual/Rhetorical approach which is characterised by:

- an emphasis on formal, 'factual' text organization and on the 'essay' text type;
- the use of 'rhetorical modes' such as illustration, exemplification, comparison, contrast, partition, classification, definition, causal analysis, etc.;
- a methodological emphasis on collaborative writing and process approaches to composition; and
- the inclusion of grammar practice focused on correct forms at the sentence level (p. 443)

The contextual approach falls into Tribble's (2009; 2015) Social/Genre approach which is characterised by the concept of different academic discourse communities, the analysis of example texts set within specific social contexts, a focus on different written genre, and collaboration of subject experts in helping

design EAP writing courses. In my framework below (Table 3.1), I link the specificist understanding of CT and the genre approach to academic writing. I consider the Academic Literacies approach to be an adjunct to the Social/Genre approach, mainly because this approach is not the focus of this thesis. At the same time, some of the specific insights of the Academic Literacies research will be drawn upon where it is deemed relevant.

Table 3.1

*Connecting the teaching of academic writing and conceptualisations of CT*

<i>Key threads</i>	<i>CT</i>	<i>Academic writing</i>	<i>Examples</i>
Text	Logical argumentation	Intellectual/Rhetorical product	Essay level argument Paragraph level argument Citation conventions
Mind	Cognitive skills	Intellectual/Rhetorical process	Reading, drafting, feedback, reflection, re-drafting
Context	Disciplinary features	Social /Genre	Reflective essay writing Problem solving reports
History	Epistemological development	Dispositional and developmental	Understanding and engagement with subject knowledge

The first, second and third parts of this structure are partly based on Ivanič's (2004) "multi-layered view of language" (p. 223) which divides language into four layers which she labels as 'text', 'cognitive processes' and a third and fourth layer that relate to the social interactional and socio-cultural context of language. I have combined Ivanič's third and fourth layer into one as these both focus on the social *context*. This is also because the focus of this research is mainly on the first two parts of the structure outlined in Table 3.1. I have also attempted to synthesis my adaptation of Ivanič's model with the three different conceptualisations of CT outlined in chapter 2 (logical argumentation, cognitive skills and dispositional and developmental). First, the 'logical argumentation' approach to CT with its focus on the analysis and construction of sound arguments can be linked to the focus on the

'text' which stresses the teaching of academic writing as a 'product' (Leki, 2010). Second, the 'cognitive skills' approach to CT is linked to the focus on the 'mind' which stresses the approach of teaching academic writing as a 'process' (Raimes, 1991). Third, in the CT literature that highlights a 'specificist' understanding of CT (McPeck, 1981; 1990), based on different conceptualisations of CT embedded in specific academic disciplines (Jones, 2007; 2015; Moore, 2011) there is a link to a much broader set of approaches to academic writing which are united by a focus on social and genre 'contexts' (Tribble, 2015). This third part is a broad area which has tried to re-focus the teaching of academic writing away from generic forms and processes to writing that is informed by disciplinary contexts which focus on: the content and the reader (Wesche, 2010); written tasks, genre, and discourse communities (Swales, 1990; 2004), and academic literacies across disciplines (Lea & Street, 1998).

Fourthly, what I have labelled as a 'historical' perspective on CT in academic writing is also added. This relates to two other important features of CT: the dispositional and the developmental. To begin with, some students may have a more critical *disposition* at the onset of a programme of study. Some will also *develop* at a different rate to others in terms of their critical engagement with their subject knowledge (epistemological development). How students engage with knowledge may therefore develop over their course of study. The *history* thread makes the assumption that not all students will be able to develop their CT skills at the same rate. In many ways, it therefore provides a pedagogical backdrop to the other three threads.

Furthermore, student 'history' should be an important factor when considering how to teach CT to students. Moon (2008) gives a personal example where developing CT skills only really occurred towards the end of her undergraduate experience, with the first two years focusing on the acquisition and understanding of subject knowledge. It is also related to student's motivation to learn and apply a subject beyond graduation in a different context where CT may be less valued (Durkin, 2008); some students will be more motivated to develop their CT skills than others.

The following chapter sections will therefore analyse the links between CT as logical argumentation and the text-product approaches to studying and teaching academic writing (3.3.1). This is followed by an exploration of the links between CT

as cognitive skills and the process approach to teaching academic writing (3.3.2), ending with a short critical review of these approaches. Thirdly, the contextual perspectives on CT in academic writing are dealt with in the third sub-section (3.3.3). Finally, section 3.4 tentatively combines features of epistemological development with the concepts of writer's position, voice and stance.

### **3.3.1 CT as argumentation within a written text**

One way in which CT can be mapped onto academic writing is through argumentation. CT and argumentation are connected. However, a distinction can be made between the two, with CT being aligned with the informal logical aspects of philosophy, and argumentation being aligned to rhetoric (Andrews, 2015). Informal logic tends to be concerned more with "logical force" of an argument, while rhetoric is more concerned with the "persuasive force" (Lipman, 2003, p.42).

The influence of the Toulmin argument pattern on teaching academic writing has already been highlighted, with particular reference to the North American context (Harrell & Wetzel, 2015). While Toulmin (2003) provides a clear model of a single argument, his model can be criticised for being too abstract and not embedded sufficiently in the concreteness of disciplinary content. An alternative, the Beardsley-Freeman argument pattern (Figure 2.1), can be used to model different types of argument patterns (Harrell & Wetzel, 2015), but it is not always clear how Toulmin's and Beardsley-Freeman argument patterns can be used in written assignments where there are arguments from different cited sources and where there are numerous counter-arguments.

Kaufers and Geislers (1991) 'Scheme for representing written arguments' (Figure 3.1) provides an alternative guideline for students and tutors which takes into account multiple sources. It consists of three main argumentation 'paths'. The first is the author's *main path* which relates to the overall claim and support for the author's argument. The second set of paths are *faulty paths* which aim to identify detours and dead ends to the author's main argument. Finally, there are *return paths* which help readers see the limitations of the faulty-path claims and return them to the main path of the argument.

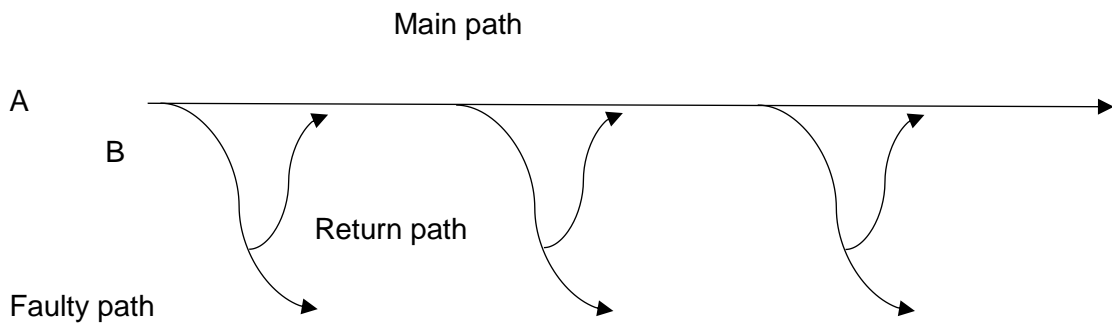


Figure 3.1 *Scheme for representing written arguments* (Kaufer & Geisler, 1991)

Kaufer and Geisler (1991) use an example of an essay that compares two major arguments in the debate over whether success in nature is the result of a bloody struggle (Darwinian), or it is the result of co-operation (Kropotkinian). Both perspectives are discussed (faulty paths) and evaluated, highlighting their limitations (return paths) and the position of the essay is presented; that nature provides no guidance as to whether survival is based on competition or co-operation (main path/argument). According to Kaufer and Geisler (1991), high-level critical writing does not utilise the multiple perspectives on an issue to demonstrate how knowledgeable the writer is on that subject necessarily, but rather multiple perspectives are used to reinforce the strength of the main argument.

Whereas Toulmin's argument pattern is useful for analysing specific arguments (and counterarguments), Kaufer and Geisler's (1991) maps out how multiple sets of arguments and counter-arguments can be presented in academic writing. Nussbaum and Schraw (2007) also support the idea of different levels of argumentation. They contrast the use of 'microstructural' and 'macrostructural' argument analysis. Whereas the former focuses in on one argument, the latter maps out more complex argument-counterargument arrangements. A distinction can therefore be made between the 'simple micro argument' structure of Toulmin and the 'macro argument' structure of Kaufer and Geisler. In this schema I would also position the Beardsley-Freeman argument model between Toulmin and Kaufer and Geisler and label it as illustrating 'complex micro argument' structures.

Argumentative and persuasive writing lends itself to the development of clearer CT skills within a framework. Perkins (1987a) also offers an approach based

on 'thinking frames' for essay writing which provide a thesis-argument-counterargument-rebuttal-conclusion framework. Argumentation is an essential feature of higher education at all levels in the UK. For Wingate (2012) the argumentative essay is the most common type of essay genre for undergraduate students. Moreover, according to Andrews (2007), it is at and beyond the master's dissertation stage where it is paramount to have a well-argued thesis in order to be successful. Andrews's research uses Kaufer and Geisler's (1991) model to evaluate the strength of argument in three English education master's dissertations by second language (L2) English students. The first distinction between a 'pass' and a 'fail' was to move beyond mere 'exposition', or description and included both an 'argument' and a 'critical dimension'. Andrews (2007) goes on to distinguish the quality of the dissertation based on whether the piece of writing and writer had:

- (a) Worked out its theoretical position
- (b) Reviewed the literature
- (c) Designed an appropriate empirical study (if it is that kind of study)
- (d) Gathered the evidence
- (e) Arrayed the evidence into categories
- (f) Found its position in relation to those categories, arranging them in a sequence that carries the argument of the piece as a whole. (p. 13)

According to Andrews, a major distinction between the 'very good' dissertation and 'satisfactory' master's dissertations was the inclusion of (a) and (f) in the former. High-level academic writing demonstrated an ability to develop a theoretical position in relation to other positions that already existed.

In summary, Kaufer and Geisler's (1991) model can provide a *macro* description of arguments at the essay or dissertation level, while Toulmin's argument patterns provide more detailed *micro* descriptions that can be used to analyse and evaluate arguments at a lower scale, for example at a paragraph, or essay section level. Beardsley-Freeman's *complex* argument description (Figure 2.1) appears to be somewhere in between the Kaufer and Geisler model and Toulmin's one, and could be used to analyse an essay section, or even a whole essay in more detail.

### ***A text-product approach to teaching argumentation in academic writing***

A text-product approach to teaching academic writing can be of use in teaching argumentation. Approaches that teach academic writing as a text-product can be seen as a combination of different approaches that developed from the late 1960s to the late 1980s (Raimes 1991), but is still relevant today through the Intellectual/Rhetorical approach to teaching academic writing (Tribble, 2015).

Teaching writing as a product is based on a 'text- and classroom-based' writing approach where the main concern is for accuracy in grammar and vocabulary, text structure, and rhetorical differences across languages and cultures (Leki, 2010). Writing instruction involves sentence completion and grammar transformation exercises, for example, with the aim of accurately applying grammatical rules to writing. The emphasis on rhetorical form offers training in recognising and using topic sentences, examples and illustrations (Tribble, 2015). It is my view that this focus on rhetorical form certainly lends itself to the teaching of clear logical argumentation.

A product approach to teaching writing was originally designed for students whose first language is not English, and whose purpose was to improve their English language writing abilities for access to and participation in English medium higher education. Tutors may provide models of academic writing that students could learn and apply through controlled practice. However, often a product-oriented approach has been viewed as too prescriptive, encouraging a view that the form of academic English is very restricted and formulaic, and so to learn to write in academic English L2 students should imitate it (Leki, 1991).

### **3.3.2 Critical thinking as cognitive processes in writing**

One reaction against the focus on *forms* in the teaching of writing was one that focused on the *process* of writing, where the focus is on how the writer actually gathers and organises ideas. Cognitive CT skills also appear to map quite well onto the process approaches to academic writing. The process-based orientations to writing were based on theoretical assumptions grounded in cognitive psychology (Hyland, 2003; Leki, 2010). The process of academic writing is important because it is during that process that students are able to practice the cognitive skills needed to produce critical academic writing.

In chapter 2, four broad cognitive skills that are directly connected to CT were outlined. These were: *understanding*, *analysing*, *evaluating* and *creating*. Anderson et al. (2014) provide a taxonomy through which those skills can be measured and which can be expressed in a tangible sense in academic writing (Tables 2.1 and 2.3). The taxonomy is designed to be used for teaching and assessing those skills in practice. In the case of this thesis, it is possible to apply these concepts to the practice of critical academic writing. The first step in producing critical academic writing is to show evidence of *understanding* of a subject. The other three cognitive skills involve demonstrating the ability to *analyse* different viewpoints (which includes comparing and contrasting), to *evaluate* (the strengths and weaknesses), and to *create* new knowledge, perspectives and ideas. It should also be noted that Anderson et al.'s taxonomy is relevant to an approach that focuses on the writing product because the CT aspects of their taxonomy aim to measure the (written) product of the cognitive skills.

The meta-cognitive and multi-cognitive skills of *critical reflection* and *problem solving* are also embedded in various educational frameworks (EC, 2005; SCQF, 2012), including for example the SCQF's (2012) requirement for master's students to "draw on critical reflection" (p. 28). The fact that Halpern (2014) dedicates separate chapters on problem solving skills, creative thinking and reflective thinking, indicates that these have been considered to be key aspects of CT from Dewey's (1933) 'reflective' thinker to Facione's (1990; 2015) 'self-regulated' thinker.

In the process approach to writing, attention is given to the writer as language learner and creator of a text. This also has quite major pedagogical implications. In this approach, tutors do not necessarily present instruction (e.g. use of thesis sentences and outlines) before students begin to explore ideas. Tutors allow students time and opportunity to select topics, generating ideas, write drafts and revisions, and provide feedback. Unlike the product approach, linguistic accuracy is not necessarily stressed at the beginning but kept for later, as the writer needs time to develop and organise ideas first (Raimes, 1991).

The strength of a process approach is that it focuses on language as communication, not just form. Zamel's (1982) pioneering case study research on eight L2 university students found that proficient L2 students utilised a recurring process of drafting and re-drafting. Subsequent research on 'skilled' and 'less skilled' advanced learners implied that the more skilled learners followed this

process more than the less skilled (Zamel, 1983). Moreover, for Raimes (1991) who was an advocate of this approach, it was not seen as the only approach to writing but rather as a way of complementing teaching writing as a product.

Empirical studies tended to focus on the differences between more proficient L2 writers (e.g. Zamel, 1982; 1983) and those with lower proficiency and those with intermediate levels. According to Leki (2010) key findings of this approach include the following:

- Proficient L2 writers focus on content, and not on form, as they write.
- L2 writers may need to reach a threshold level of proficiency in L2 before they can engage the efficient writing processes they use in L1.
- Writers' processes vary fairly widely across individuals, though they may remain more or less consistent from L1 to L2.
- Shifting to L1 can be a very useful strategy for generating ideas and stimulating more complex thinking. (p. 8)

The influence of process writing approaches has been significant up to the present (Atkinson, 2003; Tribble, 2009; 2015). However, it has faced much criticism as an approach used on its own. Horowitz (1986a, 1986b) saw it as inappropriate for the demands of the academy and readers in the academy. Hyland (2003) further argues that the process approach lacked a well-developed theory about how language works in the social environment, and that there was little evidence that this approach to writing led to improved writing outcomes.

At the same time, the research on cognitive CT skills is framed predominantly within a discourse of cognitive psychology and of cognitive and meta-cognitive development (Kuhn, 1999). However, the focus on the individual cognitive skills of writers neglects the social aspect of the academic discourse and learning community; for example in how meaning is socially constructed (Hyland, 2003; Trimbur, 1994), and the power relations involved in teaching (Atkinson, 2003).

Both the process and product approaches could be considered to be part of an English for General Academic Purposes (EGAP) (Jordan, 1997) approach to teaching. They fall within Tribble's (2015) Intellectual/Rhetorical approach to teaching academic writing, which assumes that there is a generic type of university writing. Such approaches are designed to develop L2 students' writing skills from the sentence and paragraph (e.g. Hogue, 2014) to the essay (e.g. Meyers, 2014; Oshima & Hogue, 2014; Savage & Mayer, 2012). They fall into the category of what

Lea and Street (1998) have labelled 'study skills' which assume that "literacy is a set of atomised skills which students have to learn and which are then transferable to other contexts" (p. 158), yet these approaches neglect the processes of socialisation involved in becoming part of an academic community.

Despite these limitations, both the product and process approaches to teaching academic writing do have some value in a very practical sense. The product approach can provide clear frames of reference for novice writers, while the process approach is a reflection of how higher-level writers write. If tutor or peer feedback is included at important stages in the writing process, students can also benefit from these approaches.

There are therefore potential benefits of teaching and assessing critical academic writing using approaches that are based on both text-product based logical argumentation and process-based cognitive skills. Three basic types of argumentation pattern analysis were presented: Toulmin's (micro) argument patterns, Beardley-Freeman's (complex) argument patterns and Kaufer and Geisler's (macro) argument model. It is possible to use all of these approaches to analyse and evaluate written arguments at different scales of analysis. There is also scope to examine specific cognitive processes involved in producing critical academic writing. The cognitive skills approach can help provide examples of distinctive ways in which writers can make informed decisions based on a demonstration of the understanding, analysis, and evaluation of a topic.

### **3.3.3 Contextual approaches to CT in academic writing**

Section 3.2.1 discussed to what extent CT may be disciplinary dependent. The contextual approaches to academic writing represent a variety of approaches which can be linked to a specificist view of CT. The contextual approaches stress the importance of the written, institutional and socio-cultural context in which writing is produced. These approaches range from those that emphasise differences in the rhetoric and ideology of knowledge domains, those that emphasise the various genres which are embedded within different disciplinary discourse communities, to those which focus on the content and reader of academic writing.

### ***Knowledge domains, rhetoric and ideology in the academy***

The rhetoric of academic writing within broader knowledge domains has ideological implications. Berlin (1988) highlights three broad 'rhetorics' which occupy distinctive positions in relation to 'ideology' embedded in the type of academic writing used in the university. The first is the 'cognitive rhetoric' focusing on the scientific examination of the writing process as a kind of problem-solving exercise that has an instrumental purpose: to prepare students for the capitalist world upon graduating. This type of writing is more common in the sciences and some social sciences. For Berlin (1988):

Cognitive rhetoric can be seen from this perspective as compatible with the ideology of the meritocratic university .... Power in this system is relegated to university certified experts, those individuals who have the cognitive skills and the training for problem solving (p. 483).

The second rhetoric Berlin (1988) labels 'expressionistic rhetoric', where the main purpose of writing is as a medium through which to understand and discover the true self. This type of writing is more common in the arts. Ideology is not denied, but neither is it given a prominent position. Finally, the 'social-epistemic rhetoric' sees written language rhetoric as a political act involving a dialectic engagement of the material, social and political actor within a specific historical context. It also offers a critique of the social, economic and political conditions in which we live. This type of writing occurs in some social science traditions which focus on radical and 'critical' themes. Whether these rhetorics can be so easily mapped onto specific disciplines or whether they cut across them is still open to question.

Subjects that may fall into one rhetoric, such as the cognitive rhetoric above, may also differ from each other in other ways, yet still remain within a rhetorical tradition. According to Lave and Wenger (1991) 'communities of practice' are groups of people who have a common interest in some activity and learn how to improve that activity through regular interaction. Although academic disciplines can be considered to be communities of practice, individual academic disciplines do not necessarily share a code of abstract knowledge or methods of research. Instead, according to Lave and Wenger (1991), "there are multiple, varied, more- or less-engaged and inclusive ways of being located in the fields of participation defined by a community" (p. 36), and these may overlap with other disciplinary communities of practice. In other words, there are often overlaps between disciplines and practitioners in terms of the shared methods they employ and their rhetorical

traditions. For example, Bondi (2006) compares the differences between business studies and economics. Whereas business studies tends to utilise both quantitative and qualitative empirical research to develop models, economics tends to use more theoretical and model-based research to test models. Moreover, a critical pedagogical approach to the teaching of education may be more closely aligned to a neo-Marxist sociological perspective than to other teaching approaches in education.

This could also have pedagogical implications, in that the rhetorical pedagogy adopted by a lecturer (how a subject is taught) may be more important than what is being taught (the subject discipline), and there may be greater variations between different rhetorical pedagogies than between subject disciplines.

### ***Genre approaches to academic writing***

As an extension to the product and process approaches to writing, Swales (1990; 2004) and Hyland (2003) put forward a genre approach to academic writing, which tried to bring together the various elements of the approaches above. Genre theory stresses that there are a range of discourse communities that have their own norms and conventions for constructing and debating knowledge, and that there is linguistic variation within and between genres, as texts have different purposes and are located within different contexts (Street, 2009). The notion of genre is more problematic due to its multiplicity of meanings. Swales (1990) defined it as:

[A] class of communicative events, the members of which share some set of communicative purposes. These purposes are recognised by the expert members of the parent discourse community and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the genre and influences and constrains choice of content and style (p. 58).

Hyland (2003) defined the genre approach as:

[A]bstract, socially recognised ways of using language [that are] ... based on the assumptions that the features of a similar group of texts depend on the social context of their creation and use, and that those features can be described in a way that relates a text to others like it and to the choices and constraints acting on text producers (p. 21).

If different discourse communities can be equated to those who work within the social contexts of specific domains of knowledge and disciplines, and if their

writing practices are specific to those groups then the writing produced in those discourse communities will most likely produce genres (of writing) that are particular to those groups. If students need to learn how to write appropriately within those discourse communities then it is important to know how those communities write, and to what extent their writing differs from other social groups.

Different domains of knowledge (natural science, social science and humanities) may display different types of critical writing. Stotesbury's (2006) study of 'critical speech acts' in a sample of abstracts from journal articles from these three domains also indicates that the humanities tend to display a greater amount of 'critique', followed by the social sciences and finally the natural sciences. Writing tasks that students have to do at university do also differ by discipline (Hyland, 2006). The assumption that we can draw from a genre approach is that different discourse communities conceptualise CT in different ways, and this has an effect on the nature of critique expected within different genres of writing, within different writing tasks and within different disciplines. This approach to academic writing seems to therefore fit quite well with the specifist view of CT which stresses the importance of the different conceptualisations of CT across disciplines.

### ***Content based and the reader focused academic writing***

The genre approach was also influenced by previous research and pedagogy based on content-based second language instruction. This approach focuses on the *content* and the tasks students are likely to encounter in specific subject areas in their studies (Wesche, 2010). This perspective focused on different types of writing products and processes in different disciplinary areas, or across disciplines in academia. The rationale behind content-based EAP instruction is that the use of material from content courses increases L2 learners' exposure to language and content at the same time, which should improve second language acquisition (Wesche, 2010). This should lead to a more relevant and motivating learning environment for the students as the materials used are sourced from their subject specialisms. For example, students who intend to study engineering will study reading materials from engineering journals which they are expected to engage in through their writing, rather than writing about more generic academic topics.

There is therefore some value in focusing on the content of courses which can inform the teaching of academic writing. It aims to provide students with usable models of writing, and realistic advice about what kind of writing to expect in specific subject areas in the academy (Horowitz, 1986b). Some generalisations could also be made relating to conventions and skills in academia (Johns, 1988).

Another contextual approach focuses on the *reader*, or the academic discourse community for whom the writer is writing. This approach involves the expectations of academic readers (Horowitz, 1986a, 1986b) and a kind of “socialisation into an academic community” (Horowitz, 1986b, p789). Surveys of the type of writing tasks required from students have demonstrated their complexity. For example, Horowitz’s (1986a) analysis of 54 writing tasks from US university undergraduate courses highlighted seven categories of writing, while Hale et al.’s (1996) study of 162 courses at eight US universities resulted in a six part classification system known as ‘dimensions of difference’, with various sub-categories. What this research showed was that there is no single type of academic writing; it is dependent on the specific question students are asked, and this may be dependent on the subject they were studying and the academic discourse community of the readers.

One implication of this research was that students in EAP programmes can be assigned tasks that are similar to those they are likely to do in their later studies. A second implication may be to focus on the teaching of the language of argumentation that is appropriate to the discourse community and genre of a specific discipline. The contextual approaches were therefore not designed to replace product and process approaches, but rather to add to them.

In many ways, both the content-based and the reader focused approaches were a reaction to the asocial nature of the process approaches and in part a return to a more product approach that attempted to ground writing in specific writing discourse practices and disciplinary contexts (Raimes, 1991). In what Lea and Street (2006) term the ‘academic socialisation’ approaches the task of the tutor is not only to develop student’s study skills, but also to socialise the students into the culture of the academy. It is an approach that is influenced by social psychology, anthropology and constructivist education and a conceptualisation of knowledge that distinguished between deep and surface approaches to learning (Marton et al., 1997), influenced by theories of situated learning and the notion of a ‘community

of practice' (Lave & Wenger, 1991), and more latterly by sociocultural theories of language learning (Lantolf, 2000). In many ways this review is a historical snapshot in time when certain approaches to teaching writing were more dominant.

According to Wingate and Tribble (2012), EAP approaches tend to combine the pedagogical experience of teaching EAP with a genre approach to academic writing which they have labelled the 'Genre/EAP' approaches. According to Tribble:

An EAP programme in this tradition typically requires thorough accounts of both the communicative context and the linguistic behaviour arising from this context as the starting points for any pedagogic solutions that are developed to meet learners' needs. (Tribble 2012, as cited in Wingate & Tribble, 2012, p.485)

Although the Genre/EAP approaches have been criticised by Lillis and Scott (2007) for being too textually focused and based on a normative approach to language form, they have adapted and changed to take into consideration the social and contextual nature of academic writing (Wingate & Tribble, 2012).

### ***Academic Literacies across disciplines***

Lea and Street's (1998; 2006) Academic Literacies attempt to address some of the limitations of the academic socialisation approaches above. First, they emphasise that academic institutions are sites of 'discourse and power'. Secondly, they see a student's identity as being challenged when they have to switch 'linguistic repertoire' requirements from one disciplinary discourse to another. An example Lea and Street (1998) used is of an undergraduate student who scored well for a history essay which was lauded for having a clear 'argument' and 'structure'. The same student was criticised and marked down for an anthropology essay for lacking structure and argument. The authors suggest this was because the student had followed a historical 'logic' in argument and structure that did not make sense in an anthropological essay.

Although the Academic Literacies approach has been criticised on a number of fronts by Wingate and Tribble (2012), they have encouraged the mutually beneficial aspect of combining a Genre/EAP approach and Academic Literacies approach. However, there are some difficulties in this. Whereas the EAP tradition has often been embedded in an L2 language support context, mainly targeted at

international students, the Academic Literacies research often focuses on the experiences of domestic students (Wingate & Tribble, 2012). Atkinson and Ramanathan (1995), for example, highlight some of the difficulties with trying to teach L2 learners of English academic writing in combined classes with L1 undergraduate learners. This includes quite divergent theoretical backgrounds and classroom practices found among tutors from different (L1 and L2) academic writing teaching traditions.

The various contextual approaches to academic writing do have some parallels with the specificist approaches in CT which stress differences in the conceptualisation of CT across disciplines (e.g. Jones, 2007; 2015; McPeck, 1981; 1990; Moore, 2011). This also has implications on how academic writing and CT are taught, and where they are taught in the academy (for example whether it be within a specific department, or in a cross-disciplinary department). The contextual approaches to CT in academic writing above (section 3.3.3) provide insight into how CT can be taught through a combination of context-based approaches to teaching academic writing within disciplines. This is because there is an assumption that the ways of thinking critically and writing critically are embedded within a discipline (McPeck, 1981), as there appear to be important differences in the way different disciplines expect students to argue in their written assignments (Lea & Street, 1998; 2006).

This section of the chapter has briefly outlined the many approaches to teaching and studying academic writing at university that focus on the importance of context. It has focused mainly on the teaching of EAP to students who have the intention of studying in English medium institutions of higher education and whose first language is not English. There are also some insights from research into academic writing in different disciplines based around the Academic Literacies approach. I would argue that there is common ground between the contextual approaches towards academic writing and the specificist and disciplinary approaches towards CT. Both emphasise the need to take into consideration disciplinary differences in how to conceptualise, teach and research into academic writing and CT. My research examines the conceptualisation of CT in academic writing across different disciplines in order to gauge to what extent there is a difference.

### 3.4 Epistemological development in CT, positioning, stance and voice

Positioning is a key concept that cuts across the teaching of academic English as product, process or across genres and disciplines. It is also a key feature of the developmental concept of epistemological position. The writer's position is closely connected to the writers 'voice' and 'stance' and is often a 'hidden' aspect of good academic writing that is not always made explicit (Street, 2009). Voice refers to the ability to be understood as a situated subject (Blommaert, 2005). The writer of an academic paper does not just present data in an 'objective' manner. As Ivanič notes:

Who I am as I write this book? I am not a neutral, objective scribe conveying the objective results of my research impersonally in my writing. I am bringing to it a variety of commitments based on my own interests, values, beliefs which are built up from my own history... (Ivanič, 1998, as cited in Street, 2009, p.12)

According to Hyland (2000), stance, refers to the ways in which writers "project themselves in a text" (p. 101). Hyland's (2006) definition of stance includes the representation of someone's personal position. Stance represents not just the opinion of an academic writer, but the *informed* opinion.

It is often the clear expression of a position backed up with sound *argumentation* that will separate a good piece of academic writing from a mere pass (Andrews, 2007). The writer's position is a key feature of an argumentative writing text. In Wingate's (2012) essay writing framework, "establishing your own position" (p. 153) is central to the development of an argument and the structure of a piece of academic writing. It is connected to the major argument, or main path of Kaufer and Geisler's (1991) model, and can be a distinguishing feature of high-level academic writing (Andrews, 2007).

I have created Figure 3.2 to help understanding the place of the writer's 'position' within the wider framework of CT in academic writing. Position is placed at the centre surrounded by the features that can have an effect on that position. It is the result of regular input (e.g. listening to lecturers and peers, reading in and on a subject) and output (e.g. writing essays and doing academic presentations through spoken presentations).

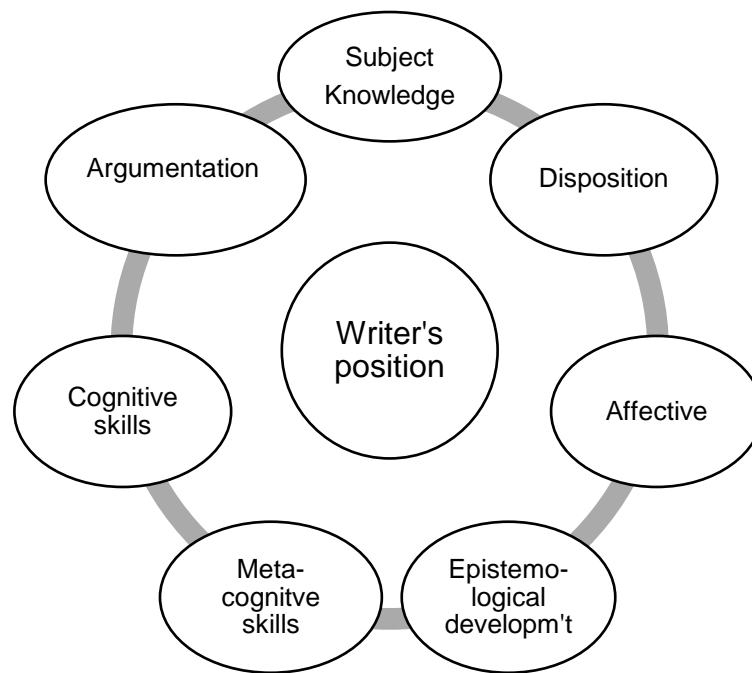


Figure 3.2 *Writer's position in a model of CT in academic writing*

Critical thinking is based on the depth and breadth of *knowledge* of a subject (McPeck, 1981). A learner who wants to be a critical thinker, however, should be *disposed* to engage critically with that knowledge (Perkins et al., 1993). It is also acknowledged that there may be *affective* factors such as motivation, emotion and perception which can change over time and which can affect the learner's ability to think critically (Bloom et al., 1964). The learner's understanding of that subject knowledge may also evolve based on the concept of *epistemological development*. (Greene et al., 2008). This development may have occurred as a result of critical *meta-cognitive* self-reflection (Hanley, 1995). Finally, different *cognitive skills* (Anderson et al., 2014) (e.g. understanding, analysis, evaluation and creative synthesis) can also be interwoven within an *argument* in order to support a specific position on a subject (Wingate, 2012). The writer's position is therefore considered to be a very important features of CT in academic writing which is supported and influenced by a range of other features of CT.

### 3.5 International student adjustment to UK academic culture

As highlighted in the Introduction chapter, a large proportion of students studying in the UK at the postgraduate master's level are from educational cultures

that are quite different to that of the UK. It is therefore important to consider to what extent they are able to adjust to a UK academic culture during a one-year intensive master's programme. Previous research on international postgraduate master's student experience in UK HEIs shows that there are a number of aspects of the temporary UK study abroad experience (or 'sojourn') that might be more difficult to adjust to.

The most common initial difficulty is often associated with understanding the English language of 'locals' (Brown, 2008; Wu & Hammond, 2011; Zhou & Todman, 2008; 2009), both within the academy and within more general everyday environments. This includes difficulties with understand the English of local speakers due to the fast speed at which they speak, their use of colloquialisms and difficulties encountered with understanding local accents in England (Wu & Hammond, 2011) and Scotland (Zhou & Todman, 2008; 2009) alike.

Focusing more on international student adjustment to the academic environment, the ability to adjust to a different academic culture was crucial to success for international students. Students often found it difficult to adjust to the large amount of reading (in an L2) required by a one-year masters, especially in the first (autumn) term (Brown, 2008; Wu & Hammond, 2011). Having to write long academic essays and having to adjust how they wrote in academic English (which often differed from academic writing in their own country) was also a cause of stress for students (Brown, 2008; Shaheen, 2012). On the other hand, research also showed that PGT master's students tended to struggle less with these aspects of their sojourn (and therefore adjust better) later on in the academic year (Brown, 2008; Wu & Hammond, 2011; Zhou & Todman, 2009).

However, one specific area where international students often did struggle to adjust (or took longer to adjust to) was learning to think and write critically (Brown, 2008; Fakunle et al., 2016; Shaheen, 2012; Wu & Hammond, 2011). As well as developing a clear and well supported argument, the importance of student voice and position was one aspect of critical academic writing that international students struggled with in particular (Brown, 2008; Shaheen, 2016). In addition to this, some felt there was a lack of academic writing support for the international students (Shaheen, 2012), or felt that there was a lack of adaptation by tutors to accommodate to international student needs (Zhou & Todman, 2008; 2009). What this research seems to show is that international students are able to adjust to some

aspects of UK academic culture at a different rate than others, and that the ability to adopt a more critical stance in their academic writing may well take a little longer than other aspects.

### **3.6 Chapter conclusion**

Paul (2011) highlights the lack of practical applications in the second wave of CT, which he characterises as eclectic and lacking in theoretical direction. For him, this second wave of CT (which includes the cognitive skills approach) was more like an incoherent 'bag of tricks' (see chapter 2, section 2.2.2). While the Delphi report (Facione, 1990) was good at informing educators how CT can be conceptualised, it was often considered to be difficult to apply as it was over-complicated and lacked practicality (Davies & Barnett, 2015). There is therefore a need for a more practical and workable framework that utilises the insights of the cognitive skills approach to CT in combination with the more established logical argumentation approach (Paul, 2011).

The work of Biggs (1978), Biggs and Tang (2011) and Anderson et al. (2014) provide some insights into how students can develop CT skills within a wider higher educational framework. Using both a constructivist and phenomenological framework Biggs and Tang (2011) argue that education is about 'conceptual change' in the teacher-learner environment, not just the 'acquisition of information'. Their classification of surface and deep learning attributes takes into account the shift towards national qualification frameworks and learning outcomes, while resonating with Marton et al.'s (1997) deep and surface approaches to learning (see chapter 2, section 2.2.3).

At the same time, Anderson et al.'s (2014) taxonomy for learning and teaching provides a practical framework through which to evaluate students' academic achievement based on criteria which can match up with specific cognitive skills involved in CT. The work of Biggs and Tang and Anderson et al. can therefore be drawn upon to address concerns of conceptual clarity and practical application in the conceptualisation of CT based on a cognitive skills approach. Anderson et al. appear to assume that the various skills and learning outcomes are generic and transferable across disciplines. However, it remains debatable to what extent CT is generic and transferable across courses and disciplines.

In relation to the teaching of CT, the general, immersion and infusion approaches towards teaching CT seem to have yielded mixed results in terms of improving CT skills with a few exceptions (Abrami et al., 2008; Twardy, 2004; van Gelder, 2015). On the other hand, Abrami et al.'s (2008) meta-analysis of 117 different studies of teaching CT appears to endorse a mixed approach.

Table 3.2

*A framework for understanding CT in academic writing in higher education*

<i>Categories and sub-categories</i>
A. Argumentation and voice
A1 Logical argument A2 Writer's position
B. Cognitive and meta-cognitive skills
B1 Understanding B2 Analysis B3 Evaluation
B4 Creative synthesis B5 Reflectivity B6 Problem solving
C. Disposition and attitudinal development
C1 CT dispositions C2 Attitude to learning C3 Epistemological development
D. CT pedagogy
D1 Contextual features D2 Generic and transferable features D3 Different approaches to teaching
E. Knowledge and application
E1 Knowledge E2 Practical application

Table 3.2 provides an overview of the different ways in which CT can be conceptualised in the context of higher education that builds on the two previous incarnations (Tables 2.1 and 2.3). One purpose of my framework is to help bring greater conceptual clarity in studying, learning and assessing CT within academic writing, and includes insights from different theoretical traditions. First, as noted in

Tables 2.1. and 2.3, section A covers the logical and argumentation conceptualisations of CT in academic writing texts. In addition to what is highlighted in Table 2.3, Table 3.2 incorporates the writer's position (voice and stance) in section A and which is linked to argumentation. As noted above, however, there are also elements of voice and stance throughout the writing process. Second, section B, draws on the conceptualisation of CT as cognitive and meta-cognitive skills, focusing on the process of academic writing. Third, section C highlights the importance of CT dispositions and how a student's understanding of knowledge within a discipline can develop over the course of a study period, but also how it can be dependent on affective factors such as motivation. Fourth, in addition to Table 2.3, there are questions of how to teach CT at a postgraduate level, which incorporates generic or contextual understandings of CT. Finally, there is an assumption that the practical application of CT embedded in academic writing is founded on a sound knowledge of a discipline. I would argue that this framework can provide guidelines on how students and tutors could better improve different aspects of their CT skills in the context of specific higher educational institutional environments.

A second purpose of this framework is to inform my research design by highlighting key aspects of CT that this thesis is concerned with. For example, in the Methodology chapter specific questions that are asked are benchmarked to this framework. At the same time, although sections C and D are touched on in my research, the focus is mainly on sections A and B (see Appendix B).

Finally, much research on the conceptualisation of CT has focused on the viewpoints of experts and subject specialists when little research has been conducted on students, especially postgraduate students. Moreover, the focus on the teaching of CT skills and dispositions has been very much at the undergraduate level when there is a need for more research on how to teach CT at a postgraduate level. This is especially the case in the context of the increasing internationalisation of postgraduate higher education in the UK where increasing numbers of students from educational backgrounds outside of the UK (where CT may not necessarily be taught) are studying intensive one-year master's degrees in the UK.

## 4. Research Methodology

### 4.1 Chapter introduction

The aim of this chapter is to provide a rationale for the methodological approaches used in this thesis, which are used to answer the following three Research Questions (RQs):

- 1. What do master's students consider to be the most important features of academic writing that relate to critical thinking?*
- 2. How do students and tutors in different departments compare in their conceptualisation of critical thinking as embedded in academic writing at a postgraduate master's level?*
- 3. How do tutors and students in different departments compare in their perception of how best to teach critical thinking at a postgraduate master's level?*

The first section of this chapter describes and explains the rationale for using a mixed method approach and includes an outline of the research design, theoretical positions and methods used (4.2). The second section focuses in more detail on the design, rationale and analysis of the questionnaire data (4.3), while the third (4.4) outlines the design, rationale and analyses used in the qualitative stage of the research design. Section 4.5 covers ethics and data management. Background biodata and response rates from the questionnaire, focus groups and interviews are also presented.

### 4.2 A mixed methods approach

In order to answer the research questions this thesis utilised a mixed methods approach. Johnson, Onwuegbuzie, and Turner (2007) define mixed methods research as:

...the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches ... for the broad purposes of breadth and depth of understanding and corroboration. (p. 123)

The research design adopted in this paper aimed to answer the RQs most effectively. The RQs should inform the design of the study, and different approaches can help answer different RQs more effectively (Greene, 2008; Tashakkori & Teddlie 1998), whether different methods are used to answer the *same* RQ, or different research methods are used to answer *different* RQs, or a mixture of both approaches (Cresswell & Tashakkori, 2007).

The research design of this thesis is based on Teddlie and Tashakkori's (2006) outline of some key features of mixed methods research, including the:

- (a) purpose of the research;
- (b) number of phases,
- (c) implementation process;
- (d) stages at which integration occurs;
- (e) number of methodological approaches;
- (f) whether one methodological approach is prioritised, and
- (g) the theoretical perspectives of the research.

The *purpose* of this research is to better understand how students and tutors understand what CT involves and how that applies to academic writing at a master's level in a UK university.

Each of the four main *phases* of this research was designed to answer one aspect of an RQ utilising different methods over a one-year *implementation* time period (Table 4.1). The first phase involved a questionnaire that was distributed to 238 students (RQ1); the second phase involved four focus groups with 11 students (RQ1, RQ2); the third phase involved individual interviews with 14 students (RQ1, RQ2, RQ3), including four follow-up interviews with participants from the focus groups. Finally, 14 tutors (lecturers and teaching fellows) were interviewed (RQ2, RQ3) in three discipline areas (business, education and sports science and policy) in two Schools, (the Business School and School of Education). *Integration* of the different research methods occurred around the individual RQs, where different research methodologies (quantitative and qualitative) and different research

methods (questionnaire, focus groups and interviews) were used to answer the same RQ.

Table 4.2 outlines the four-phase research design of this thesis based on the two main *methodologies*. There is also the question of which methodology ‘dominates’ at which phase (Dörnyei, 2007). From Table 4.2 it can be seen that the first phase was dominated by a quantitative methodology, which contributed to answering RQ1. The other three phases were dominated by qualitative methodologies, which all contributed to answering RQ1, 2 and 3. Overall, the bulk of this research therefore gave *priority* to a qualitative methodological approach.

Table 4.1

*Phases, timeline and methods*

<i>Phase</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>RQ</i>	1	1,2,3	1,2,3	2,3
<i>Master’s timeline</i>	1 <sup>st</sup> semester	2 <sup>nd</sup> semester	3 <sup>rd</sup> semester	N/A
<i>Dates</i>	Oct/Nov. 2015	Feb/Mar. 2016	Jul/Aug. 2016	Mar-Nov. 2016
<i>Methods</i>	Questionnaire	Focus groups	Interviews	Interviews
<i>Participants (N)</i>	Students (235)	Students (11)	Students (14)	Tutors (14)

Table 4.2

*Research design*

<i>Phase</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>Methods</i>	Questionnaire	Focus groups	Student interviews	Tutor interviews
<i>Theoretical perspective</i>	Pragmatism	Pragmatism	Pragmatism	Pragmatism
<i>Methodology</i>	Quantitative	Qualitative	Qualitative	Qualitative

#### 4.2.1 Rationale for using a mixed methods approach

According to Bryman (2007), a research design is not truly a mixed methods design unless a research question is integrated, i.e. being answered by a quantitative and a qualitative method. Based on this definition, only RQ1 was really answered using a mixed method approach. However, I opted for a broader understanding of mixed methods research that incorporates two basic forms based on Cresswell and Plano Clark's (2011) typology of mixed methods design. The first is a 'multiphase' design which is defined as research where, "quantitative and qualitative studies ... are sequentially aligned, with each new approach building on what was learned previously to address a central program objective" (p.100).

The second prototypical design is an 'explanatory' design. An explanatory design follows a sequence of quantitative data collection followed by qualitative data collection. The purpose of the qualitative design is to help build on and/or explain the patterns of the quantitative data. In this research, part of the purpose of the focus groups and interviews was to build on and explain the findings of the quantitative research. My research therefore combined *multiphase* and an *explanatory* mixed methods research design.

There are a number of benefits of a mixed methods approach. Rossman and Wilson (1985) present three main benefits. The first is to provide confirmation or corroboration of results or theories by using different approaches which can lead to more accurate (and less biased) conclusions (Reams & Twale 2008). This is done through the process of *triangulation*. Triangulation is a key feature of my research. Triangulation aims to increase the credibility of a claim through the "convergence of information from multiple sources to corroborate the data and evolving themes" (Carpenter & Sato, 2008, as cited in Liamputtong, 2013, p. 30). Denzin (1989) outlines four common types of triangulation found in health and social sciences: methodological, theoretical, data and researcher triangulation. My research was based on methodological and data triangulation. *Methodological triangulation* refers to an approach where there are more than two methods used to examine the same issue. In the case of my research, a questionnaire, focus groups and individual interviews were used. *Data triangulation* uses "multiple quotations from the data to confirm and illustrate emerging themes of interest" (Liamputtong, 2013, p. 31), and involve many participants. The different perspectives of different participants - students and tutors - were fundamental in confirming and illustrating themes that

emerged from this research. The different sets of data were used to corroborate and complement each other by use of methodological triangulation in order to answer RQ1. The other RQs were answered using only qualitative methods (focus groups and interviews) employing data triangulation.

Secondly, different approaches can *complement* each other by providing richer data that can enhance the research through an alternative methodological approach. Thirdly, different approaches can be used to *initiate* new modes of thinking focusing in on contradictions that may emerge from the different sources of data. Greene, Caracelli, and Graham (1989) add to this list by including two additional benefits of mixed methods. The first involves the *development* of one research method based on the findings of the other. This aims to use the results from one method to inform another. Development occurred between the different research methods, especially between the focus groups and interviews. This is especially the case as some of the interviews were follow-up interviews from students who participated in the focus groups. The other approach involves *expansion*, which aims to increase the range of a research inquiry by using different methods to answer different research components. The range of research methods is relatively novel, in that most research on CT has used either quantitative methods (e.g. Abrami et al., 2008; Hitchcock, 2015) or qualitative ones (e.g. Durkin, 2008; Jones, 2007; Moore, 2013).

#### **4.2.2 Difficulties with using a mixed methods approach**

However, there are also some difficulties in using mixed methods approaches. These are both practical and philosophical. First, there are some practical issues that needed to be overcome. These related to the difficulty of the researcher becoming technically competent in using different methods. Certainly, there is a greater burden for researchers when using different methods, but it is not necessary to know all the details of how to use all the methods within a tradition (quantitative or qualitative). At the same time, it is important to be aware enough of different methods across traditions in order to choose the most appropriate combination. Secondly, there are philosophical issues relating to the compatibility of two different research methodologies with different underlying ontologies and epistemologies.

Opinions differ as to whether different philosophical perspectives are compatible or incommensurable (Waring, 2012). The differences in ontologies and epistemologies tend to work against the convergences approaches in what is known as the 'incompatibility thesis' (Howe, 1988). A qualitative approach is often characterised by a *constructivist* ontology and an *interpretivist* epistemology where knowledge and what exists is socially constructed; whereas the post-positivist epistemology which commonly underpins quantitative research is often characterised as having a realist ontology. This approach insists that there is a separate existing reality, even if we cannot measure it precisely (Pring, 2000).

However, there are a number of ways of overcoming this issue. One is to challenge the claim that they are incompatible. Pring (2000) labelled the incompatibility thesis a 'false dualism', while Schwandt (2000, 2006) questions whether the divisions are meaningful in helping us understand the purpose and means of enquiry, and Brannan (2005) also argues that in practice both approaches are quite often intertwined with each other.

Another way is to adopt a *pragmatic* philosophical approach. A number of mixed methods practitioners have also called for a 'pragmatic philosophy' and this is a very common approach in mixed methods research (Denscombe, 2008; Johnson & Onwuegbuzie, 2004; Johnson, et al., 2007; Onwuegbuzie & Leech, 2005; Teddlie & Tashakkori, 2006). Pragmatism is characterised by being more practice oriented, and incorporating more methodologically eclectic approaches that span the different 'methodological' approaches above without advocating a realist ontology. It also acknowledges that different methods may be more suitable for answering different research questions. The aim is to use the most effective methods to answer each research question. As different methods were used to answer the different research questions, a pragmatic approach was adopted in this research.

### ***Exploratory and confirmatory mixed method approach***

Moreover, Onwuegbuzie and Leech (2005), try to move beyond the qualitative versus quantitative model of research. They prefer to redefine the differences between different types of research based on Onwuegbuzie and Teddlie's (2003) distinction between 'confirmatory and exploratory' research. This cuts across the quantitative/qualitative distinctions. For example, confirmatory research would include (under the quantitative banner) inferential statistics, and

(under the qualitative banner) confirmatory thematic analysis. Exploratory research would include (under the quantitative banner) descriptive statistics and (under the qualitative banner) thematic analyses based on an emergent approaches such as grounded theory. This thesis has both exploratory and confirmatory elements. Both elements exist in the questionnaire and the interviews, and these will be highlighted in more detail in the sections that cover those methods.

### ***Section summary***

The quantitative and qualitative research elements of this study were designed to be administered to master's students in three subject areas in one research intensive UK Russell Group university. The first two subject areas (education and sport science and policy) are under the umbrella of the School of Education, and the third (business) is in the Business School. Both of these Schools are within the College of Arts, Humanities and Social Science. Previous research has tended to suggest that these disciplines tend to be 'non-paradigmatic' (Biglan, 1973a; 1973b). The nature of knowledge in non-paradigmatic disciplines tends to be more contested and these disciplines tend to display less consensus than 'paradigmatic' disciplines. If it can be demonstrated that there are significant differences within a specific College this would tend to provide further argument for the importance of different disciplinary approaches towards CT (Jones, 2007; 2009; 2015).

This research is based on a *multiphase* design that has *explanatory* elements (Cresswell & Plano Clark, 2011). It is both *confirmatory* and *exploratory* in purpose (Onwuegbuzie & Leech, 2005) and is based on comparing findings with previous research. My assumptions were that mixing ontologies and epistemologies in one research design was not incompatible (Brannen, 2007; Howe, 1988; Schwandt, 2000; 2006), and hence a pragmatic approach to the research was adopted.

The rationale for using a mixed methods approach was mainly *complementary* and *developmental* (Rossman & Wilson, 1985). It first aimed to minimize the weaknesses of using a single research approach and draw from the strength of the other, and second to use the findings from one approach to inform the development of the other through a process of *methodological* and *data triangulation* (Liamputtong, 2013). It was also structured *sequentially* in such a way

that there was a mixture of *dominance* of one approach over the other at different stages (Dörnyei, 2007), but with most of the results based on the qualitative data.

The quantitative questionnaire was used specifically to answer RQ1. However, the results from the questionnaire were used to inform the focus groups and interviews, and compared with the results of the focus groups and interviews. RQ2 and RQ3 aimed to be answered using the focus groups and interviews as the main method of research. Furthermore, key questions in the questionnaire, focus groups and interviews were benchmarked to the key themes in the Research Framework (Appendix B). Finally, the results of the different research methods were synthesised to help address the main purpose of this thesis: that is to compare the conceptualisation of CT in academic writing at a master's level among students and tutors.

### **4.3 The quantitative element: student questionnaire**

A quantitative approach usually employs methods that utilise statistical approaches that are systematic, rigorous and focused. The statistical data obtained may be used for descriptive or inferential purposes, and normally rely on a larger number of respondents than qualitative research (Robson, 2011). As a result, it is more likely to transcend individual idiosyncrasies and identify wider patterns and processes (Dörnyei, 2007).

Questionnaires can also be used to test pre-constructed theories or hypotheses, and there is also a potential for generalisation and possible prediction beyond a given sample (Dörnyei, 2007). Although in this particular study, the data from the questionnaire are predominantly descriptive and exploratory, there are elements of confirmation. The purpose of using a quantitative questionnaire was therefore threefold: first, to help answer RQ1, second to inform RQ2, and thirdly to provide a complementary view on the overall research which can help inform theory.

#### **4.3.1 Sampling**

The respondent sample were all postgraduate master's students in the School of Education and the Business School of one university in the first (autumn) semester of their master's year. In total there were 235 valid responses with 138 from the School of Education, and 100 from the Business School. The Education

questionnaires were distributed and answered in one session (7<sup>th</sup> October 2015) after a lecture, while the Business School questionnaires were distributed and answered over five days (8<sup>th</sup> to 12<sup>th</sup> November 2015). In both cases, permission was requested and given. For the Business School, I was not allowed to distribute questionnaires inside the lecture halls or classrooms, but was given permission to solicit potential respondents in the entrance foyer of the School.

The sample can be described in the following terms:

- Non-probabilistic: in that it did not claim to be representative of all master's students in each school
- Homogenous: in terms of representing a single group of postgraduate students
- Purposive: in that this group reflected the purpose of my research (i.e. to study opinions of postgraduate master's students)
- Convenience/opportunistic: in that I could only sample those who were in the right place at the right time (i.e. lecture hall and foyer on these specific dates).

(Dörnyei, 2007; Thomas, 2009).

The full questionnaire is outlined in Appendix C. A brief description of the layout and purpose of the three main parts of the questionnaire are outlined below. This is followed by the methods used to analyse each part.

#### **4.3.2 Part A of the questionnaire**

Part A follows a process of design based on Wilson and McLean (1994) which consists of three stages: to identify a research problem, to clarify the appropriate concepts and then to measure those concepts. The main purpose of the questionnaire was to elicit how important different features of academic writing were perceived to be by master's students. These different features, or 'constructs', of academic writing were represented by 30 statements and they were measured using a semantic differentiation scale of 1 -10.

Rating scales are useful for "tapping attitudes, perceptions and opinions of respondents" (Cohen, Manion, & Morrison, 2000, p. 255). Specifically, the semantic differential rating scale measures respondents' 'evaluation' of the importance of a descriptive statement and strength or 'potency' of that evaluation (Osgood et al,

1957, as cited in in Cohen et al., 2000.). The scale ranges from 1-10 where 1 = not important and 10 = extremely important. The features of academic writing included in the questionnaire were informed by previous research (e.g. Anderson et al., 2014; Facione, 1990; Fisher, 2003; Jones, 2007, Hyland, 2006, Moore, 2013; Toulmin, 2003)

A piloted questionnaire checked for the clarity of the instructions and format, the validity of the constructs, and the choice between a seven or ten-point scale (Cohen et al., 2000). The 16 students involved in the pilot were asked to highlight instructions and statements that they thought may be ambiguous and difficult to understand, and which scale (seven or ten) was more appropriate in answering the questions. Following this feedback, language was changed and re-checked with those who had originally commented on them.

The ten-point scale was chosen as the answers tended to be skewed towards the higher end of the scale in the pilot (negatively skewed distribution). A ten-point scale therefore allows for a greater range of higher rated responses. Even though the scale involves a relatively large range of numbers, it is still possible to differentiate each number on the scale descriptively in writing (Appendix D).

The words 'critical thinking' were not used in the questionnaire as it was perceived that most of the statements presented were features of critical writing. This was also because it was not expected that all the students would be able to understand a term that often has an ambiguous meaning (Allegretti & Frederick 1995; Davis & Barnett, 2015; Moore, 2013) and could be interpreted in different ways (Robson, 2011). Instead, the phrase 'successful academic writing' was used. The 30 statements of Part A were the main part of the questionnaire that aimed to answer part of RQ1. This structure is different to the common pattern advised by Cohen et al. (2000) which might begin with basic biographical information. The reason for this was that Part A was considered to be the most cognitively challenging, and therefore required the highest level of concentration. It was positioned near the beginning of the questionnaire while respondents were mentally fresher. Biographical information questions, on the other hand, were left to the end when respondents would have been more mentally tired, but when the questions were less demanding cognitively.

After a *post hoc* re-interpretation and re-evaluation of the original 30 statements, they were reduced to 24 valid statements that were also grouped into

six pre-conceived construct groups based on the Research Framework (Table 3.2 and Appendix B), representing the following labelled constructs [with reference to where they are highlighted in Literature Review A and B]:

- Explaining and Illustrating (Premises: warrants, backing & data) [A1]
- Voice and Stance (Position) [A2]
- Describing and Summarising (Conclusions/claims, Interpretation, and synthesis) A1/B1]
- Comparing and Evaluating (Analysis and evaluation) [B2/B3]
- Reflection (Reflectivity) [B5]
- Problem Solving (Problem solving) [B6]

They were distributed randomly in the questionnaire and students were not aware of these groups. (Table 4.3, Appendix E). Each group did not have the same number of statements. This was because the original groupings were changed in order to match better with the Research Framework categories, and because the face validity and construct validity of all the statements were re-assessed based on my own *post hoc* re-interpretation and re-evaluation of them (see below).

Table 4.3

*Named pre-conceived construct groups and links to the Research Framework*

<i>Pre-conceived construct group</i>	<i>Statement #</i>	<i>Framework #</i>
Explaining and Illustrating (ExII)	2, 6, 10, 15	A1
Voice and Stance (VoSt)	18, 27, 29, 30	A2
Describing and Summarising (DeSu)	1, 7, 22, 28	A1/B1
Comparing and Evaluating (CoEv)	5, 11, 13, 14, 25	B2/B3
Reflection (Re)	12, 23, 26	B5
Problem Solving (PrSo)	8, 17, 19, 21	B6

Based on research by Bryman, Becker and Sempik (2008), who surveyed views of over 200 mixed methods researchers, it is suggested that *different* criteria be used to evaluate the quantitative and qualitative methods. Validity and reliability

were the two key criteria highlighted in the evaluation of quantitative research in their research. According to Dörnyei (2007), perfect validity can never be proven. Rather, providing evidence that a valid argument is more plausible than other potential interpretations is more reasonable. Moreover, validity is particular to a specific situation and not automatically transferable to others and is “a unitary concept that can be supported with many different types of evidence” (p. 52). Three types of ‘validity’ are therefore briefly discussed: face validity, construct validity and external validity.

According to Hughes (2003) face validity relates to whether an instrument (in this case a statement) “looks as if it measures what it is supposed to measure” (p. 33). There were three statements which were originally assigned to the Reflection group which did not include the root word ‘reflect’ in their statements. Because of this, they were taken out of this group leaving it with only three statements.

As Thomas (2009) notes, construct validity is, “the extent to which the results of a test...correlate with the theoretical construct for which it is seeking to act as an assessment” (p. 107). In this case, there were two statements that were excluded which used the word ‘criticising’ because this word could be interpreted as implying a negative and over-simplistic meaning that was different to the meaning of ‘critical’ in this research. There was also a statement that did not fit into any group. This was statement 20, ‘Doing independent research as part of your studies’, which is an essential feature of master’s academic writing where students’ CT may develop, but it did not seem to fit into any category. Although it was rated highly ( $M=7.94$ ) with a mode of 10, it was also not included in the principle component analysis. This resulted in six statements (3, 4, 9, 16, 20, 24) which were excluded from the principle component analysis (See Appendix F for further explanation).

External validity is also known as generalisability (Campbell & Stanley, 1966). Thomas (2009) defined generalisability as, “the extent to which research findings can be applied in settings other than the setting in which the original research took place” (p. 109). It is hoped that findings from this part of the research can be used to inform research in other settings. These include the key features highlighted in the Research Framework that were relevant to the questionnaire; namely, the concepts of logical reasoning and argument, writer’s position, understanding, analysis and evaluation. I viewed these concepts as transferable across disciplines and therefore could be used in research in different academic

contexts (Robson, 2011; Thomas, 2009). At the same time, there is also much scope for refinement of the statements used to describe these constructs, and match them more closely with Anderson et al.'s (2014) taxonomy.

However, as the statistical assumptions and tests used in this research were non-parametric there are limitations to which the results can be generalised beyond the 'sample'. As the sample was in effect the 'population', no *statistically* generalisable claims can be made beyond the context of the research.

### ***Ranking of statements and factor analysis***

There were a number of ways in which the different statements in Part A could have been evaluated. In order to evaluate which *individual statements* students thought were most important, the mean and median values of each statement were compared and ranked. Apart from the ranking of the mean or median scores, there were a number of ways in which the data were analysed in order to assess the reliability of the *pre-conceived groupings*, or generate more reliable clusters. With the assumption that we are dealing with interval data, one instrument to test the statistical relationship of the different variables with each other is factor analysis (See Appendix G for further explanation behind the criteria). The aim of factor analysis is, "to explore the possible underlying structure in a set of interrelated variables without imposing any pre-conceived structure on the outcome" (Child, 2006, p.6). There are two basic types: *exploratory* factor analysis and *confirmatory* factor analysis. Confirmatory factor analysis aims to test a model of conceptual structures (Brown, 2006), while in exploratory factor analysis, "the researcher is attempting to determine how many factors are present and whether the factors are correlated" (Stevens, 2009, p.326). Exploratory factor analysis was used in this research, as I was not testing a model.

The type of exploratory factor analysis used is known as *principal components analysis* (PCA). This involves the transformation of the original variables into a new set of linear combinations known as the 'principle components' (Stevens, 2009). PCA assumes that the sample is the population and that all the variance is common, or related. It does not try to extrapolate to a larger population and is largely 'descriptive', rather than 'inferential' (Field, 2013). In this study there was a PCA transformation of 24 of the original 30 variables. The PCA aimed to reduce these 24 variables into groups or clusters of variables (or principle

components) that are connected statistically with each other and reduce what were perceived features of academic writing into smaller groups, and therefore identify key features of a larger construct.

In order to further test for the *reliability* of the variables that make up the principle components, this study also used the Cronbach Alpha ( $\alpha$ ) measurement. This measures how reliable a measurement is of a construct group and is rated between 0 and 1. Anything where  $\alpha > .700$  is considered to have a good level of reliability, while  $\alpha > .800$  and above is very good (Field, 2013). The reliability of each *pre-conceived* construct grouping from the 24 statements was also measured using the  $\alpha$  value (Tables 5.3 – 5.7).

#### **4.3.3 Part B of the questionnaire**

Part B looked at students' previous academic essay writing experience, and whether they had taken an IELTS or TOEFL exam before entering their masters. The IELTS exam is the most common exam used to assess English language proficiency for entry to UK and Australian universities (IELTS, 2018), while the iBT TOEFL exam is most common for entry to universities in North America. Both are high-stakes gatekeeping English language exams. How useful they are (and especially their writing components) in preparing students to write in academic English remains debatable (Cho 2003; Coffin, 2004; Cotton & Conrow 1998; Morton & Moore, 1999; Rea-Dickins, Kiely & Yu, 2002).

The 'completion rate' of Part B appeared to be lower than for Part A. In Part A, 235 of the original 238 participants answered *all* the questions, but fewer participants answered all of Part B. This was mainly because of a filter question, which meant that the questions in this part could not be answered by some participants as the questions did not apply to them. However, this does not fully explain why there was a lower completion rate. As all the students were not being monitored while doing this paper questionnaire, then some did not fully complete it for whatever reason.

As the risk of higher incompleteness without monitoring is greater in large-scale paper questionnaires compared to electronic ones, this does represent a limitation of this method. However, I would argue that in this case there was greater opportunity for a higher 'response rate' as I was there in person and was able to

encourage students (who I did not know personally) to complete it. It is also less open to fraud than electronic questionnaires as I could see who was filling out the questionnaire.

The subject of this section was IELTS (and TOEFL) writing experience. The first question in Part B asked which exams the students had taken to enter their masters. Out of a total of 205 responses 97.5% ( $n=200$ ) had studied IELTS with the remaining five having studied TOEFL. The mean IELTS writing grade was 6.55, with 6.5 being the mode ( $n=194$ ). There was also a filter question that asked whether students had studied pre-sessional EAP classes before entering their masters; 32% ( $n=74$ ) of the respondents had studied one of these courses.

The question of whether IELTS (and TOEFL) writing assessments tested CT was originally going to be a major part of the research, but it was later dropped because of ethical difficulties involved in accessing IELTS examiners and the risk of the thesis becoming too broad. At the same time, the results still provide a benchmark of the English proficiency level of students before entering their master's degree.

The language proficiency level of the students who participated in the survey is important as it can have an effect on the results of this research. If students' language proficiency is such that they have difficulties in understanding the meaning of the statements in the questionnaire this can affect the validity and reliability of their answers. The IELTS exam grade 6.5 (logically) falls between a band 6 and a band 7 grade, for which there are individual IELTS band descriptors. (There are not general individual descriptors for a 6.5 grade). According to the IELTS (2018) a band 6 is a 'competent user', while a band 7 is a 'good user' of English. The more specific description of the receptive skills of a band 6 user is as someone who can "understand fairly complex language, particularly in familiar situations" (p. 6). Due to the potential 'borderline' level of some students it was therefore important to pilot the questionnaire for language comprehension among students of a similar IELTS level. Feedback from these pilot questionnaires indicated that language comprehension difficulties were minor, and appropriate adjustments were made before the final questionnaires were distributed.

Exactly 50% ( $n=70$ ) of those who answered agreed or agreed strongly that studying for IELTS or TOEFL was their main experience of essay writing in English before studying their masters, while 58% ( $n=78$ ) thought that studying IELTS or

TOEFL was useful in helping them write in academic English (Table 4.4). This gives an indication of their previous experience in writing 'academic' English, with a 50/50 split between those whose only previous experience was based on a proficiency/entry exams, and those who had had previous English academic writing experience. It is interesting to note that there was a relatively low proportion of students who had actually written essays in English outside of the university entry exams.

Table 4.4  
*Experience and usefulness of IELTS & TOEFL*

Proportion of students who had studied IELTS prior to their masters	97.5%
IELTS writing grade (mode)	6.5
Studying IELTS/TOEFL was main experience of essay writing in English prior to beginning masters	50%
Studying IELTS/TOEFL was useful in helping write in academic English	58%
Proportion of students who have studied on a pre-sessional EAP course	32%

Furthermore, language proficiency and the practice of CT writing skills in the students' L1 can affect student CT abilities in their L2. For example, O'Dwyer (2016) suggests that East Asian students' experiences of writing critically in their L1 was as much a factor affecting their critical writing ability in L2 as their 'Confucian Heritage Culture'. Floyd (2011) also highlights how much more difficult it is to be critical in a second language than in a first language. Although this thesis does not assess CT skills among L2 speakers of English, language proficiency and the experience of critical writing at a pre-master's level (in L1 or L2) are factors which should be taken into consideration when recruiting and teaching students who are from non-Anglophone undergraduate educational traditions.

#### 4.3.4 Part C of the questionnaire

Part C covered six factual questions relating to bio-data and respondents' experience of long academic essays. Like Part B, the response rate was lower than Part A. There was an open-ended section for respondents to write further comments and a section for students to leave contact details if they were interested in the results or in participating in follow-up focus groups.

The final question in Part C actually related to student experience in writing 'long academic essays' (1,500 words or more) in English. Of those who indicated a clear response ( $n=201$ ) 52% had not written long academic essays in English. This percentage increased to 60% for Chinese students ( $n=152$ ).

The remaining sections relate to bio-data and educational background. The age of the students varied from 21 to 43 years of age with 23 year olds (33%) and 22 year olds (30%) being in the majority. In terms of gender, 78% were female, and in term of nationality, 66% of those who answered were Chinese with over 80% being from Asia. The breakdown in nationalities is outlined in Table 4.5.

Table 4.5

*Nationality groupings of students who answered the questionnaire ( $n=217$ )*

<i>Nationality grouping</i>	<i>n</i>	<i>%</i>
Mainland Chinese	144	66.4
South East Asian (e.g. Indonesia, Thailand)	17	7.8
European (excl. UK)	16	7.4
Other East Asian (e.g. Hong Kong, Taiwan, Japan)	12	5.5
UK & Overseas Territories	10	4.6
North and South American	10	4.6
South and Central Asia and Middle Eastern	8	3.7
Total	217	100.1

Table 4.6 outlines the subject area background of the students based on what they had studied in their undergraduate degree. The largest group were those who had studied English Language, Literature and Education (45%), with the next three coming from a Business, Accounting and Finance background (34%). This reflects the two Schools where these respondents were studying their masters.

Table 4.6

*Undergraduate educational background of the master's students from the questionnaire (n=183)*

<i>Subject area</i>	<i>n</i>	<i>%</i>
English Language, Literature and Education	83	45.4
Accounting and Finance	23	12.6
Other Business, trade and economics	21	11.5
Management and Business Administration	18	9.8
Other Arts and Social Science (e.g. Psychology)	15	8.1
Other Languages	13	7.1
Science, technology, Engineering and Mathematics	10	5.5
Total	183	100

#### **4.3.5 Confirmatory and exploratory elements of the questionnaire**

The questionnaire has both confirmatory and exploratory elements. Descriptive statistics can be used to provide information on the national and educational background of the students who were surveyed. These can be considered to be confirmatory in that they can be compared to School, university and national statistics. Furthermore, in Part A, each statement was based on pre-conceived constructs/statements and groupings (Tables 3.2 and 4.3) based on the Research Framework. The groupings were tested for their reliability through the Cronbach Alpha values. Moreover, PCA was also used to group them into coherent groups that may be similar to previous groupings which were also checked for their Cronbach Alpha value. This questionnaire is also partly exploratory in that the rankings and the PCA groupings of the 24 (CT) writing statements are designed to generate new groups that may not have occurred before.

Therefore, the PCA seems to bridge the confirmatory and exploratory approaches in that it aims to explore the statistical relationships between individual constructs and group them into coherent clusters (principle components). These principle components can then be compared with the pre-conceived groups to confirm (or not) whether those groupings were reliable.

#### **4.3.6 Limitations of the questionnaire**

There are a number of limitations to the quantitative questionnaire. A possible limitation of ratings scales, such as the one used in this research, is that there is “no assumption of equal intervals between scores” (Cohen et al., 2000, p. 254) which can limit the type of statistical tests which can be used on the data. Although Fielding & Gilbert, (2000) claim that interval data is rare in the social sciences, parametric data analysis such as the Pearson correlation (which assumes interval data) is used a lot in social science, and in the use of the PCA we have to assume that we are using interval data.

Furthermore, Dörnyei, (2007) notes that the averaging out of responses may miss the variety that would result from analysing individual opinion. Findings may also appear ‘shallow’ in that they often fail to uncover the reasons behind opinions or the meaning that people attach to what they believe. Finally, new data or findings are less likely to emerge and subsequently add to a deeper understanding of a concept.

One of the aims of a *qualitative* approach was to address and complement the limitations of the questionnaire by focusing in more depth on how students perceived and understood CT. This in turn could be compared with the data from the questionnaire, and in itself could be both confirmatory and exploratory.

#### **4.4 Qualitative research methods**

Some of the limitations of a quantitative approach can be compensated by the strengths of a qualitative one within the wider process of triangulation. The three research questions in this thesis can all be answered to a certain extent by using a qualitative approach. A qualitative approach can produce a better understanding of a subject, as participants can also explain why they believe in something or why they perceive something to be as it is. Moreover, past research on the conceptualisation of CT has used qualitative approaches, such as the Delphi method (Facione, 1990) and interviews (Durkin, 2008; Jones, 2007; Moore, 2013; Phillips & Bond, 2004). As a result, two qualitative methods were chosen which could add to previous research on this topic: focus groups and interviews.

#### 4.4.1 Focus groups with students

Focus groups are group discussions that explore a specific topic (Kitzinger & Barbour, 1999). Within a focus group, (usually comprising three to eight members) interaction or discussion between participants is encouraged. Focus groups are useful for collecting data on group norms and meanings (Bloor, Frankland, Thomas, & Robson, 2001; Frankland & Bloor, 1999). They are an appropriate research method for studying the opinions of 'non-experts'. (Cunningham-Burley, Kerr, & Pavis, 1999) and can be repeated (Morgan, 1997). This makes it possible to use focus groups in a longitudinal sense. There should also be some kind of homogeneity about focus groups; for example participants having similar status, gender or nationality which would encourage each participant to give their opinions without fear of losing face.

However, there are a number of limitations to focus groups. There is a tendency for group dynamics within a focus group to lead to the reproduction of normative viewpoints instead of more divergent ones (Smithson, 2000). Participants should have an interest in the topic of discussion. If they do not, this can lead to uninterested participants and limited data. One way of overcoming this is to include a focusing exercise as part of the focus group. This can involve a ranking exercise or photo interpretations for example (Bloor et al., 2001). The success of a focus group may also be overly dependent on the skill of the moderator who interviews the group (Krueger, 1988).

Despite these limitations, I consider focus groups to be an appropriate method in studying master students' conceptualisation of CT. The master's students in this study were 'non-expert' in CT, but expressed an interest in it as it impacted on their grades. The focus groups in this research were used to *complement* the other methods within a wider triangulated research design (Bloor et. al, 2001), and in an *exploratory* sense to provide information that could inform the types of questions asked in the individual interviews.

As I did not have previous experience as a moderator of focus groups, it was essential to conduct pilot studies. There were two main purposes of the pilot studies. First, they were used to practice the procedures involved; from contacting potential respondents, conducting the groups, their recording, transcribing and analysing of the raw data. Secondly, the experience and results of doing the pilots could feedforward into the first set of actual focus groups, based on an evaluation of what

was successful or not. The pilot was with two focus groups of master's students in the middle of October 2015 and involved seven participants (a group of three and a group of four students).

### ***Design of the focus group***

In general, the pilot focus groups were considered to be successful. The final structure of the focus group (including informed consent form) following the pilot is outlined in Appendix H - I. The focus group session was broken down into four main sections. After an introduction explaining its purpose, the first focusing task (Task 1 in Appendix J) asked them to individually rank five separate conclusions to an imaginary essay that had to present an argument and position on the most appropriate ways of assessing master's level students (written essay, multiple choice exam and/or oral presentations). This discipline 'neutral' topic was chosen in order to reduce subject knowledge bias across Schools.

Students would then discuss their individual rankings and explain to each other why they thought one conclusion demonstrated higher levels of CT than the others. It was emphasised that they did not have to come to a consensus agreement on the rank order. The main aim of this exercise was to elicit, through discussion of their views, their reasons for deciding why one conclusion evidenced a greater level of CT than the others. Appendix K gives the rationale behind my own ranking from most critical to least critical. Another academic also moderated this and ranked this in the same order as me. Students were not given the 'right' answer, as the purpose of the task was to stimulate discussion rather than to get the 'correct' answer. However, they did write them down individually for me to see. Out of the total of 11 participants only two students wrote exactly the same order as me and the moderator.

The second part of the focus group involved semi-structured questions based on features of academic writing considered to demonstrate CT (Appendix I). The questions were designed to encourage participants to express and discuss different viewpoints. If participants' views were not particularly clear I would try to elicit more from them, otherwise the aim was to encourage discussion among participants. This section focused on the argumentation construct of CT (A1 in the Research Framework), and other 'skills' (B1, B2 and B3), but began with an open

question asking them to define what they thought CT meant and how it applied to academic writing.

In the third part, I shifted the discussion about CT to one that focused on how students had developed their own CT skills more generally. This was done through a second task (Task 2) that involved a list of possible sources and experiences that would, or would not, encourage the development of CT prior to beginning their master's study (Appendix L). Participants were then asked to comment on which ones were significant or not, and add any other experiences that helped them develop their CT.

The final section followed a list of semi-structured questions covering the subject of CT and creativity (B4), the importance of a priori subject knowledge (E1), the importance of the writer's opinion and voice (A2) and how they thought their understanding of CT had developed since beginning the masters (C3).

### ***Schedule of focus groups***

I conducted four focus groups in the second (spring) semester between the end of January and beginning of March 2016 consisting of three groups from the School of Education and one from the Business School (Table 4.7).

Table 4.7

#### *Focus group participants*

<i>Focus group</i>	<i>Pseudonym</i>	<i>Master's programme</i>	<i>Nationality</i>	<i>Gender</i>
1	Ana	TESOL	Indonesian	F
	Jing	TESOL	Chinese	F
2	Li	Education	Chinese	F
	Qiang	Education	Chinese	M
	Wei	Language Education	Chinese	M
3	Jun	Management	Chinese	F
	Min	HR Management	Chinese	F
	Yichun	Management	Taiwanese	F
4	Alex	TESOL	American	M
	Azeera	TESOL	Turkish	F
	Cristina	TESOL	Chilean	F

Focus groups 1 and 2 were conducted in late January, focus group 3 in early February and focus group 4 at the beginning of March 2016. A third student (Fang) could not make the first focus group on the day, but I later interviewed her twice. I was unable to recruit a second focus group from the Business School and therefore conducted this final focus group to increase the total participant numbers. In total there were 11 students. The findings of the focus groups are reported *with* the student interview findings in the relevant chapters.

#### **4.4.2 Types of interviews**

Interviews can be theorised in a number of ways. Silverman (2005) divides them up into 'positivist', 'emotionalist' and 'constructivist' types, while Alvesson (2003) compares the 'neo-positivist', 'romanticist' and 'localist' positions, which share similar features to Silverman's taxonomy. Neo-positivists aim to "establish a context free truth about reality" (p. 15) and include following and answering a research protocol. Romanticists, on the other hand aim to establish a greater sense of rapport and trust between interviewer and interviewee aiming for a deeper and fuller understanding of the interviewees' understanding of a subject.

The localist approach breaks from the purposes and assumptions of the previous two approaches and views interviews as a form of social practice like other spoken interactions. Talmy (2011), for example, contrasts the interview as 'research instrument' that reflects neo-positivist and romantic approaches with the interview as 'social practice', where interviewer and interviewee co-construct meaning during the interview process. This is similar to Holstein and Gubrium's (2003) concept of the 'active interview' that focuses on 'how' an interview is conducted as much as 'what' information is gathered from it.

Furthermore, interviews can also involve complex power relations (Holstein & Gubrium, 2009), of interviewer and interviewee, age, gender, ethnicity, nationality, social class, or of someone who is deemed to be an 'expert' and someone who is a 'novice' for example. To what extent an interview is co-constructed and to what extent it is one-sided also involves relations of power. Finally, how the transcription is done (and who it is done by), how it is interpreted, analysed and presented also involves relations of power. The purpose of this thesis is not to analyse these relationships in detail, but rather to show awareness of them.

During the interview, questions varied from being more 'open' or 'closed'. It could be argued that the more open questions shifted the power relations more to the interviewee, while the closed ones shifted them more to the interviewer for example. Moreover, after the interviews were completed, it was I who transcribed, interpreted, analysed and presented the analysis. Hence, further power (and responsibility) and relative control of what was said was shifted over to me at those stages.

The interviews I undertook were very much in the *research instrument* camp. Semi-structured interviews were conducted with the students and lecturers. I think I used quite a romanticist approach at the beginning of each interview where students and lecturers were allowed to voice their views in response to open questions about how they conceptualised CT. This also allowed interviewees to relax and feel in control. I also used follow-up questions to clarify and elicit more when I felt that their opinions needed further elaboration or illustration. A more exploratory approach to the conceptualisation of CT was adopted at this point.

However, the nature of the interviews shifted to be more *neo-positivist* later on. This occurred when I asked the interviewees about their perception of how important the concepts of voice, reflection and problem solving were, and to comment on four different teaching approaches. The questions in the interviews were also based on previous literature and covered similar topics to the focus groups, and were based on themes that came through analysis of the questionnaire responses. A more confirmatory approach to the conceptualisation of CT was therefore adopted in the latter part of each interview.

I allowed a lot more time for the tutors to answer the first questions on their academic background. This provided insight into how their academic and cultural background (and in some cases their personal experience as students struggling to understand what CT was and how to apply it) informed their understanding of the concept. Inevitably there was a sense of power relations between interviewee and interviewer. This may be partly relating to our different positions in the academy (PhD researcher, master's student or tutor), different language backgrounds (all but three of the students interviewed and six of the tutors were L2 speakers of English). However, I am a trained IELTS interview examiner, and part of that training involves creating and developing a rapport designed to relax interviewees in a context that is a lot more pressurised than the research interviews for this thesis. In that sense, I

felt that the interviewees were giving their honest opinions without great hindrance. All the interviews and focus groups were also audio recorded.

#### **4.4.3 Interviews with students**

In the research design, it was proposed to have interviews with students to elicit their conceptualisation of CT in academic writing. Two types of interviews were used. One type for students who had already been involved in the focus groups (four students), and one type for students who were being interviewed for the first time (ten students).

The topics covered for the new students were divided into seven sections covering similar questions to the last three sections of the focus groups, as follows:

1. Their understanding of CT [A1, B1, B2, B3]
2. Voice [A2] reflection[B5] creativity [B4] and problem solving [B6]
3. How their understanding of CT may have changed or developed during their masters [C1, C2, C3 implicit]
4. How the process involved in producing their dissertation has affected their understanding of CT in academic writing [D2, E1, E2]
5. How the student developed their CT before beginning their masters [C1, C2, C3, D2]
6. How to teach CT [D3, E1]
7. Any other comments or questions about CT.

The interview protocol with the four student follow-up interviews from the focus groups began with a review exercise. I summarised the main points that they had made in the focus groups, which they were asked to comment on (e.g. whether their views had changed since). This was followed by the questions on their dissertations, reflectivity, problem solving and pedagogy as with the new students, but which had not been addressed in the focus groups. In total, 21 students were involved in the focus groups and interviews ranging from 22 to 37 years of age. They are listed under their pseudonyms in Appendix M. while the informed consent forms and interview protocols are in Appendices N, O, P.

With the exception of the first focus group, the participants knew each other as they were on the same programme of study, or they knew each other socially. Focus group and interview participants were recruited in a number of ways: through follow-up emails from the questionnaires, School administration emails, word-of-mouth through one of my supervisors and another PhD researcher who was doing research with master's students. This involved a combination of purposive, convenience and snowball sampling, which is not uncommon in qualitative research where the focus is on choosing participants that fit the criteria required for the study (in this case master's students in the School of Education and Business School of this particular university) rather than ones chosen through random selection from a 'population' as might be more common in idealised random control trial conditions (Robson, 2011), which this research was not.

Participants who chose to be involved in the interviews demonstrated a keenness to participate. They were interviewed when many of them had almost completed their masters towards the end of their dissertation (July – August 2016), so it provided them with an opportunity to reflect on the extent to which they had developed and applied their CT skills in their own independent piece of research (i.e. their dissertation).

Moreover, students who volunteered to participate in the interviews (and to a lesser extent the focus groups) differed from those who completed the questionnaire. First, they did the interviews (and focus groups) eight or nine (and four or five) months after the questionnaires were completed. During this period, it is anticipated that their theoretical and practical knowledge of their discipline and their understanding of what it meant to be critical in their discipline would have developed.

Secondly, as these participants were to a certain extent self-selected, they were keen to talk about their experiences of developing their CT skills over their masters. This may have resulted in some bias in their responses because I felt that most of the students who volunteered themselves for interview were quite positive about how their CT skills had developed over the year, which has not always been the case in previous research (e.g. Fakunle et al., 2016). These interviews therefore did not aim to be representative of the views of all the experiences of master's students in those Schools.

Finally, despite the fact that the majority of students were required to communicate in their L2 during the interview and that it is more difficult to be critical

in an L2 (Floyd, 2011), it is assumed that their English language proficiency would have improved over the year. The interview was therefore an opportunity for many of the students to reflect on their development as critical thinkers over the academic year and give voice to that experience.

#### **4.4.4 Interviews with tutors**

Interviews were conducted with 14 tutors who were all involved in teaching master's students. Copies of the pre-interview introduction letters, informed consent form and interview protocol are found in Appendices N, Q, R. The protocols cover eight main areas:

1. Academic background
2. CT in academic writing [A1, A2]
3. CT within their discipline and school [D2]
4. Creativity, reflectivity and problem solving [B4, B5, B6]
5. Nationality of students on their programme [C1, C2, D2]
6. Development of CT [C1, C3]
7. Features that stimulate CT [C1, C2, C3, D2, D3]
8. How to teach CT [D1, D2, D3, E1, E2].

They contained a mixture of more open-ended questions where tutors were able to speak openly about their conceptualisation of CT in academic writing, with follow-up questions where necessary to clarify and encourage tutors to expand through further explanation and illustration. Finally, there were more direct closed questions, that asked about the importance of specific aspects, such as voice, creativity, reflection and problem solving. The interviews were mainly in late summer (June - August), but there were also two interviewed in November 2016. Information about the tutors are found in Appendix S. Participants were recruited through a combination of purposive sampling (they had to be tutors who taught master's students in the two Schools), convenience and snowball sampling (contacts through my supervisors). Interviews were arranged following an introductory email outlining the topic of my research interviews (Appendix Q).

#### 4.4.5 Analysis of the focus group and interview transcripts

I transcribed the focus groups and interviews. In total there were over 65,000 words of transcription from the focus groups and student interviews, and 67,000 words from the tutors, excluding those spoken by me the interviewer. Especially in the more open questions, such as the question on their conceptualisation of CT in academic writing, this required a lot of interpretation and filtering out of irrelevant information. NVIVO was used, but only minimally and mainly for word frequency analysis (Appendix T).

There were three main stages involved in the analysis of the transcribed data (Figure 4.1). These were the pre-coding, first cycle, and second cycle stages (Saldaña, 2009). The pre-coding stage involved two basic types of coding. First, 'attribute' coding (Bazeley, 2003) consisted of basic descriptive data such as setting, age, gender, location (e.g. Table 4.7). Second, 'descriptive' coding involved a summary "in a word or short phrase – most often a noun – the basic topic of a passage of qualitative data" (Saldaña, 2009, p.70). For example, the core open question related to participants' 'conceptualisation of critical thinking in academic writing at a master's level'. Other, more closed questions referred to the importance of 'reflectivity' as a component of CT in academic writing for instance.

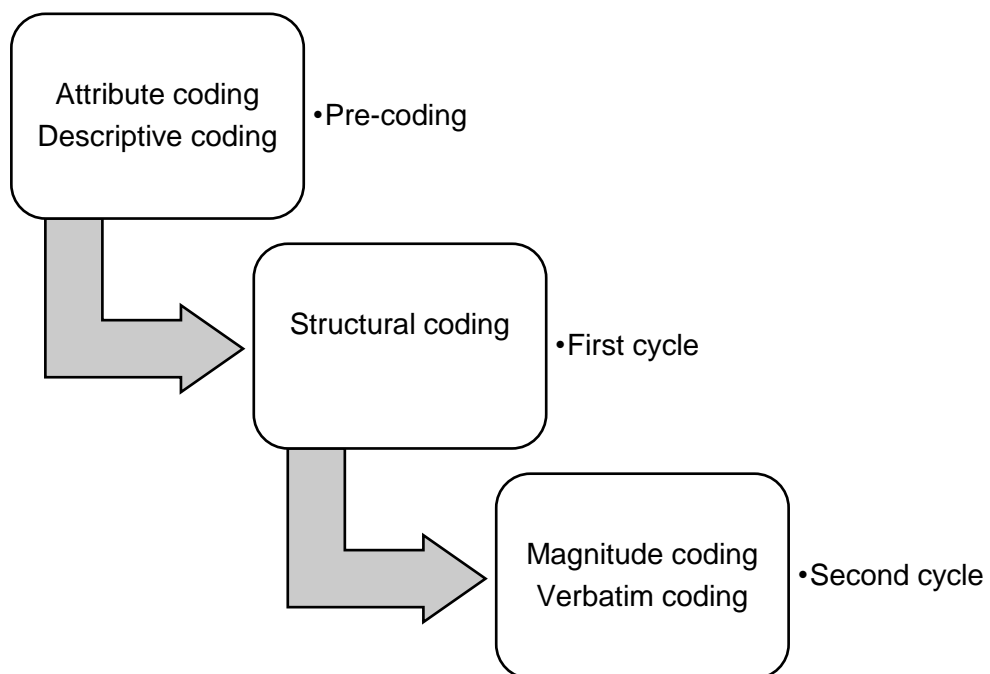


Figure 4.1 *Focus groups and interview transcription analysis process*

The second stage (first cycle) used 'structural' coding which "applies a content-based or conceptual phrase representing a topic of inquiry that relates to a specific research question to frame the interview" (Saldaña, 2009, p. 66). This is deemed to be suitable for interview transcripts where there are multiple participants, and semi-structured data-gathering procedures (Saldaña, 2009). Both the initial open questions about their conceptualisation of 'critical thinking' and the closed questions about specific pre-conceived features of CT fall into this category (e.g. voice, reflection, problems solving, creativity). For example, when I asked 'how important' they thought 'problem solving' was as a component of CT, the theme is already prescribed as problem solving, which is then divided up into sub-themes based on the response of the interviewees. The main themes that are identified in my research are based around the questions asked, which are based on the research questions. As Braun and Clarke (2006) note, "A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set" (p. 10).

The third stage (second cycle) involved two further types of coding. The first was 'magnitude' coding which involved adding an additional alphabetical and/or numeric code or sub-code to existing coded data. This was deemed to be appropriate for mixed methods research (Saldaña, 2009), where the codes from the students and tutors interviews and focus groups could be compared more effectively with each other, and with the results of the questionnaire.

There was also an element of quantifiable prevalence in allocating themes (Table 4.8). Quantification can be used in different ways; for example in terms of how much is talked about on a specific themes, and in terms of how many different interviewees talked about a theme. However, the main criteria for allocating themes is less to do with how prevalent a theme is, but more to do with the 'keyness' of a theme in answering a question, and "the keyness of a theme is not necessarily dependent on quantifiable measures – but in terms of whether it captures something important in relation to the overall research question" (Braun & Clarke, 2006, p. 10).

Finally, I used 'verbatim' coding (Charmaz, 2006) where words or short phrases from actual language are used to respect the participants voice. These are used as direct evidence for themes based on my interpretation of the meaning of their utterances. This also means that in the reporting of their speech the focus is on content words that express meaning. False starts, throw away phrases and gap fill

words and phrases etc. are usually edited out of the reported quotations (e.g. “Umm”, “Ehh”, “Right”, “Well”, “And”, “I think”, “you know”, “I mean” etc.) in order to focus on the meaning and content of the speech.

Table 4.8

*Quantitative criteria for allocating themes in response to mainly open questions*

<i>Theme label</i>	<i>Criteria description</i>
<i>Major theme</i>	Minimum of 5 different interviewees highlighted this theme in response to the open CT in academic writing question.
<i>Sub-theme</i>	Minimum of 3 different interviewees highlighted this theme, but considered to be part of a major theme or trans-theme.
<i>Minor theme</i>	Does not fit into a major or trans-theme, but mentioned by 3 or more interviewees.
<i>Trans-theme</i>	Linked to the meta-cognitive processes involved in writing critically and consisted of: <i>reflective thinking and action</i> , and <i>problem solving and creative synthesis</i> . They were based on the answers to questions on these topics.

Moreover, as many of the participants (students and tutors) produced minor grammatical errors in speech, these have been corrected and indicated thus. This is done through using the *[sic]* notation where they have said something but clearly meant something else, and with [square] brackets highlighting words that I have added or parts of words that should be ignored in order to preserve the clarity of the intended meaning. In most cases, and certainly ones I quote directly, I think the intended meaning is quite clear.

Although the statistical nature of the ‘sample’ is less relevant in qualitative research, as I am not necessarily aiming for generalisability, iteration is a key process in qualitative sampling (Onwuegbuzie & Leech, 2007). In iteration, participant selection continues until gaps are filled in the initial description. This is cyclical process of moving back and forth through data collection and analysis. This occurred more with the tutors than the students. I added two more tutors after the initial 12 were interviewed. After receiving a positive response from students in the Sports Institute, I felt it was important to interview more tutors from that department.

In the more direct and closed questions on argument, voice, creativity, reflectivity, problem solving and subject matter, it was more straight forward to analyse the answers as students were asked to informally grade 'how important' these features were in CT, and this usually divided up into clearer sub-categories such as 'very important', 'important' 'not/sure/it depends' or 'not important'. It was also easier to compare these responses with those in the questionnaire.

In order to aid in filtering out less relevant parts of the transcripts and code the themes more effectively and efficiently, specific criteria were devised to cover both open and closed question types. Only the parts of the transcripts that fulfilled the following criteria were therefore coded:

- It aided in answering the research questions.
- The interviewees answered the questions asked (in the interview/focus group).
- It was comparable across both qualitative methods (interviews and focus groups).
- It could be compared with the results from the questionnaire.
- It could lead to new discoveries and insights.

### ***Reliability and validity of the qualitative data***

Reliability and validity are two important concepts when evaluating the 'trustworthiness' of research. Silverman (2005) defined reliability in qualitative research as the "degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions" (p. 224). This also aimed to help enhance the credibility, and dependability of the research, and the transparency of the procedures which could allow for future transferability of method in other studies used (Lincoln & Guba, 1985).

The term 'credibility' is considered to be a more appropriate term than validity in qualitative research (Bryman et al., 2008; Lincoln & Guba, 1985; Onwuegbuzie & Leech, 2007). Onwuegbuzie and Leech (2007) have created a typology of 24 different criteria to evaluate the credibility of qualitative research. This can be used as an indication (rather than a measurement) of the 'truth value' of this research. Though many of these criteria have been covered already above, Appendix X maps this typology to the qualitative element of this research.

Although, other researchers were not involved in the interpreting of the transcriptions, it is hoped that the criteria above has made the process more transparent. A sample of the coded transcription analysis is also in Appendix Y and further samples are available on request.

### ***Some limitations***

There are also some possible limitations to this type of research. First, what information is gained was partly dependent on the skill of the interviewer to elicit insightful responses. In both the focus groups and interviews there was also potential for interview bias to direct questions relating to the pre-conceived themes from the literature and the questionnaire results. Second, the potential to generalise may be limited, especially as the quantitative criteria of the major themes was a relatively low number (a minimum of 5 out of 14 interviewees having identified these). The purpose is therefore to use the data from this research to provide insight into the processes of learning in this specific study (Onwuegbuzie & Leech, 2007), focusing more on 'adding to knowledge' rather than trying to generalise beyond the context.

There are at least two areas where there is a need for caution in the interpretations of the results. The first relates to the nature of the respondent 'sample'. All of these students were partly self-selective in that they had volunteered to talk about the development of their understanding of CT over a one-year masters, which in general had been a positive experience. It did not therefore attempt to represent all the master's students who studied on these programmes, some of whom may have completed their masters with little idea, or even rather confused ideas, about what it meant to be critical thinkers in the academy and beyond. Secondly, the labelling of major themes, sub-themes, minor themes and trans-themes is inevitably a subjective exercise, but hopefully one where the 'keyness' of themes (in terms of their importance) have been highlighted in helping answer the research questions (Braun & Clarke, 2006).

### ***Exploratory and confirmatory elements of the qualitative phases***

The qualitative methods involve confirmatory and exploratory elements. Through the thematic analyses of the open questions in the focus group and interview transcripts, it aims to explore and highlight the key themes. There were

also questions and tasks in the qualitative research that had been informed by previous literature. Respondents were asked whether they agreed certain skills were connected to CT (e.g. reflection, problem solving and creativity). Although these could be construed as 'leading', and there is always the risk of 'confirmation bias' (Halpern, 2014), they are considered to be confirmatory.

The analysis was both *inductive* in that it derives from the data, and *deductive* being based on previous conceptualisations of CT in academic writing (Thomas, 2009), with the overall slant being more towards a deductive approach. Inevitably some students had more to say than others, and could articulate what they said more clearly. Where possible, however, I try to cite views from a range of students, not just the more articulate ones.

#### **4.5 Ethics and data management**

At each stage in this empirical research, appropriate ethical conduct was adhered to, guided by the principles of ethical conduct enshrined in the School of Education of the HEI where this research was conducted. Before embarking on the data collection, an application for ethical approval was approved by the appropriate persons in authority at the ethical Review Level 1 which applied to 'straightforward' research such as questionnaires and interviews with non-vulnerable groups.

Ethical research guidelines adhere to the British Educational Research Association's ethical guidelines. These guidelines include four main areas of responsibility: (a) to participants, (b) to sponsors of research, (c) to the community of educational researchers and (d) to educational professionals, policy makers and the general public (BERA, 2011). In this research the responsibility to (a), (c) and (d) are of most concern as there were no sponsors of this research. The relevant principles relating to (a) are as follows:

- Voluntary informed consent
- The right to withdraw for any or no reason
- Confidentiality and anonymous treatment of participants' data

These were covered in the informed consent declarations and forms, which participants had to sign before completing the questionnaires and embarking on their interviews (Appendices C, H, N). Students involved in the focus groups and

follow-up interviews were given an opportunity to comment and agree/disagree with my summary of what they had said in the focus groups (in their follow-up interviews).

Incentives were provided to the students in the Business School. These involved promotion of free cereal bars for the first 40 students to answer the questionnaire and the opportunity to be entered into a prize draw for a £25 gift voucher. I do not think this had any detrimental effect on the types of students who were (self) selected or the answers given. Storage and use of data was based on the Data Protection Act (1998) and General Data Protection Regulation (2016). With respect to the remaining sections of the guidelines (b) and (d), I believe I conducted the research in line with the relevant guidelines covered (BERA, 2011).

In addition to these, Silverman (2013) highlights the “assessment of potential benefits and risks to participants” (p.161). This related more to the tutors who were interviewed. They were asked if they had any comments or questions, and some were interested in any future presentations I might do on the results of the research which they had participated in. In this case, I would deem this as a ‘benefit’ of the research to them. Students were given the option of asking any other questions, but were not given the research results.

Finally, the questions of power relations and the monopoly of interpretation by the interviewer could also be addressed under the ethics of this research. However, this was covered in the section on interview types (section 4.4.2) and in the section on the interpretation of the transcriptions (section 4.4.5).

#### **4.6 Chapter conclusion**

Combined together, quantitative and qualitative approaches provide a deeper and broader understanding of a phenomena. By approaching specific research questions from different perspectives (Johnson et al., 2007), the methodological and data triangulation used in this research can help answer the research questions by approaching them from different angles and perspectives.

It is hoped that the findings from analysing the questionnaire responses of over 200 students, and the transcripts of the focus groups and interviews with 21 students and interviews with the 14 tutors will help answer more clearly how master’s students and tutors conceptualise CT in academic writing. In addition this

can help fill gaps in research on CT at a postgraduate taught level and provide further insights on how CT can be most effectively taught at this level.



## 5. Findings and analysis of Research Question 1

*Research Question 1 (RQ1):*

*What do master's students consider to be the most important features of academic writing that relate to critical thinking?*

### 5.1 Chapter introduction

This chapter aims to answer the first research question above. The first section (5.2) reports on the results and analysis of the questionnaire on 'good academic writing at a master's level' answered by students in the Business School and School of Education. The second section (5.3) analyses and reports the results of the student interviews and focus groups. This is followed by a brief summary and conclusion of the findings (5.4) that involve corroborating the results of the quantitative and qualitative research (Rossman & Wilson, 1985) placing them in the wider context of research into CT in academic writing outlined in the Literature Review.

### 5.2 Quantitative findings

#### 5.2.1 Ranking of features of academic writing

Students were asked to rate 30 statements relating to academic writing at a PGT master's level based on a ten-point scale in the first semester of their one-year master's degree (see Appendix C). Specifically, they were asked the question:

*How important do you think the following features are in successful master's level writing at university?*

Both mean (M) and median (Md) measurements are used depending on the assumptions of the data. The use of the mean assumes that the data is interval, while the median is appropriate to both ordinal and interval data (Fielding & Gilbert, 2000). The use of the standard deviation (SD) has the same assumptions as the mean. Where the standard deviation is particularly large (>2.0) or particularly skewed then the median may be perceived to be more reliable (ibid.). For most of the responses, the distribution was negatively skewed to the higher values,

suggesting that the median was a more reliable overall measurement. The skewedness towards the high end of the scale also appears to legitimise the use of a ten-point rating scale rather than a seven-point scale, as it allows for more subtle differentiation between different statements at the high end of the scale.

The data are presented based on individual statements and the pre-conceived construct groups as outlined in Table 4.3. Table 5.1 shows the top five ranked individual statements. The first two involve the written functions of *explaining and illustrating* (ExII group), which may provide support for an argument. ‘Writing in an objective style’ was also highly ranked, as was ‘Describing criteria you use to make decisions’, while the fifth ranked - ‘Summarising your writing’ - involves the *synthesis* of ideas. This appeared to show that, at this particular stage of their masters (the first semester), students valued key functions of explanation, illustration and summarising in their academic writing, as well as a more objective writing style. Describing criteria you use to make decisions was also perceived to be a key attribute of good academic writing, which is also a key CT skill.

Table 5.1

*All students (N=235): highest ranked*

<i>Statement</i>	<i>Group</i>	<i>M</i>	<i>SD</i>	<i>Md</i>
Giving reasons to explain ideas	ExII	8.80	1.25	9
Giving examples to illustrate ideas	ExII	8.46	1.44	9
Writing in an objective style in your academic writing	Other	8.37	1.71	9
Describing criteria you use to make decisions	CoEv	8.16	1.58	8
Summarising your writing	DeSu	8.14	1.57	8

Table 5.2 shows the lowest rankings, with four of them being in the *Voice and stance* (VoSt) group. The relatively low ranking of the ‘subjective writing style’ and relatively high ranking of the ‘objective writing style’ act as additional indicators of reliability in that they are statements which should be rated at opposite ends of the scale (Cohen et al., 2000). However, the five lowest ranked constructs had large standard deviations with very irregular distributions (Table 5.2). Moreover, although they were the lowest ranked, the actual ratings of three of the statements had median values of 7, which I classified as of ‘medium to high level’ of importance (Appendix D). The relatively low rank of the Voice and stance group should

therefore be viewed in the context of the relatively high ratings of the vast majority of the statements.

Table 5.2

*All students (N=235): lowest ranked*

<i>Statement</i>	<i>Group</i>	<i>M</i>	<i>SD</i>	<i>Md</i>
Writing about what is important to you	VoSt	6.42	2.27	7
Writing about what you believe to be true	VoSt	6.25	2.31	7
Expressing your personal opinion	VoSt	6.35	2.61	7
Writing in a subjective way in your academic writing	Other	5.73	2.51	6
Expressing your feelings and emotions in your academic writing	VoSt	4.03	2.45	4

Table 5.3

*Ranking of pre-conceived groupings*

<i>Construct group</i>	<i>Rank</i>	<i>M</i>	<i>α</i>
Explaining & Illustrating (ExIl)	1	8.26	.570
Describing & Summarising (DeSu)	2	7.88	.579
Reflection (Re)	3	7.79	.651
Problem Solving (PrSo)	4	7.70	.728*
Comparing & Evaluating (CoEv)	5	7.62	.745*
Voice & Stance (VoSt)	6	6.50	.754*
<i>Overall</i>		7.62	0.884**

\*Reliable ( $\alpha > .700$ )

\*\* 24 items (excl. 3, 4, 9, 16, 20, 24)

Although two statements in the Explaining and illustrating construct group were ranked the highest, ('Giving reasons to explain ideas' and 'Giving examples to illustrate ideas') all the construct groups had relatively high mean and median ratings (7 and 8 above respectively). Table 5.3 also shows the measure of reliability of the groups using the Cronbach Alpha ( $\alpha$ ) scores. Based on a significance threshold where  $\alpha > .700$  is considered to be reliable (Field, 2013), *Describing and summarising* (DeSu), *Explaining and illustrating* and *Reflection* (Re) were the least reliable constructs, while *Problem solving* (PrSo), *Comparing and evaluating* (CoEv), and *Voice and stance* (VoSt) were the most reliable.

### 5.2.2 PCA and suggested named groupings

An exploratory factor analysis was performed on 24 variables (statements) to seek out an underlying structure to the data without imposing any pre-conceived groupings (Child, 2006). The form of factor analysis known as a principle component analysis (PCA) was used because it was deemed to be psychometrically sound, as well as simpler mathematically (Stevens, 2009).

As variables tend to cluster around one factor (component), it is necessary to *rotate* the factors to better distinguish between them. There are two main types of factor rotations: oblique rotation and orthogonal rotation. Oblique rotation assumes some correlation between variables, while orthogonal rotation does not (Field, 2013). Based on an oblique rotation, two main principle component groupings emerged from the PCA (Appendix V), while with the orthogonal rotation four main principle component groupings emerged (Appendix W). Principle components were based on loadings where the mean  $r > .600$  with four variables, and  $r > .800$  with three variables (Stevens, 2009). As most of the variables (statements) had high ratings, there is a greater risk of many of them clustering around one factor. The rotation that compensates against this more is the *orthogonal* rotation.

As the aim of this section is to try to differentiate as much as possible between groups (and create more than one or two groups if possible), the (varimax) orthogonal rotation was chosen as the more appropriate type of rotation for this data set. However, it is also worth noting that the two principle components identified in the oblique rotation were very similar to the first two in the orthogonal rotation (Appendix V and W). Four principle component groupings emerged. These groups I labelled as:

- Comparing and evaluating concepts
- Expressing a personal stance
- Reflection on theory and practice
- Describing and explaining concepts and viewpoints (DeEx)

Table 5.4 shows that this new 'Comparing and evaluating concepts' principle component group includes statements mainly found in the Comparing and evaluating pre-conceived group. Both this principle component group and the original Comparing and evaluating construct group also have high  $\alpha$  values.

Although there are only three statements in the 'Expressing a personal stance' principle component group, the  $r$  scores are very high, and all three statements are from the pre-conceived Voice and stance construct group (Table 5.5).

Table 5.4

*Comparing and evaluating concepts ( $\alpha = .843$ )*

<i>Statement</i>	<i>Group</i>	<i>r</i>
Describing the weaknesses of concepts in your area of study	CoEv	.766
Comparing different concepts in your area of study	CoEv	.727
Comparing different solutions in your area of study	CoEv	.702
Describing the strengths of different concepts in your area of study	CoEv	.623
Describing the strengths of solutions to problems in your area of study	PrSo	.589
Describing the weaknesses of solutions to problems in your area of study	PrSo	.566

Table 5.5

*Expressing a personal stance ( $\alpha = .792$ )*

<i>Statement</i>	<i>Group</i>	<i>r</i>
Writing about what you believe to be true	VoSt	.791
Expressing your personal opinion	VoSt	.836
Writing about the assumptions behind your beliefs and what is important to you	VoSt	.792

There were also two weaker principle component groups, 'Reflection on theory and practice', and a 'new' group which I labelled 'Describing and explaining concepts and viewpoints' (abbreviated to 'DeEx') (Table 5.6 and Table 5.7). This relative weakness compared to the two 'stronger' groups above was further confirmed by their lower  $\alpha$  values, which were just below the threshold for reliability (where  $\alpha \geq .700$ ). In the Reflection on theory and practice PCA group three of the four statements are from the Reflection pre-conceived group. However, the new Describing and explaining PCA group draws on statements from the Describing and summarising, and Explaining and illustrating groups (Table 5.7).

Table 5.6

*Reflection on theory and practice ( $\alpha = .621$ )*

<i>Statement</i>	<i>Group</i>	<i>r</i>
Reflecting on what you have learnt from your studies	Re	.649
Summarising concepts in your area of study	DeSu	.621
Reflecting on practice in your area of study	Re	.612
Reflecting on theories you have learnt about in your area of study	Re	.543

Table 5.7

*Describing and explaining concepts and viewpoints ( $\alpha = .652$ )*

<i>Statement</i>	<i>Group</i>	<i>r</i>
Describing different concepts in your area of study	DeSu	.751
Giving reasons to explain ideas	ExII	.651
Explaining concepts you have learnt about in your area of study	ExII	.537
Describing the viewpoints of different writers in your area of study	DeSu	.516

The Describing and explaining (DeEx) group (Table 5.7) also seems to reflect two key features of argumentation. In Toulmin's (2003) terminology this would involve describing a personal or conceptual *claim* ('viewpoint' or 'concept'), and the *warrants* and *backing* (reasons and explanations) which support those claims. Based on the Beardsley-Freeman model of argumentation it could involve: the *conclusions* (defined as describing 'concepts' and 'viewpoints') with the *premises* (defined as 'giving reasons' and 'explaining concepts') which support the conclusions (Figure 2.1).

The PCA groups therefore seem to corroborate to a certain extent with the three pre-conceived constructs: CoEv (which involved comparing and evaluating concepts); VoSt (which involved expressing a personal stance), and Re (reflecting on theory and practice) (Appendix U). The fourth principle component group which emerged (the DeEx group) appeared to highlight the essential components of argumentation.

### 5.2.3 Summary of quantitative results

Overall, the individual statements that ranked the highest tended to be features of clear *argumentation* [A1]: giving reasons and explanation (warrants and backing) and illustration (data). On the other hand, although the individual statements from the Voice and stance (VoSt) pre-conceived construct group [A2] were ranked lowest, the mean of the VoSt group is not exceptionally low ( $M=6.5$ ), as the overall ratings were skewed towards the higher end of the scale.

The pre-conceived Explanation and illustrating (ExII) (warranting, backing and data) and Describing and summarising (DeSu) (claiming and synthesising) groupings were not particularly reliable as a group, indicated by the lower than threshold  $\alpha$  values ( $\alpha < .600$ ). However, it was interesting that the new Describing and explaining concepts and viewpoints (DeEx) group which emerged from the PCA was more reliable ( $\alpha=.652$ ) than each of the DeSu or the ExII groups. The DeEx group also appears to reflect an argumentation construct [A1] based on Toulmin's (2003) argument pattern and the Beardsley-Freeman model (Harrell & Wetzel, 2015).

Despite its relatively low mean ranking, the VoSt pre-conceived construct group ( $\alpha=.754$ ) and 'Expressing a personal stance' principle component group ( $\alpha=.792$ ) are considered to be reliable. This contrast could indicate the perception by students that voice and stance [A2] are less important compared to other constructs in academic writing, yet it still remains a reliably autonomous construct.

The Reflection on theory and practice (Re) pre-conceived and PCA groups were also below the .700  $\alpha$  value threshold for reliability. However, the fact that a 'Reflection' group emerged from the PCA seemed to provide an element of justification for reflection [B5] as a potentially autonomous group.

The Problem solving (PrSo) pre-conceived construct group seemed to be very reliable [B6], but in the PCA problem solving seemed to merge with the Comparing and evaluating concepts PCA group. For example, there were two PrSo statements embedded in this principle component ('Describing the strengths of solutions to problems in your area of study' and 'Describing the weaknesses of solutions to problems in your area of study'). This may also reflect a weakness of these 'PrSo' statements, as they refer to at least two different ('evaluative' and 'problem-solution') constructs instead of one. It is often recommended in

questionnaire design that one statement should refer to only one construct (Cohen et al., 2000). This could have made these statements more confusing to the reader and less valid.

The Comparing and evaluating (CoEv) pre-conceived construct group was also similar to the Comparing and evaluating concepts PCA group, except that the latter had a higher  $\alpha$  value ( $\alpha = .843$ ) and incorporated statements from the PrSo preconceived construct group. Comparing and evaluating contains cognitive skills elements of analysis and evaluation [B2 and B3], but also aspects of argumentation [A1] based on Kaufer and Geisler's (1991) Scheme for representing written argument (Figure 3.1) where the argument of an essay is based on comparing and evaluating different viewpoints.

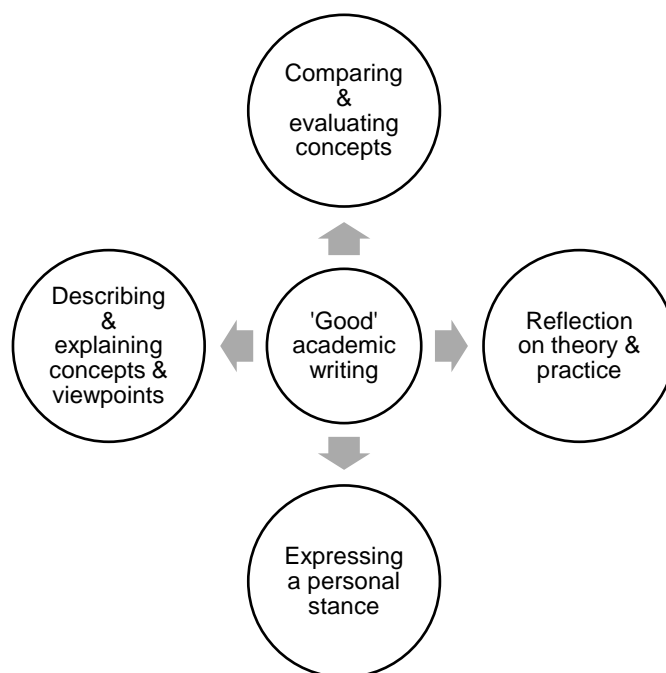


Figure 5.1 *Principle features of 'good' academic writing based on the PCA*

These results would suggest that the 'Comparing and evaluating concepts' (CoEv) and the 'Expressing a personal stance' (VoSt) principle component groups, are perceived by students to be reliable and homogeneous features of good academic writing, while the 'Describing and summarising' (DeSu) and 'Explanation and illustrating' (ExII) could be replaced by a group known as 'Describing and explaining concepts and viewpoints' (DeEx). Finally, there is also an argument that 'Reflection on theory and practice' (Re) could also be a distinct and reliable group

(Figure 5.1). The PCA groups may therefore represent underlying constructs better than the pre-conceived groups as the PCA is based on the inter-correlations of the data on which the principle components are based, not based on the pre-conceived interpretations of the researcher.

### **5.3 Qualitative findings and analysis of the student responses**

#### **5.3.1 Section introduction**

In order to analyse what features of academic writing and CT were perceived to be most important, this section focuses on responses from eight different question areas relating to CT in academic writing based on focus groups and interviews with a total of 21 students. Eleven students were involved in four focus groups in the second (spring) semester, and there were 14 individual interviews in the third (summer) semester including four students who had participated in the focus groups and one who was interviewed twice. These questions [benchmarked to the Research Framework, Table 3.2] focused on:

1. Their overall understanding of CT in academic writing [exploratory].
2. The importance of argumentation in academic writing and its relationship to CT [A1].
3. The importance of voice in academic writing and its relationship to CT [A2].
4. The importance of reflective thinking in academic writing and its relationship to CT [B5].
5. The importance of problem solving in academic writing and its relationship to CT [B6].
6. The importance of creativity and its relationship to CT [B4].
7. Other skills or aptitudes that they thought were required to write critically [B1-B3 exploratory].
8. Developing CT before beginning a masters [C1, C3].

While most of the questions are benchmarked to the Research Framework (Table 3.2 and Appendix B), question 1, and to a certain extent question 7, have exploratory elements. This means that these were the most open questions where there was no prior indication as to how the participants were going to answer. A summary of the results from the focus groups and interviews with the students is

presented and discussed. This is broken up into two broad sections: the major and sub-themes (Table 5.8), and the minor and trans-themes.

Table 5.8

*Major themes and sub-themes: students*

<i>Major themes</i>	<i>1. Reading critically</i>	<i>2. Considering different viewpoints</i>	<i>3. Making informed judgements</i>
<i>Sub-themes</i>	a. Acquisition of subject knowledge	a. Understanding different perspectives by different writers	a. Making an informed judgement
	b. Engaging with literature	b. Comparing and evaluating different viewpoints	b. Justification of an opinion
	c. Critical reading and writing skills		c. Argumentation d. Voice

Three major themes emerged in response to the question:

*1. How do you think a student can demonstrate critical thinking in their academic writing in your subject?*

These were:

- *Reading critically*
- *Considering different viewpoints*
- *Making informed judgements and decisions*

The three major themes emerged mainly in answer to question 1 above, but these themes also emerged in answer to the other questions. Within each major theme there were also some 'sub-themes'. For each major theme, a minimum of five different students highlighted the theme in response to question 1 above, or in the case of the third theme for question 1, 2 and 3. Sub-themes were mentioned by at least three different interviewees, but were considered to be part of the larger major themes. There was also one 'minor theme', namely: *engaging critically with methodological approaches*. What distinguished the major themes from this minor

one was the fewer number of students (three or more in the minor theme) who stressed this explicitly, and because it was difficult to fit this minor theme into a sub-theme of the major themes.

Alongside the minor and major themes, there were two 'trans-themes' which involved meta-cognitive and multi-cognitive and practical skills that appear to cut across and yet still be embedded in the themes above. These trans-themes tended to be involved in the process of writing critically and consisted of: *reflective thinking and action*, and *problem solving and creativity*. They were mainly based on the answers to questions 4, 5 and 6.

It is acknowledged that transcription of interviews leads to their 'entextualisation' into written script and that interviews are then 'recontextualised' to be analysed and reported upon (Bauman & Briggs, 1990) and that the interviewer in most of these interviews has a 'monopoly of interpretation' (Brinkmann, 2018) through the coding process and criteria used (Table 4.8). I endeavoured to try to preserve and synthesise the individual and collective voice of the participants, despite the inevitable process of data reduction and interpretation that thematic analysis entails. The analysis was both inductive in that it derived from the data, and deductive (Thomas, 2009) being based on previous conceptualisations of CT in academic writing.

### **5.3.2 Theme 1: Reading critically**

Reading critically in order to write critically was a prominent theme identified by participants. In answer to question 1 above, seven students highlighted the important role of reading in helping them write critically. The theme of reading critically also emerged in answer to different questions throughout the interviews and focus groups. Reading critically could be broken down into three sub-themes: how reading helped students acquire their subject knowledge; engaging with literature, and how reading strategies could assist in critical writing during their masters.

#### ***Sub-theme a. Acquisition of subject knowledge***

The acquisition of subject knowledge through reading was seen as integral to being critical in their academic writing. Some students thought that you could

develop CT skills before reading a subject, while others thought it was more of a pre-requisite. However, all agreed that they were integrated. For example, Melissa (Performance Psychology) felt that, “you can be critical before, but I think you are building your critical thinking on the subject with the literature you are reading.” While David (TESOL) noted that, “the first time you need to be critical on something, you would be better off doing a lot of reading and then learning to be critical”. Knowledge of a subject acquired through reading academic literature was therefore considered to be an important part of being critical in writing.

Reading was considered to be an important means by which students learned about their subject. In a one-year masters, students have a relatively large amount of reading to do in a relatively short period. Alex (TESOL) noted, “I think now is the time that ... we’re exposed to this excess reading”, and as Ying (Education) pointed out, a pre-requisite to being critical is that, “the students need to have a wide perspective of the knowledge of the area they are learning”. Marco (Strength and Conditioning) also highlighted the importance of understanding when he stated, “you really need to be able to, not just reading, not just reading the first point stuff, the second point. After that you really need to be able to understand that”. Nia also seemed to endorse that view:

You need to be willing to read a lot ... because I think the more you read the more kind of like ideas you kind of get, and I think from reading things like ... other literature that is published ... it kind of gives you a greater awareness of what’s going on, so I think a greater amount of reading, I think that definitely does help. (Nia, Performance Psychology)

### ***Sub-theme b. Engaging with literature***

Reading extensively in order to acquire a greater amount of knowledge on a subject was important, but reading and writing critically also involved a deeper engagement with academic literature. The idea of ‘engagement’, however, was not always clear and consistent among students. Min appeared to connect the importance of having the foundation knowledge as a pre-requisite to being critical. However, at a postgraduate master’s level she felt CT involved a different level of engagement with that reading:

I think, that how well you did in critical thinking maybe depends on how deep ... in your field or in your subject, so when you read and you think at the same time ... you can follow some opinions of the writer, and you can develop your own ideas at the same time. So, I think the critical thinking and

the learned subject ... happened at the same time. (Min, Human Resource Management)

Cristina (TESOL), who studied the same subject in her undergraduate degree as in her masters, also made a comparison in her reading at the different levels. For her, it was less about the quantity but more about the quality of engagement,

It's like as I said in my [undergraduate degree] university we just had to understand everything, not being that critical, so now [that] I'm doing the readings here with this critical point of view. (Cristina, TESOL)

Engaging critically with the reading was a prominent feature of academic writing noted by some students. However, there was not that much elaboration about what exactly they meant by 'engaging' in literature; and when they did, they had slightly different ideas about what that meant. For example, for Mara (Education), engaging with literature was a key aspect of CT in academic writing, "so it's really engaging with that literature, and ... yeah, sort of trying to think what they might not be considering". For others, engaging with literature seemed to involve a desire for a deeper understanding of academic literature. As Nia (Performance Psychology) highlighted, "I think to actually read it properly and understand it properly ... if you're not reading it properly it's pretty pointless". Anika had her own ideas about what this involved when she said:

In academic writing we're usually encouraged to engage with the literature, in a sense not just describe, but to engage to like discuss who the writers are, where they come from, why they have this sort of opinion. (Anika, TESOL)

For Anika, there was a sense that she was repeating what her lecturers had said when she stated "we're usually encouraged to engage". Her examples of engagement also seem to involve researching into the background of the authors. It is therefore not completely clear what she meant by 'engagement'.

Engagement also involved having an attitude where you do not take things at face value prior to and during reading. For example, David (TESOL) highlighted this when he said, "but your own critical thinking is ... demonstrating ... that you have the ability to not take anything at face value, to look at potential biases". Nia (Performance Psychology) also mentions that, "when you get a paper I think it's

taking it and actually looking at it properly. Not just accepting that this is totally correct”.

This attitude towards literature may also relate to the question of whether someone has a critical *disposition* and how that disposition developed over their masters, or whether they have a personal tendency to be critical. For example, five students mentioned that they felt that they had a personal tendency to be critical in answer to question 8.

Demonstrating that a student had critically engaged in academic literature was an important way in which CT was connected to academic writing. However, different students had slightly different conceptualisations of what that meant, and the concept of ‘engaging with literature’ was not always clearly explained. It may have been a phrase that they had heard tutors use, but they were quite vague in their explanation of it.

### ***Sub-theme c. Critical reading and writing skills***

Extensive reading and a critical engagement in academic literature also appeared to help students develop their reading and writing skills. When asked to comment on any other aspects of CT in academic writing not already mentioned (question 7 above), one of the themes that emerged related to the need for specific reading skills and strategies. For example, Ying emphasised the importance of note-taking as part of the reading-writing process:

Since after you scan [a text] you must ... keep some important information. And especially when you are doing the dissertation or maybe writing some essay, when the reading you’ve done is a lot you must take some notes after you read it ... otherwise you can’t ... find out which one you ... really want when you are writing. (Ying, Education)

She appeared to be referring to an integrated reading-writing study skill that is connected to writing critically. It involves reading with a purpose, the purpose being to help her to first acquire comprehensive knowledge of a subject in order to then engage critically with that knowledge, and then eventually to use that knowledge to present a critical written argument and position. Marco also emphasised the skilled aspect of reading for writing:

The reading and also like gathering all information together and trying to understand what I read using my own knowledge, is not really that difficult. I mean, it's only like practising. You need to practice that. (Marco, Performance Psychology)

In answer to question 2 above, Marie made the link between reading and writing critically:

So to say you're writing something and somebody else's reading it when you're reading someone else's work it's about the same skills, it's about extracting the argument, and I think for me what happened was that the more I got better at reading critically, I got better at writing critically. (Marie, Performance Psychology).

For students who viewed themselves as being successful critical writers the more they practiced reading critically and for a strategic purpose, the more confident they seemed to have become as critical writers. Engaging critically in reading and writing seemed also to be based in part at least on an acquired foundation of subject knowledge based on extensive and intensive reading of that subject.

In summary, an analysis of the interview data suggested that there appeared to be three broad aspects of reading that influenced CT in academic writing. The first related to the importance of *understanding* a subject, acquired through extensive reading in that subject. The second related to how students *engage* in reading, and how that could help them develop a more critical mind-set towards their writing. Finally, the third element related to how reading *strategically* (including effective note taking) could be used for the purpose of writing critically.

### **5.3.3 Theme 2: Considering different viewpoints**

The second major theme focuses less on different aspects of reading, and more on various *cognitive* skills, and is termed, 'considering different viewpoints'. This emerged from answers to question 1, where seven different student answers fitted into this theme. It was also apparent in answers to question 8, and is similar to the 'Comparing and evaluating' (CoEv) pre-conceived construct group and PCA group in the quantitative research. There were two sub-themes. The first was 'understanding different perspectives by different writers', and the second involved 'comparing and evaluating different viewpoints'.

### ***Sub-theme a. Understanding different perspectives by different writers***

Some students thought that understanding an issue from different perspectives was an important aspect of critical academic writing, and of being critical in general. Ying (Education) noted that, “they need to know the opposite views of different writers, or maybe the same, or similar views”, and Melissa (Performance Psychology) also stressed the importance of considering different perspectives, “I think we can show our critical thinking by exploring different perspectives”.

The idea of being aware of different perspectives on the world was also highlighted in question 8 about sources of CT. In answer to this question, travelling, studying and working abroad were considered to be an important sources of CT. When elaborating on this, students would often mention that these experiences helped develop their ability to see the world from different viewpoints through travel, as Anika mentions:

You just sort of see the world from different perspectives. ... The general ideas is this criticality is to see people as equal ... and then you learn about it through travelling through engaging in different communities. (Anika, TESOL)

### ***Sub-theme b. Comparing and evaluating different viewpoints***

Another sub-theme of this second theme was the comparing and evaluation of different viewpoints. Wei (Language Education) highlighted the importance of evaluation, “First, from the literature review, or literature resources, of course we’ve got to evaluate from the good side and short comings”. Yumi’s summary of CT links the reading and the evaluation of arguments:

[W]hat helps me ... to gather the references from the book we read ... and we can find some people find advantages and some people find disadvantages, and their arguments are quite different. Then we can compare, and we think we can evaluate their arguments, so that’s my understanding for ... critical thinking. (Yumi, TESOL)

This particular sub-theme seemed to be similar to the Comparing and evaluating preconceived construct and PCA group in the quantitative element of this research. This included comparing different concepts and describing the weaknesses and strengths of concepts in an area of study (evaluating). Both

highlight the importance of 'comparing' and 'evaluating' different viewpoints, as expressed through academic literature.

However, the interviewees tended to focus on the more general viewpoints expressed through the literature, rather than on the concepts and theories embedded in that literature. Although evaluating specific methodological approaches was also mentioned by David, Mara, Melissa and Marco (see minor theme below), there was more of a focus on comparing the different claims, rather than evaluating the evidence used to back up the claims.

### **5.3.4 Theme 3 - Making informed judgments and decisions**

Making informed judgments and decisions was the third major theme that emerged from the first question in the interview and focus groups. This seemed to focus more on how to be critical in writing. Two aspects of this emerged: The first was making a judgement about what to believe, and the second was justification of an opinion. It is suggested here that these are connected to argument and voice; when writing critically you can justify your opinion through clear argumentation, and making an informed judgement is the end product of an argument where your voice is made clear.

#### ***Sub-theme a. Making an informed judgement***

Presenting a critical opinion on a subject often involves making judgements and decisions about what to believe. Marie (Performance Psychology) pointed this out when she said, "I think, for me it comes down to judgement. And it's about being able to express judgement in a balanced way, as like the first step of critical thinking". David (TESOL) also emphasised the connected nature of evaluation and making judgements when he describes it as, "looking at strengths and weaknesses and making judgements of that."

Jing (TESOL) combined aspects of all three major themes when she noted that, "you should look/read different people's perspectives ... You compare their perspectives in your assignment and ... show your own opinions about these different perspectives". Giving your opinion about different perspectives is similar to making a judgement about something.

### ***Sub-theme b. Justification of an opinion***

Some students were also keen to point out that critical writing was not just about giving an opinion, but also that that opinion had to be informed. Justification of an opinion relates to the 'informed' part of a judgment and decision. Anika (TESOL), Melissa and Nia (both Performance Psychology) stressed the importance of justification of an opinion in answer to question 1. As Anika put it, "like I think and I disagree with this person *because* ... I agree with this person *because* I think this person's opinion is good *because*..." [Emphasis added], and Melissa talked about "explaining our own point of view", while Nia stressed the importance of opinion "as long as you have justification to back it up".

The idea of opinion and voice was later followed up in more detail in question 3, and the idea of justification was conceptualised in the highest ranked statement in the questionnaire: 'giving reasons to explain ideas' (Table 5.1). Although, justification of an opinion was not highlighted by a majority of students in the interviews, the high ranking of 'giving reasons' in the questionnaire and its embeddedness within the sub-theme of voice (below) meant that it was considered to be an essential sub-theme of making informed judgments and decisions.

### ***Sub-theme c. Argumentation***

It is also suggested here that logical argument is a sub-theme that is embedded within the larger theme of making informed decisions and judgements. Argumentation was highlighted as a feature of CT in academic writing based on the answers to question 1. Question 2 also addresses this sub-theme directly:

*2. Do you think the clarity of an argument is important in expressing a critical viewpoint in academic writing?*

Most students responded very positively towards the connection between argument and critical writing (seven out of nine who answered). The main points that emerged that were relevant to this sub-theme were: an agreement on the importance of clear argument and examples of clear argument in critical writing. Students indicated that having a clear argument, backed up with supporting evidence, should lead to informed judgements and decisions. Examples of statements that highlighted the importance of clear argument include the following from Marie (Performance Psychology), "if there were top three things I would put it

[a clear argument] at number two perhaps. I don't know what number one is, but it's very important."

What this comment seems to stress is the importance of clear argument as a key feature of critical writing in essays, and that students were expected to present good arguments in their writing. Students also believed that the converse was true, namely that if a piece of academic argument was unclear this affected the strength of the academic writing, "sometimes the way someone ... like the way someone express[es] their arguments ... sometimes they do it is such a very, in such [a] difficult wording" (Anika, TESOL).

Connected to argument (as written product), was the highlighting of specific *linguistic features* such as discourse markers and sentence length to give structure and coherence to an argument. For example, Ana (TESOL) talked about the need to have clear signpost words, such as 'first', 'second' and 'third'. A number of students also mentioned sentence length. For instance, Azeera (TESOL) Cynthia and Jane (Management), and Min (Human Resource Management) all mention this. As Min put it, "we should not pay attention to how difficult or how long the sentence we can write, we should deliver our ideas clearly". Jun (Management) also highlighted the difference in the academic writing style in China where "the more complicated the better", and Yichun (Management) mentioned feedback that she had received which highlighted her overly long sentences. Linguistic features, such as the use of discourse markers, sentence length and complexity, can all help strength (or weaken) an argument.

Finally, these findings from the focus groups and interviews seem to corroborate with the general high ratings giving to the argumentation statements in the questionnaire, specifically 'giving reasons to explain ideas' and 'giving examples to illustrate ideas' - the top two ranked statements (Table 5.1). Giving reasons and illustrating are important ways in which a writer might provide support to an argument. The emergent 'Describing and explaining' (DeEx) PCA group from the questionnaire also highlighted key features of argumentation.

#### ***Sub-theme d. Voice***

Voice is connected to the sub-themes of 'making an informed judgement' and 'justification of an opinion' which emerged in answer to question 1. The concept of the writer's voice was also addressed directly in question 3.

*3. Do you think it's important for a writer to express their own opinion? Do you think the individual voice, or position, or opinion of the student/researcher/writer is an important aspect of critical thinking?*

There were two main types of responses. On the one hand, ten students expressed the view that voice was important or was encouraged. Regarding the importance of student voice, Fang (Education) noted that, "Opinion or position: well, you have to. If you don't express your position/opinion your argument won't be explicit enough". Ying also stressed its importance in the context of academic writing:

I think this is [a] very important part since I know that when you are writing ... academic writing you are not only to summarise others work, but ... you need yourself to contribute to some area of the academic [sic], so that's why it's very important to have your own view. (Ying, Education)

On the other hand, seven students were not sure, thought that it depended on the written task, thought that it was not important, or struggled to express their voice. This included two of those who thought voice was important or encouraged, but struggled to give voice to their opinions in academic writing. For example, Anika was unsure, or thought that it may depend on the written task:

I'm not very sure about this. Personally, I'd say yes, but sometimes I get this idea that sometimes you don't actually have to voice out where your position is when you discuss a problem. ... Sometimes you just have to like analyse what's there. (Anika, TESOL)

Other students also agreed that it very much depended on the purpose of the written assignment. For instance, Yumi makes this quite explicit when she said,

If the questions we have to answer is write about our opinions, it is really important to discuss about it, but if it's just [showing] to demonstrate our knowledge, I don't think it's necessary to give our opinions. (Yumi, TESOL)

Mara, on the other hand, did not think voice was necessary in academic writing,

I think your own voice should not necessarily be sort of part of ... the argument, and it's my understanding is that it is more important to sort of build the argument by drawing on different literatures. (Mara, Education)

However, Mara (as the quote above seems to imply) appeared to conceptualise voice in a very explicit sense. She seemed to acknowledge that the writer's argument is important and the writer does choose the literature to support an

argument. This seems to imply that the very process of selecting literature by the writer is an implicit aspect of voice.

Some students also highlighted linguistic features that could affect voice, such as the use of hedging and register. Ana (TESOL) talked about the need to use hedging words like 'perhaps' and 'probably', while Alex (TESOL) stressed how important the choice of vocabulary was in affecting the register of the writing.

At the same time, voice was the one construct of CT in academic writing that was the most ambiguous of all those talked about in the student interviews. There was differing opinion as to its importance and a sense that it very much depended on the purpose of the writing task. Asking a direct question relating to voice in the interviews maybe also allowed for comparison with the responses to the voice-related constructs in the questionnaire. Although the ranking of 'Voice' was relatively low in the questionnaire, it was considered to be a reliable construct based on the Cronbach Alpha scores and the PCA. Students were not asked to elaborate on their concept of voice in the questionnaire; and while the questionnaire was conducted in the middle of the first semester, the interviews were conducted towards the end of the masters. It is possible that some students had had more opportunity to understand the importance of voice by the end of the masters.

It is suggested here that argument in a written task is directly related to student voice and position (Wingate, 2012), and both are embedded in this third theme. Making informed judgements and decisions is one goal of CT (Ennis, 2015; Lipman, 2003; Moore, 2013), and academic writing (Bowell & Kemp, 2002; Kaufer & Geisler, 1991). Students highlighted 'making informed judgements' when asked about CT in general and with respect to the argumentation aspect of CT. If voice is considered to be connected to making informed decisions, then voice could be considered to be a core feature of CT in academic writing.

Despite some ambiguity about this in the interviews, the majority of students thought that their voice was encouraged and that it was not so much conceptualised as mere opinion, but rather as *informed* opinion. As Alex highlighted,

Ultimately you could argue that everything is an opinion, but if it's completely ... baseless then ... it just stays opinion, ...but if you do support it that's informed, then I think it forms the basis for more or less solid argument, depending on how good of a case you make. (Alex, TESOL)

### ***Sub-section summary***

Making informed judgments and decisions was considered to be the third major theme by students. Although it was not a particularly strong theme in answer to the open question on how they thought a student could demonstrate CT in their academic writing, it does emerge in different areas of the interview: specifically in the questions around argument and voice. Moreover, the highest ranked statement from the questionnaire ('giving reasons to explain ideas') relates to specific aspects of an argument in academic writing involving a justification of ideas.

#### **5.3.5 Minor theme: Critical engagement with methodology**

In addition to the major themes above, one 'minor' theme was also identified. This is distinguished from the major themes in the quantity of responses and in how they related to academic writing. The minor theme was labelled as 'Engaging critically with methodological approaches'.

#### ***Engaging critically with methodological approaches***

This minor theme involved being aware of methodological limitations. Four students mentioned this in answer to question 1. For example, David talked about this when he answered that question:

Looking at the methods; how rigorous the methods were? How well they've been triangulated? And, yeah, I guess looking at it from if you were to do the same research. Would ... you believe that you would find the same results they did? Would you use the same methods they did? Would you use different ones? (David, TESOL)

Marco (Strength and Conditioning) also highlighted the importance of being critical towards research methods in answer to the same question. Marco had developed a sceptical attitude towards what was written in research articles in his subject area. This was based on how similar research methods used to solve a problem often yielded different or unclear results, but that journals were more keen on publishing results that confirmed previous research rather than highlighting a lack of a consensus in research findings. Knowing about the details of research methods had given him a greater critical insight into the nature of actual research.

Students also talked about the importance of reflecting critically on the methods they were using during their dissertations. Fang (Education) highlighted how her view had changed when she said, “In the past I think I can’t and now I know I can be critical about methods, even during the research process I can be critical about my own method”. Mara also had a similar view:

I think it is always important to consider your limitations, so it is always necessary to see what you can actually say by applying a certain methodology, a method. And it is also always important to consider if there is [sic] other methods that might be more appropriate, so I think in terms of critical thinking when it comes to methodology. (Mara, Education)

However, Fang’s and Mara’s comments above were very specifically related to critical writing in a master’s dissertation. Being critically aware of the methodological limitations is appropriate to specific genres of academic writing, such as in dissertation writing and critical reviews of research articles (Swales, 1990). In conclusion, one minor theme was identified that was related to CT in academic writing. This related to having a critical perspective on the methodology of research, both in relation to academic articles, and in the dissertations that students had written.

### **5.3.6 Trans-themes**

There were two other themes that seemed to cut across the three major themes identified above. These have been labelled as: *Reflection on knowledge and written practice*, and *problem-solving skills*. They are important parts of the process of academic writing. Whereas the three major themes were based in part on open questions, the trans-themes were mainly based on specific questions.

The trans-themes are based on questions 4 – 6 from the interviews which asked about the importance of reflection, problem solving and creativity in relation to CT in academic writing. As students were not very sure of the role of creativity, it has not been included as a theme, but I will report on what they said about it. An analysis of the responses to these questions is summarised below. Reflection and problem solving were also addressed in the questionnaire. The results from these are also compared with those in the interviews.

### ***Reflection as a thought and action process***

*4. How important do you think being reflective in your thinking and writing is indication of your critical thinking?*

Out of the ten students who responded to the question above in the individual interviews, eight thought that being reflective was either very important or quite important. One stated that he was not sure, while one did not think it was important. The one who was 'not sure' was less sure about what it meant to be reflective, rather than how important it was, as he stated, "Professors tell you to be ... reflective in your thinking. I'm still not entirely sure I know exactly what they mean by that" (David, TESOL).

An example of a comment that elaborated on the importance of being reflective is that by Anika (TESOL) who stated, "I think it's very important. ... Practice makes perfect, but then I don't believe in that. I think now what's the case is practice plus reflection makes perfect". The importance of reflecting on reading as an integrated part of writing was also highlighted. Yumi (TESOL) stressed the importance of this when she said, "I think it's quite important for a writer [to] reflect[ion] before you actually start writing an assignment".

In terms of the relationship between reflection and writing, it was perceived in three main ways. First, it was used to help students improve written performance, in the sense of feeding forward. For example Marco noted that:

I think that the reason why my marks get better ... is because I've been really able to use ... the feedback ... that I was receiving by [sic] my lecturers, and ... from my other[s] course mates. Yeah they were ... so useful to me. (Marco, Strength and Conditioning)

Secondly, reflection was also related to academic writing, both as a genre of academic writing (i.e. reflective writing), and as part of the process of writing. Finally, there were other types of non-written reflection that included reflecting on reading, reflecting on personal and teaching practice and experience, and reflection on personal development, as well as reflection as a separate genre of personal reflective (journal) writing.

There were issues with the reliability ( $\alpha$  value) of the pre-conceived construct group of 'Reflection' in the questionnaire, possibly as there were only three clear statements relating to it. Despite this, it did emerge as one of the PCA groups. If

more statements that explicitly used the terms 'reflection' had been used in the questionnaire, it could have produced more conclusive results.

Overall, reflection was a topic that students were interested in talking about in the interviews, and students did foreground it. It seemed to be embedded throughout the process and practice of CT in academic writing, from beginning (reflecting on reading) to the end (the making of decisions) and beyond the end of one written task and into another (through feedback) and by implication feeding forward. In this sense, it was a theme that both cut across and was embedded in each of the three other major themes above (i.e. a 'trans-theme').

### ***Problem solving***

*5. Do you think that developing and showing problem solving abilities is an indication of high-level critical thinking?*

The second trans-theme involved analysing the responses to the question of problem solving and its relationship to CT in academic writing. There was also a sense that problem solving was in part connected to creativity (Lipman, 2003; Lau, 2011; 2015). First, the question of the relationship between problem solving and CT is addressed. This is followed by an examination of the relationship between creativity and problem solving.

Students were asked the question above in relation to problem solving and CT. Eight out of ten students who responded to this question thought that problem solving was connected to CT, while only two were either not sure or thought it depended on the written task (i.e. some tasks required problem solving skills while others did not). Even the student who thought that there was not a direct link between problem solving skills and CT (Fang, Education) stated that problem solving and CT were not entirely different. The other student who was 'unsure' (Mara, Education) focused more on whether she - as a master's student - was in a position to suggest solutions to government policy. She was therefore unsure whether she was in a position to present 'solutions' in her writing.

For the majority of those who thought that problem solving and CT were connected, three sub-themes emerged: problem solving and the CT process, problem solving and academic writing, and problem solving and methodology. In relation to problem solving and its link to CT, David said:

[T]he point of having a critical mind is to be a problem solver. ... Not mutually exclusive, but ... the further you get into academia I think the more you should be trying to solve problems, or clarify things. ... I would link that problem solving ability to progressing as a critical thinker. (David, TESOL)

There were also comments that I have highlighted as a second sub-theme that related problem solving to academic writing tasks. These can broadly be divided into those embedded in a writing genre, such as an essay or report, and those that focused on one part of a genre, such as the practical recommendations or implications sections. For example, Marie (Performance Psychology) noted, "I would say that every essay is like a problem to solve ... Even in ... one exam on research methods, even that's [a] problem-solving task."

The third sub-theme focused on problems and solutions students had encountered while engaged in the methodological aspects of their essays or dissertation fieldwork, or the methodology of research literature. For instance, Min (Human Resource Management) answered this when describing her research process, "You mean the problem-solving skills ... I have to admit that I encountered a lot of problems when [I] doing the statistics". Others talked about the challenges they faced when dealing with methodology.

What some students highlighted was that the connection between problem solving and CT in academic writing was very much part of the process of writing at a master's level. As Mara (Education) suggested, "I think [problem solving] came across pretty much at every stage at some point", and Anika (TESOL) stressed that, "demonstrating critical thinking ... means that you develop some kind of action plan at the end. And whether you do it or not is another matter, but then you come with a way to solve a problem".

Finally, Marie seemed to connect a certain conceptualisation of problem solving with CT. For her it was less about a solution to a problem, but more about providing various possible solutions, when she said:

I think problem solving, especially in research, it's not about fixing something; it's not about finding a set solution. It's very much about just looking at another way or another definition or another perspective. (Marie, Performance Psychology)

Students had a lot to say about problem solving in its various guises. This ranged from how it related to CT as a process in the more abstract sense; how it related to writing in a more concrete sense in terms of its embeddedness in certain genres and sub-genres of academic writing; how it related to the methodological aspects of research in terms of engaging in how research tries to overcome problems, and in a more practical sense in overcoming practical problems in their own dissertation research. Overall, although problem solving is not something that students initially talked about in connection with CT, they seemed to have thought that it was very much connected with CT at different stages of the writing process when prompted.

In the questionnaire, problem solving was also considered to be a reliable pre-conceived construct group based on the  $\alpha$  score from the questionnaire. However, two 'problem solving' statements appeared in the Comparing and evaluating concepts PCA construct (Table 5.4). As noted above, these have been counted as part of an 'evaluation' construct. This may be partly the result of statements that incorporated two features (evaluation and problem solving).

### ***Creativity***

#### *6. Do you think being creative is linked to critical thinking?*

Creativity is a concept that is more prominent in some CT literature (e.g. Davies, 2015; Lau, 2011; Lipman, 2003; Moon, 2008), and the 'Create' cognitive skill has a prominent place in Anderson et al.'s (2014) taxonomy. Students were asked the question above in relation to this. Two main themes emerged: a scepticism or uncertainty about the connection between creativity and CT, and more positive connections between creativity and CT.

In answering the question, most students in the interviews were quite unsure, or stated that it very much depended on various factors. For example, Melissa stated that, "I think creativity *might* be linked to critical thinking because you need to express your own opinion and opinion of others" [Emphasis added]. Some students focused on the differences between creativity, academic writing and CT. At the same time, a creative style of writing was seen to be at odds with standard academic writing.

Despite this general uncertainty about the relationship between creativity and CT, some students in the focus groups seemed to be more positive about the link. For example, Qiang (Education) expressed his view on the subject when he said, “I think creative thinking and critical thinking; they have some relationship. Creative thinking you can stimulate your critical thinking. It’s a kind of spur”.

Another sub-theme linked creativity with writing in two ways. First it was important in how you organised your written argument. Secondly, it was linked to the process of academic writing. Azeera highlighted the connection between creativity and CT in this process of ideas (re)construction when she said:

It should be connected because in creativity and critical thinking requires some looking from different perspectives ... coming up with some different ideas, so they should be connected. (Azeera, TESOL)

I argue here that creativity may be perceived as an important part of a writing (re)construction process. In Azeera’s quote she suggests that creativity could be applied in how you incorporate or accommodate different ideas together in a new or creative way that leads to the “coming up with some different idea”. At the same time, creativity was probably the most ambiguous of all the features that students were questioned on, both in terms of its link to CT and to academic writing. However, students perceived that there were connections with the process of critical (and creative) reflection and problem solving in academic writing.

#### **5.4 Chapter conclusion**

In conclusion, when comparing and synthesising how students conceptualised CT in academic writing using both quantitative and qualitative approaches, three major themes emerge. These all appear to involve different cognitive and practical processes. These were:

1. Reading critically: Critical engagement in reading as a pre-requisite to critical writing.
2. (Re)construction of understanding through comparing and evaluating different viewpoints and concepts.
3. Writing critically: Expressing voice through making judgements and decisions based on reasoned argument.

In addition to these major themes, there was a sense that reflection and problem solving were embedded in the process of critical academic writing at different phases. These were categorised as trans-themes because they appeared to cut across and were embedded in the other themes.

The nature of the questionnaire was one that mainly attempted to *confirm* to what extent certain pre-conceived features of academic writing were deemed to be important. The reading features of critical writing were not explicitly mentioned in the questionnaire nor in the main questions in the interviews. However, it did seem to *emerge* as an important aspect of critical academic writing among master's students in the interviews. This is to some extent surprising in that the focus was on writing. At the same time, it suggests that the quality of academic writing is interwoven with the quality of the reading (Wallace & Wray, 2016). The third theme appears to stress the importance of argumentation and voice (or position) in academic writing (Wingate, 2012). While the first and third major themes focused on reading and writing critically respectively, the second major theme appeared to represent an 'in-between thinking' phase where students reflected on what they had read and how that reading could be used in their writing, specifically how it could be used to inform their opinion and support their argument. I would also suggest that the three main themes can be conceptualised as different phases focusing on *reading* critically, *thinking* critically and *writing* critically.

Finally, the trans-theme of critical reflection, as a key feature of CT (Ennis, 2015), was also connected to problem-solving processes involved in generic academic writing, and problem-solving goals in specific genres of academic writing. The trans-themes are not viewed as processes that occur necessarily at one phase in the process of academic writing, but occur throughout. At the same time, specific trans-themes may be more prominent at specific phases. The second (re)construction phase where students are comparing and evaluating literature and organising the different viewpoints into a written plan may be such a phase where the trans-themes of problem solving and reflection may be more prominent.



## 6. Findings and analysis for Research Question 2

*Research Question 2 (RQ2):*

*How do students and tutors in different departments compare in their conceptualisation of critical thinking as embedded in academic writing at a postgraduate master's level?*

### 6.1 Chapter introduction

This chapter analyses and presents the responses of tutors in the Business School, School of Education and the Sports Institute on how they conceptualised CT in academic writing at a PGT master's level. It follows a similar structure to the qualitative analysis in the previous chapter, except that tutors were not asked specifically about the argumentation aspect of critical writing as this aspect was mentioned in their answers to the first question. They were therefore interviewed on the following areas [benchmarked to the Research Framework, Table 3.2]:

1. Their overall understanding of CT in academic writing. (Exploratory)
2. The importance of voice in academic writing and its relationship to CT. [A2]
3. The importance of reflective thinking in academic writing and its relationship to CT. [B5]
4. The importance of problem solving in academic writing and its relationship to CT. [B6]
5. The importance of creativity and CT. [B4]
6. Other skills or aptitudes that they thought were required to write critically. [B1-B3]
7. Developing CT before beginning a masters. [C1-C3]

In section 6.2 a summary of the results from the interviews with the 14 tutors is presented in answer to question 1 and 2 and to a lesser extent question 5 and 6. These are divided up into major themes and sub-themes, and one minor theme. In section 6.3 these results are then compared with those of the students. Section 6.4 then analyses the trans-themes in answer to questions 3 – 5 above, followed by a comparison with the students.

## 6.2 General definitions of CT in academic writing

Tutors were asked to summarise their conceptualisation of CT and how that was evident in academic writing in their subject in answer to the following question:

*1. How do you think students can demonstrate good critical thinking in their academic writing in your discipline?*

Three major themes were identified, with seven sub-themes. Table 6.1 outlines these major themes and sub-themes below.

Table 6.1

*Major themes and sub-themes: tutors*

<i>Major themes</i>	<i>1. Engaging in critical reading (and writing)</i>	<i>2. Engaging and connecting research with theory and practice</i>	<i>3. Presenting a supported argument</i>
<i>Sub-themes</i>	a. Critical disposition towards literature b. Evaluation and comparison of different claims	a. Engaging critically with research methodology b. Linking theory, evidence and practice	a. Clarity of written argument b. Evidence used to support an argument c. Voice and position

### 6.2.1 Theme 1: Engaging in critical reading (and writing)

Six tutors highlighted the importance of engaging critically in reading in answer to question 1 above. There were two different sub-themes relating to engaging critically with literature. The first appears to be a dispositional approach to literature involving not taking the literature at face value, and the second involved more of an evaluation and comparison of different claims.

#### ***Sub-theme a. Critical disposition towards literature***

Four tutors thought that it was important for students to show that they had 'engaged' with literature. As Dag (MBA) stated, "It's engaging with the literature ...

It's making sure that it's not just taking information as given, or as granted, but questioning that information and going through, and ... not taking things for granted". Frank (Research Methods in Business) also thought it was important to engage critically in literature, and Gillian also highlighted the importance of questioning literature and problematizing what was read:

[When] I'm reading assignments I'm always looking for a balanced account. So one which questions, which problematizes, which seeks limitations to work, and ones ... which don't just take what has been written, but analyses it. (Gillian, TESOL)

Karla (Outdoor Education) also seemed to highlight what appears to be a dispositional approach to criticality when she said, "Critical thinking does not mean that we tear everything apart and find everything negative. It just means that we ... question it, and not blindly accept things as truth". The first sub-theme seems to be quite dispositional in that it relates to having a questioning attitude towards academic literature. When they were asked to indicate what they thought were the most influential contributors to being critical before beginning a masters in question 7, the tutors indicated a direct and positive link between individual personality and a critical orientation. Eight tutors said that they thought there was a positive relationship between the personality of the student and their propensity to be critical, as Frank (Research Methods in Business) said, "some people just tend to be more critical".

### ***Sub-theme b. Evaluation and comparison of different claims***

Aside from the dispositional approach to literature, tutors also indicated more active and specific approaches. John provided a more standard definition of CT based on evaluating claims presented in literature:

Interrogating ... claims that are made by particular researchers. Say okay, this is what they say. Can I accept this claim? ... Is there evidence contrary to this claim? What do other researchers say? Let's weigh this claim up against that claim and come to a conclusion. So, that's a fairly standard way - I suppose - of understanding critical thinking. (John, Philosophy of Education)

Sometimes tutors can struggle to teach students how important CT is. For example, Barbara, highlighted this:

I spend most of the master's year with them wrestling with them to not describe, not feed back [*sic*] lectures, not expect to have it there, but to read, to think, to evaluate different alternatives. (Barbara, Marketing)

Barbara's struggle to teach students to move from description to evaluation during their masters seemed to be similar to Erika (Human Resource Management) who expected students to demonstrate the ability to, "go beyond simple description of facts", and to 'engage with literature'. Gillian also seems to present a practical application of engagement with literature into academic writing when she said:

When they're reading a piece of work how do they engage with that in a critical way? ... I see it ...in them providing a balanced account ...in terms of them looking for problems that are ... wrong with the research. ... I'm looking for ... the flaws that come with a piece of work, or ... the limitations of a study ... and how ... the student takes that and brings it into their writing. (Gillian, TESOL)

The idea of engagement with literature was not always clear. For some it appeared to be dispositional in how a student should approach academic literature with a questioning attitude before and during its reading (e.g. Dag and Karla above). For others (e.g. Barbara, Erika, Gillian and John), it appeared to be more active and directly related to how they critically wrote about that literature.

Overall, in order to *engage* with academic literature in a critical way, tutors thought that students needed to question and problematize what they read, go beyond describing what they had read, and evaluate the claims and the evidence presented by different research.

## **6.2.2 Theme 2: Connecting research with theory and practice**

The second major theme that emerged from the interviews with the tutors was engaging and connecting research with theory and practice. This was based on the answers to question 1. It had two main strands to it. The first involved a critical engagement with research methodologies. Connected to this was how research findings linked to particular theories and practices within a discipline. Eight tutors stressed the importance of these

### ***Sub-theme a. Engaging critically with research methodology***

The first and larger sub-theme was on critically engaging with different aspects of the methodologies involved in research. This included the expectation that students should be aware of the strengths and limitations of specific methodological practices, whether they be quantitative, or qualitative. On the

quantitative front, it could be about challenging assumptions relating to specific methods:

I'm trying to encourage them to think and challenge the assumption because one probably classic example is [the] Likert scale. ... So, it's an ordinal type of scale, but there is a disagreement between statisticians and for example people from marketing who use these scales a lot in terms of how these numbers can be treated and analysed. (Calina, Marketing and Business Analysis)

Students at a PGT level were expected to critically evaluate the methods that provide the evidence that backed up the claims of specific research. Erika (Human Resource Management) further emphasised this when she highlighted the importance of reflecting on different types of evidence (such as statistical data produced by companies) and engaging with that data by critically evaluating it or using it to support or refute a particular perspective. Frank (Research Methods in Business) stressed that students had to display "critical engagement in the research proposal" for their dissertations. He also felt that students who had ended up conducting mixed methods research tended to be more critical because they had had to approach their research from different perspectives, rather than being embedded in one research tradition (i.e. quantitative or qualitative). Matt (Performance Psychology) stressed that he liked to encourage students to, "interrogate and demonstrate their awareness of the quality of the evidence" that they read in the academic literature and that they used in their writing.

In summary, tutors expected students to critically engage in the research methodologies used in research literature, in how they read that literature and in how they wrote about that literature. Tutors also gave examples of how students could evaluate the evidence by critically engaging in the methodological approaches of specific research. In many ways, I think this provides one of the unique insights of my research, critically engaging with the research methods.

### ***Sub-theme b. Linking theory, evidence and practice***

Connected to the importance of critically engaging with the methodological approaches of research literature and the evidence that this provided, was the need to link research evidence to wider theoretical and conceptual debates and to practical applications within a discipline. For example, the evaluation of a theory with respect to evidence was emphasised by Len:

They need to show ... both empirical and theoretical element[s] together. So, for example, they need to show ... evidence from scientist[s] and then they need to interpret those [sic] evidence with reference to the theory... The most critical one must be they do not simply apply the theory only, but they also evaluate ... the validity of the theory as well. So, that is my understanding of good critical writing. (Len, SPMID)

According to Len, students at the PGT level were expected to evaluate the linkages between theory and evidence. In addition to this, the importance of the practical implications of theory and research was highlighted. This perspective was more prominent among those in the School of Education:

So, if they're writing a ... descriptive account of a theoretical domain then one wants to see them engaging with questions about what might be the implications for practice, or the implications for my practice ... .(Iain, Digital Education)

Iain stressed the importance of connecting the theoretical and practical elements of teaching . Moreover, according to Harry a distinguishing feature of a high-level piece of writing in his discipline was the ability to link theory with practice:

The ones who get A's are the ones who particularly [are] able ... to not only demonstrate good practice in their proposals or plans, but also people who are able to articulate how this practice derives from theory, and vice versa. (Harry, TESOL)

To summarise, the second major theme highlighted by the tutors involved an expectation that students should be engaging critically with research methodology they encounter in literature. They expected students to read and write critically through engaging in the methods researchers had used to gather evidence for their findings. Students were also expected to make critical connections between the evidence of the research literature and the theoretical and practical aspects of their discipline.

### **6.2.3 Theme 3: Presenting a supported written argument**

The final major theme focused on academic writing. It involved the presentation of a clear argument supported with evidence, and the importance of student voice. I identified three specific sub-themes: the clarity of a written argument; the evidence used to support an argument, and voice and position. Unlike the student interviews, tutors were not prompted to comment on the importance of argumentation and its connection to CT in academic writing. Rather, the written

argumentation theme was evident in the interviews with seven of the tutors. Often this was in response to a follow-up question about what distinguished a good and very good piece of writing. Sometimes tutors would comment on the importance of voice or opinion when talking about argumentation. There was a sense, therefore, that argumentation and voice were often interconnected. Some tutors, however, needed to be prompted to comment on how important they thought voice was in academic writing.

### ***Sub-theme a. Clarity of written argument***

The clarity of argument was a key aspect emphasised by five tutors explicitly. Tutors expected students to be able to write arguments based on the clear organisation of content with a sound logic and flow. For example, Yang noted that:

...if students can demonstrate that they have presented a good argument, including a chain of small arguments, and that all these arguments are kind of linked to a main theme, and then offering different kind of ... evidence, then that usually indicates that they have done really good critical thinking. (Yang, Management)

When asked to distinguish between distinction level students and less high achieving students, Frank (Research Methods in Business) noted that “coherence and development of the argument” was crucial, and Barbara (Marketing), Dag (MBA) and John (Philosophy of Education) expected students to come up with and develop a strong argument in their written work. The clarity and the strength of a written argument was considered to be a crucial distinction in student writing between good and very good essays.

### ***Sub-theme b. Evidence used to support an argument***

However, presenting a clear argument did also involve the use of appropriate evidence to support the argument. The weighing up of different evidence to evaluate a claim, and the use of evidence to back up or provide a rebuttal to other claims was a key aspect of written argumentation:

So, I think one of the things I quite like students to do, and encourage them to do is to use the evidence that's available in the literature not just to support what they're saying but also to interrogate and demonstrate their awareness of the quality of the evidence. (Matt, Performance Psychology)

Erika (Human Resource Management) also emphasised the need to use different types of evidence to support an argument, “Can you for instance back up your opinion with some numbers?” Using evidence to support arguments was therefore considered to be important. This would lead to an ‘informed judgement’ or decision. For example, John (Philosophy of Education) emphasised the importance of providing an informed judgement on a topic, “I think often it’s about ... thinking critically ... in terms of ... coming to some sort of informed judgement on the basis of weighing up evidence”.

### ***Sub-theme c. Voice***

Connected to the idea of an informed judgement or decision was the idea of voice and position. Voice and position links the way that an informed opinion is connected to arguments and evidence (Wingate, 2012). From my analysis of the interview transcripts, voice and position could be broken down into two types: voice and position embedded ‘in the text’, and voice and position ‘in context’. Voice in the text is connected directly to how students present an argument in writing and how appropriate evidence is utilised to back up an argument or opinion in a written assignment. The tutors who talked about voice in this sense were positive when asked about how important the concept of voice was in relation to CT in academic writing (question 2). Specifically they were asked:

#### *2. How important is the ‘voice’ of the student in their writing?*

Ten tutors were explicit about its importance. Eight out of these ten, however, made a clear difference between students stating their opinion and those opinions being supported or linked to evidence and theory, as Barbara said:

I think it’s important ...I don’t mean criticise and have a go at... It’s more about look at the arguments and then come up with conclusions around those arguments. So, you can be very strong in the opinion, as long as it’s backed up with facts or opinions of others. (Barbara, Marketing)

Included in this group were tutors who made a direct and explicit link between writing critically and student voice. These tutors also tended to be from the School of Education:

That's where the criticality is. So that's where the critical aspect comes in, because you need to hear the voice. If you're critical then you're putting your mark on it. ... The voice is coming through. You're saying this is actually my study. (Gillian, TESOL)

I would say for me anyway, when it comes to criticality, the whole point of it ... like as Kant put it, 'to think for oneself', ... To me a really uncritical piece of work would be where the student actually isn't making it very clear that they are trying to articulate their view on matters. So, to me student voice is extremely important. (John, Philosophy of Education)

The second but smaller group (of four tutors) seemed to imply that the use of voice was more contextual. Context refers to how the voice of the student may change depending on the academic genre and task (Swales, 1990). It may be a written task, or it may be a non-written academic task (e.g. a discussion or debate in a seminar). Tutors in the Sports Institute were less emphatic about encouraging voice among students and tended to think it very much depended on the context:

Well, it depends on the ... sort of paradigms that they're based ... and I think probably all of my colleagues we work across different paradigms, and you try and get the student to understand the paradigm that they're working in, and then try to utilise ... the sort of thinking and the techniques that are appropriate for the paradigm. (Matt, Performance Psychology)

As two of the tutors in the Sports Institute perceived themselves as coming from a 'harder' scientific background with methodological paradigms where the expectation of voice was less obvious, they seemed to be less comfortable in the explicit use of voice in academic writing in their disciplines.

A second pair of tutors who had come from non-UK educational backgrounds (Chinese and German) connected voice to their own personal identities as academics. They had had to adapt to a British style of academic writing where voice was more explicit than the academic writing that they had learned in their earlier learning context. As Karla put it:

I come from a... cultural background where we try to write in [the] third person and you take yourself out and you try to be as neutral as possible, ... and here it's more like no. We want to hear your voice, we want to hear your story and your journey, and that's much more encouraged, and I had to change my perspective on that. (Karla, Outdoor Education)

Overall, three major themes were identified in answer to the question of how tutors conceptualised the relationship between CT in academic writing. The first involved students engaging critically in reading; the second involved engaging

critically with research methods, and connecting research with theory and practice, and the third involved presenting a written argument supported by evidence. Voice and position were considered to be an adjunct to argument and were generally encouraged, but still could vary depending on the disciplinary or methodological context.

#### **6.2.4 Minor theme: Socialisation into an academic community**

There was also what I have termed a minor theme that emerged from the interviews with the tutors. This has been labelled as 'socialisation into the academic discourse community of practice' based on Swales (1990) notion of discourse community and Lave and Wenger's (1991) community of practice. This theme was more subtle than the major themes. It is 'minor' in that it is not explicit, but rather appears to be an underlying aspect of many different statements. From analysis of the interview transcriptions, there were three main aspects which appear to relate to how students became socialised in the academy in terms of what they need to learn to become more 'expert' in their subject and in terms of their position in the academy.

The first one related to how prepared students were to write critically at a master's level and how that preparedness was influenced by their previous educational background. Neil highlighted this when he noted that:

I think the ability to think and write critically is extremely wide and varied depending on where students have studied and the types of degree programme they've done. I think it's a challenge at master's level to pitch teaching at a level that helps develop those who maybe are starting ... at a lower level, and yet challenge those who are sort of already thinking that way. (Neil, Strength and Conditioning)

Neil went on to contrast the different backgrounds of students who had studied undergraduate sport and exercise science programmes from the UK, North America and Asia. He stated, for instance, that North America students in this subject area were "completely oblivious to the idea of critical thinking and evidence-based practice and forming opinions", and that for Chinese students "cultural difference" meant that they were unlikely to challenge published work.

The second aspect related to how specific linguistic features would add to the academic quality of a piece of writing, such as the need to include hedging and avoid being over-descriptive. Karla highlighted the importance of using hedged language in essays, and how she had to advise students to use these more. There was also a sense that she had had to learn how to write in a form of British academic writing, which was less direct compared to her first language of German, in order to become more socialised into a British academic discourse community.

The third and final aspect related to how students could become more confident in expressing a critical voice in the academy in order to prepare them to write journal articles. Matt highlighted this when he said:

I think the confidence to think that ... it's an entitlement for you to be able to comment critically on somebody else's work is one of the key barriers to getting them to [be critical in their writing]. (Matt, Performance Psychology)

Both Matt and Neil were keen to encourage more capable students to write and publish journal articles based on their master's dissertations. Moreover, the format of the dissertations in the Sports Institute were designed to be compatible with journal article publications.

The idea of students becoming socialised into an academic discourse community, by exposure to the academic writing practices of that community, was a minor theme highlighted by some tutors. Learning to be critical in academic writing included learning the linguistic practices as well as developing the confidence to engage critically with research literature in order to be part of that community in future. Finally, tutors thought that the influence of educational background could also have an effect on how quickly students were able to adapt to the critical writing practices of this discourse community.

### **6.3 Comparing and contrasting the major themes by tutors and students**

This section *compares* and *contrasts* the different major themes, sub-themes and minor themes highlighted by students and tutors. It is divided into three sections. The first two sections compare the similar themes (6.3.1) and those where students and tutors differed (6.3.2), and the third section highlights themes where there was some ambiguity in what students and tutors were saying (6.3.3).

### 6.3.1 Similarities

It must be highlighted at this point that all these themes do not necessarily represent all, or even the majority opinion of the 14 tutors and 21 students involved in this part of the research. In light of this, however, it is suggested that there was one major theme identified by some tutors and students that appeared to be shared; this was *Engaging critically with reading*. There was also a second theme, which was also very similar, and focused on critical writing. This has been relabelled *Presenting a reasoned and informed argument*. Engaging and connecting research with theory and practice was a major theme for tutors, while students highlighted the importance of considering different viewpoints (a sub-theme among tutors). Despite the differences in the second theme, there are commonalities which are addressed later in the Discussion chapter.

Table 6.2 summarises the combined views of tutors and students. Two main types of themes are outlined. The first are those that appear to resonate with previous research, that are labelled the ‘confirmation themes’. The second are those that appear to emerge in a more significant manner than in previous research. These are the ‘emergent themes’.

Table 6.2

*Similar major, minor and sub-themes among tutors and students*

<i>Similar themes</i>	<i>Students</i>	<i>Tutors</i>	<i>Em/Con</i>
1. Engaging critically with reading	Ma	Ma	Em/Con
2. a) Argumentation in writing	Sub	Ma	Con
b) Voice in writing	Sub/w	Sub/s	Con
3. Critical towards research methods	Mi	Ma	Em

*Note:* Ma=major theme; Mi=minor theme; Sub = sub-theme; Con = Confirmation theme; Em = emergent theme; w=weak; s=strong.

#### ***Engaging critically with reading***

For students, engaging critically with reading involved the acquisition of knowledge through reading widely in a subject, and developing the ability and strategies to engage critically with literature (Table 5.8). It is suggested here that there are connections to these sub-themes and the three different approaches to

learning put forward by Marton et al. (1997) involving surface, deep and strategic approaches to learning in tertiary education.

For tutors, reading critically involved a dispositional aspect and a comparative and evaluative aspect, where students are expected to interrogate the different arguments found in academic literature (Table 6.1). This ability to evaluate arguments was connected to the writing skill of presenting arguments, the second shared theme.

### ***Presenting critical written arguments***

It is actually at the writing phase of the integrated process of critical reading and writing where argumentation appears to be most significant. There appears to be a shift, in my view, from an awareness and critical engagement in the argument of others to one where the student (writer) is expected to present their own argument. For some students, this tended to involve a focus on the 'justification of views or opinions' which was a sub-theme of the student major theme, 'making informed judgements'. This is both evident from some of the focus groups and interviews, and from the questionnaire where 'giving reasons to explain ideas' was the highest ranked. In comparison to this, for the tutors it was less about justifying claims with reasons and more about using evidence to support arguments and claims. Both 'reasons' and 'evidence' fall into the category of 'support' for an 'argument'.

Although the argumentation aspects of critical writing were placed under the 'similarities' sub-heading in Table 6.2, there were nuanced differences in how this theme was elicited during the interviews. Whereas with the tutors it was a major theme that emerged from open questions, with the students the importance of written argument was in response to more specific prompts. With tutors, it was more of a major emergent theme, but with students it was more of a confirmation sub-theme.

Two tutors (Yang and Karla) and a number of students (Ana, Alex, Azeera, Yichun, Jun and Min) also mentioned how specific linguistic features were related to argumentation and voice, and CT. This included the need to hedge claims, through the use of more tentative and less emphatic language, and the use of the pronoun 'I'. Students did actually mention these more often than tutors.

### **6.3.2 Differences**

It is on the 'second' major theme that students and tutors appeared to differ most. On the one hand, tutors highlighted the importance of interrogating research literature, and the methods used to inform that literature, and connecting the evidence from that literature to wider theory and practice. Students, on the other hand, stressed the importance of comparing and evaluating different literature. The students tended to stress a comparison of different viewpoints, perspectives and literature, whereas the tutors focused more on the relationships between research evidence, theory and practice. However, a very similar sub-theme to the students second major theme of 'evaluation and comparison of different claims' was identified under the tutors major theme of 'engaging with critical reading (and writing)'.

It is the additional stress on engaging critically with research methods within specific disciplines, emphasised by tutors, that is marked as a difference between the tutors' conceptualisation of CT in academic writing and those of students. Although being critical on methodological issues was identified as a minor theme among a few students, with the tutors it was a major theme.

Another feature that was different between tutors and students involved a socialisation into the academic discourse community. This was highlighted as a minor theme from analysis of the tutors' transcriptions. This ranged from comments on linguistic features of academic writing, developing confidence in being able to critically evaluate other research, to encourage students to develop the ability to write research articles in the near future.

The tutors had a greater overview of all the students who they had taught, and some even mentioned that they looked out for potential PhD students. The students in this research, on the other hand, were less aware of the process of socialisation into the academic discourse community that they had experienced. At the same time, there were indications that they had developed a lot in their knowledge of the disciplines they were studying. The increase in knowledge acquisition is discussed further in chapter 7.

### **6.3.3 Ambiguities**

Voice was also a sub-theme of argumentation, but it was stronger among tutors than students. The two part division of voice into a focus-on-text and a focus-

on-context was evident among student comments as well as among tutors. This was especially the case among students where English was their L2 and where the linguistic, or textual, aspects of voice were highlighted. For example, the need to hedge language and discussions over whether to use the personal pronoun 'I' was discussed in two of the education focus groups.

Some students were confused about using voice in their course of study at this university. They felt that they had been encouraged in previous courses in their home country, but that it was not necessarily encouraged in their masters here: "Every time I expressed my opinion I never really had a good feedback" (Melissa, Performance Psychology).

Despite some contrary opinions, some students and most tutors thought that voice was important and was connected to clear argumentation. The previous quotes by the tutor Gillian (TESOL) above also suggested that sometimes students had difficulty in expressing their voice. This may have been related to educational background and/or individual personality. Although some students were quite clear about voice, there was also evidence of a greater level of ambiguity towards voice among students than among tutors. The earlier quotes by Anika, (TESOL) and Mara (Education) seemed to highlight this ambiguity. This relative ambiguity and scepticism towards voice was also illustrated in the low ranking given to the Voice and stance (VoSt) construct in the questionnaire. On the other hand, students may have developed greater confidence to express their voice in their writing as they progressed in their masters, and this may have led to a more positive attitude towards this notion later on when the interviews were conducted. Despite this, ambiguity and doubt in relation to voice still remained among some students who were interviewed.

Overall, both tutors and students did think voice was important and related to the argumentation aspects of CT as embedded in academic writing texts, but there was more doubt and uncertainty about it among students. This variation of opinion among students, among tutors, and between students and tutors, could possibly illustrate the contextual nature of voice in academic writing, which varied depending on the academic task, and varied across departments. It could also indicate the difference in the position of PGT master's students in the academy as 'novice' researchers (who were less confident to express their voice), compared to the more 'expert' tutors.

In summary, students and tutors were in broad agreement on one of three major themes. This involved critically engaging in the reading of academic literature. There was also a second major theme (tutors) and sub-theme (students) that both groups thought was important which was clear and sound written argument. Both tutors and students agreed that it was important to evaluate the supporting evidence and argument (premises) for a viewpoint or claim (conclusion); though tutors tended to be more specific in what they considered to be valid support for a claim (usually in the form of well-researched evidence). Students were also less clear about the use of voice in academic writing.

The main difference in perception appeared to be how students and tutors conceptualised the relationships between different aspects of knowledge. Whereas the students focused on the relationships between different viewpoints and perspectives embedded in academic literature, the tutors focused on the relationships within an area of knowledge: the relationships between research evidence, theory and practice.

Finally, although there was no exact consensus among students and tutors, *reading critically* was seen as an essential part in the process of *writing critically*. Another feature is the conceptualisation of the relationship between different aspects of knowledge noted in the previous paragraph. For both students and tutors, this appeared to focus on how students could *connect* and *apply* their critical reading to their critical writing. It appeared to be predominantly a *cognitively reflective* process, where students were comparing and evaluating different perspectives and claims (students and tutors, Tables 5.8 and 6.1) and ideally should be trying to make connections between theories, evidence and practice (tutors, Table 6.1). Tutors also highlighted how the process of *critical engagement with research evidence* should be used in helping students develop, support and reconstruct their position on a topic (Table 6.1).

#### **6.4 Trans-themes**

In chapter 5 'trans-themes' were identified as themes that cut across the different phases of CT in academic writing as identified by the students. Trans-themes, unlike the phases, tended to have a more practical skills orientation, tended to be more cognitive, and involved skills that were more iterative (i.e. they go back

and forth throughout the process of critical reading, drafting and re-drafting). These involved different aspects of reflection and problem solving. The following section will analyse the views of tutors on the trans-themes of reflectivity (6.4.1), problem solving (6.4.2) and creativity (6.4.3), and comparing these with the views of students.

### **6.4.1 Reflectivity**

*3. How important is reflectivity practice in writing, or more generally as a practice in your subject?*

In response to the question above, nine tutors stated explicitly that reflection was very or quite important, while there was no one who thought it was unimportant. A number of tutors were quite emphatic about its importance including comments that it was the “most important factor” in a masters (Yang, Management), or a “hugely important” factor (Gillian, TESOL), and Len (SPMID) who said that, “in a postgraduate level it’s very, very important”. The tutors in the School of Education tended to be more confident to speak about it, while some in the Business School were less so as they felt that the sheer quantity of work required to get through in a masters did not often leave much time for reflection. There were numerous conceptualisations of what it meant to reflect: on professional practice, as part of the writing process and as part of a genre of reflective writing.

#### ***Reflecting on personal practice***

As part of the process of academic writing and CT, students were also expected to reflect on their assumptions and their practices, and how these could affect their practice as educational practitioners in the fields of teaching or research, or in other professions in business. The most common conceptualisation of reflectivity was based on a kind of reflection on professional practice. For example, Karla (Outdoor Education) highlighted this importance when she said, “I actually think that’s ... one way of critical thinking because ... you’re critically thinking about yourself. ... It’s asking why am I doing this? etc ... just asking these questions and then reflecting on them”.

The purpose of this type of reflection tended to be for self- and academic or professional improvement. Harry seemed to summarise the need for a reflective

mentality in a masters when he said, “teachers in order to be reflective practitioners need to have some sort of research mentality” (Harry, TESOL). He appears to link the idea of reflection to that of the academic researcher.

Reflecting on personal and professional practice (in writing) was not the only type of reflection required in a masters. As John pointed out, “I also think that there [are] lots of other types of writing about education that don’t necessarily have that personal connection to professional practice” (John, Philosophy of Education). For John, written reflection on professional practice was only one of many types of reflection that was connected to CT. However, he did not elaborate on the others.

### ***Reflective writing, reflection-in-writing and reflection-on-writing***

The second main conceptualisation of the relationship between reflectivity, criticality and academic writing was based on its embeddedness within academic writing. There were three main types of embeddedness: either as a specific requirement of a *reflective writing* task, as part of the process involved *in* academic writing, or *on* a written assignment in order to improve the next one. The first related to specific written tasks where students were required explicitly to reflect. Dag (MBA) and Gillian (TESOL) indicated that there were sections in the format of written assignments where students were expected to critically reflect, and Calina noted that in certain project management assignments they were expected to explicitly reflect in their writing. She also talked about the importance of a more generic process of reflection that was required in academic writing, and highlighted the importance of both types of reflection:

They have to be reflective in the task in order to produce [a] good piece of work, so I think it is important *throughout the whole process*, because if they are not reflective from the outset it will be difficult for them to produce [a] reflective piece of writing [Emphasis added]. (Calina, Marketing and Business Analysis)

This quotation highlights the perceived importance of two conceptualisations of critical reflection and writing: being reflective throughout the process of academic writing, and being reflective in specific writing tasks. The third type of critical reflection on academic writing related to reflection on feedback across pieces of writing as part of a general mastering and learning process. Yang (Management) talked about this during her interview when she reflected on her own masters learning experience. She critically reflected *on* her writing based on the feedback she had received in order to improve in her next writing assignment. This led her to

actively seek to make her writing more academic. This third type of critical reflection on academic writing could be described as reflection on feedback on writing. She also seemed to echo the idea of the developing and reflective learner when she noted that, “reflectivity also gives opportunity for the individual to improve, and constantly [reflect] on the kind of learning cycle”.

### ***Other non-written types of reflection***

The other types of reflection identified by tutors included: reflecting on academic reading, reflecting on presentations, discussions of reflections, personal reflective journal writing, and reflection within the qualitative methodological tradition. However, these types of reflection were less concerned with the reflection process as an aspect of CT in academic writing.

Overall, there was a consensus that reflection was important in two major aspects relating to CT and academic writing. The first was as part of the process of becoming a reflective practitioner, whether as a researcher, in teaching or in business. Secondly, reflection-in-writing was also prominent. This was conceptualised as embedded within specific written tasks, as an inherent part of the whole process of writing, and/or from one written assignment to another.

Both students and tutors thought that in general reflection was an important feature of CT. Both also saw it as an important part of the process of academic writing and essential to some writing assignments. Other types of reflection that were mentioned included reflecting on reading and personal journal writing. Where tutors and students differed, however, was the emphasis that students put on reflecting on feedback, mainly from assignments (see chapter 7). This was mentioned by some tutors, but it was not foregrounded in the same way as the students.

### **6.4.2 Problem solving**

*4. How important are problem-solving skills in your subject? How does this manifest itself in (written) assignments?*

Two main themes emerged from tutors' responses to whether problem solving is connected to CT in academic writing. These were the level of importance and connection of problem solving to CT, and the conceptualisations of problem solving with respect to CT in academic writing.

### ***The link between problem solving and CT***

The link between problem solving and CT in academic writing was not always clear. Out of those who answered, six tutors thought that problem solving was important and connected to writing critically in their discipline (two in each of the Business School, School of Education and Sports Institute). Three tutors thought that it very much depended, or was only partly related (one in Business and two in Education), and two thought it was not important or were not sure about the importance (one in Education and one in Sports). Although the largest group of interviewees thought that there was a relationship between problem solving and CT in academic writing, there was also some problematizing of the term among Education tutors. On the other hand, two of the tutors in the Sports Institute were quite emphatic about its role:

Yes, again crucial. I think the practitioner who works in the Strength and Conditioning field undoubtedly needs to be able to problem solve. We do that in different ways in quite a supportive environment within classes and lectures. (Neil, Strength and Conditioning)

However, another member of this Institute was more sceptical and felt that it was not relevant to his subject area: “No, I think my subject is not, does not involve [any] element of problem solving” (Len, SPMID). Others in different departments also thought it very much depended how you defined the problem. John (Philosophy of Education) made a distinction between ‘problem solving’ as a linear formula with the notion of problem solving as something more complicated. He was critical of a narrow conceptualisation of problem solving (in education) which was not related to good CT:

There tends to be quite a problem solving approach to educational practice, and also a problem solving approach to educational research, and this isn’t actually that helpful because it kind of encourages a particular form of thinking and a particular form of practice. (John, Philosophy of Education)

Both John and Harry (TESOL) were cautious, even critical, of the use of the term ‘problem’ in the context of education, and Harry preferred to use the term ‘challenge’.

### ***Conceptualisations of problem solving in CT in academic writing***

There were three main ways in which problem solving was conceptualised. The first drew similarities between problem solving and specific CT skills. The

second related to problem solving being embedded in more structured tasks and assignments, and the last related to more open-ended written tasks such as dissertations. This latter conceptualisation of problem solving was less related to academic writing and more related to the development of independent and autonomous researchers.

One way in which problem solving was connected to CT was in the process of applying CT skills in academic writing. It was specifically connected to concepts such as 'analysis' (Karla, Matt, Neil, Yang), 'synthesis' (Barbara, Yang) and 'evaluation' (Iain, Karla). Yang, seemed to summarise this well when she said,

I think problem solving ... in the academic writing sense ... [is related to] how well they can reach a synthesis after the critical analysis, ... like providing some suggestions, or giving some claim that is quite valid with strong evidence to support that. (Yang, Management)

The specific processes of analysis, evaluation and synthesis seemed to be part of a wider process of problem solving, leading ultimately to a 'decision' equated to some kind of 'solution'. This seems to embed problem solving into the CT in academic writing as a cognitive skills process.

The second type of conceptualisation was more specific to the types of problem solving *tasks* found in the PGT courses: This was more commonly found in the Business School (Barbara, Calina, Dag, Erika, Yang), the Sports Institute (Matt and Neil), and more 'technical' or practical education subjects (e.g. Iain, Digital Education, and Karla, Outdoor Education). As Erika said:

So all the reports they have to submit, either the group reports in Performance Management, or [the] individual report in Organisation Behaviour, all the assignments are based on the tasks, so something they have to do; so that's all about problem solving. (Erika, Human Resource Management)

Erika also stressed that the tasks or projects that they did were problem-solving tasks, but that the written assignments did not necessarily involve problem solving. Matt and Neil in the Sports Institute also had a very similar conceptualisation of problem solving, as something embedded in the tasks and assignments.

The third conceptualisation of problem solving and critical writing was more open-ended and problematizing of the term. Developing (and by implication writing)

a master's dissertation involved problem-solving skills that also helped develop students' independent learning skills. As Gillian noted,

If you take the dissertation, ... if you are looking at master's students, it's all about becoming an independent autonomous ... researcher and being able to identify ... first and foremost the issues that are there and know when there's something that needs to be worked on, and then find solutions.  
(Gillian, TESOL)

Frank perceived this link between writing a master's dissertation and problem solving in a similar way. However, he also made a distinction between what he conceived as 'problem solving' and 'problem structuring',

Problem solving is when you know what the problem is and you've got to come up with a solution. Problem structuring is where you don't know what the problem is and you have to try and establish what the problem is. (Frank, Research Methods in Business)

For Frank, in order to formulate appropriate research questions and the methods by which they may be answered in a dissertation, students had to apply problem-structuring skills rather than problem-solving skills. This implied a less structured and formulaic application of a problem-solving process or procedure in order to solve a pre-conceived problem. Rather it involved the proposal and justification of a 'problem' that students were going to study in their dissertation. In this sense, the topic of a dissertation was the problem to solve, but that topic was not pre-conceived. It had to be formulated by the student.

Both tutors and students did think that problem solving was connected to CT. It was seen as being relevant to specific assignments, especially the dissertations. Students emphasised the parts of their dissertations and other writing tasks where they thought problem solving was appropriate. For example, when trying to do empirical fieldwork as part of their dissertations, it was an essential cognitive and practical skill. In academic writing, problem solving tended to be most relevant and appropriate to the 'recommendations' and 'implications' sections of written assignments.

Tutors tended to be more abstract in their conceptualisations of problem solving. A distinction was made between the more open-ended problem structuring skills required in dissertation writing, compared to problems solving tasks that were perceived to be very common and integral to specific genres of writing assignments in the Business School and Sports Institute. There were also some difficulties in

comparing the views of Business School students with the tutors as only two business students were interviewed.

### **6.4.3 Creativity**

*5. Do you think developing creative abilities is a relevant aspect of developing student's critical thinking in your subject?*

To the question of whether creativity was connected to CT, there were two main responses: the level of importance and connection of creativity to CT, and the conceptualisations of creativity with respect to CT in academic writing.

#### ***Linking creativity to CT***

Out of all the questions, the link between creativity and CT received the greatest range of responses. Six tutors thought that creativity was an important aspect of CT (Yang, Barbara, Erika and Frank from the Business School), (Gillian and Iain from the School of Education), while seven tutors were not sure about its relationship, or thought it very much depended on how you defined creativity (Calina and Dag from the Business School; Harry and John from the School of Education; Len, Neil and Matt from the Sports Institute). Respondents from the Business School were the most positive, for example:

I would argue that it's a mandatory part. Creative thinking, I would argue, is, or critical thinking I think requires creativity in that you need to be creative in being able to see alternative arguments, otherwise you will take what's presented to you as given. (Frank, Research Methods in Business)

Others, however, were a lot more cautious or questioned how we could define creativity, whether students were expected to be creative or how it could be assessed in their programme, and to what extent it was linked to CT.

I think I'm not entirely convinced by this buzz around creativity. I think people are ... naturally creative and once the students get out of thinking that we just want them to display knowledge then they're usually creative. So I think, I'm not sure. ... I just don't know. (Harry, TESOL)

Harry seems to make a distinction between being creative and creativity, not denying the importance of being creative. There is more of a suspicion of 'creativity' rather than of being creative in a more fundamental sense.

### ***Conceptualisations of creativity in CT in academic writing***

Positive examples of creative thinking could be classified into three main categories. These were: the connection between creativity and problem solving, the link between creativity and specific writing tasks, and in the Business School the link between creativity and innovation.

Three tutors made a direct connection between creativity and problem solving. For example, Karla highlighted the link when she said,

Just like ... problem solving ... they are connected in some way or they need the same underlying skills maybe, you look at something, you analyse, you look for new ideas ... So there is an element of creativity certainly in there. (Karla, Outdoor Education)

Three tutors also highlighted the linkages between creativity and specific areas of writing, such as the dissertation literature review. For example, Len highlighted that there were elements of creativity involved in the academic writing process:

Creative writing generally means writing a kind of novel, literature, but also in academic writing there is a creative element also in it. The different way to approach the subject is creative, and also different use of academic vocabulary is also kind of creative as well. (Len, SPMID)

Finally, in the Business Schools three tutors noted that creativity was related to innovation: "We can see creativity something to do [with] innovation. We talk about innovation a lot, like how to innovate to make business more sustaining and everything" (Yang, Management).

Other tutors had a more neutral impression of creativity in relation to academic writing style. Matt (Performance Psychology) did not feel it was related either: "I don't think I really have any strong view about that and I've never really thought that that's a route to develop critical thinking." Others, such as Calina (Marketing and Business Analysis), thought it was not something they would expect from master's students: "That would be definitely not their level. We do not really expect the students at master's level. That probably would be more relevant to PhD".

Overall, creativity was perceived to have some connections to CT by some tutors; to specific areas of academic writing, having connections with problem solving and innovation in the Business School. However, compared to the previous features above, other tutors were much more cautious about it. This may be related

to the often ambiguous nature of the terms 'creative' and 'creativity', and how that might apply to CT in academic writing.

Out of all the features foregrounded in the interviews, tutors and students perceived creativity in the most ambiguous light. There were similarities between students and tutors in the way that creativity was required to develop an argument narrative in a literature review for example. There was also agreement that a creative writing style was not appropriate in academic writing. The Business School tutors also made connections between creativity and innovation. However, overall, students and tutors were at times unclear regarding whether there was a direct link between creativity and CT, considering creativity to be at best having a loose connection to CT.

## **6.5 Chapter conclusion**

This chapter has reported the findings of the analysis of interviews with 14 tutors in the Business School, School of Education and Sports Institute. When asked how tutors conceptualised the link between CT in academic writing in their discipline, three major themes emerged. These were: engaging in critical reading (and writing); engaging and connecting research with theory and practice, and presenting a supported argument.

When compared to those conceptualised by students, one theme was very similar. Both tutors and students were expected to engage critically with academic literature. Another theme was also quite similar in its stress on critical features of academic writing, which involved clearly supported argumentation. However, tutors and students differed slightly in whether and how the student voice should be embedded in written assignments, with tutors generally being more positive, and students being less sure.

Where tutors and students differed more, however, was in how reading critically led to writing critically. Whereas tutors focused on the need for students to engage critically with research methodology and link research evidence directly to theory and practice, (as major features of being critical in academic writing), students focused more on understanding, comparing and evaluating different viewpoints. For some students, the minor theme of being aware of the methodological limitations of research was highlighted. This does have some

similarities with aspects of the second major theme highlighted by tutors, but it was a feature that was only highlighted by a few students.

The tutors also evidenced a single minor theme. For them, the process of developing the skill in academic writing was seen as part of a wider process of socialisation into an academic discourse community with the possibility of publishing in journals in the future (in the views of some tutors).

A comparison of attitudes towards the trans-themes of reflection, problem solving and creativity was also presented. Both groups thought that reflectivity was an important aspect of the process of academic writing. Reflection was conceptualised by both groups as a cognitive process that occurred throughout the writing process. However, the students focused on how they might need to reflect on feedback in order to progress more effectively in their writing. Although this type of reflection was mentioned by one tutor, the focus was more on reflection on (academic and professional) practice, as well as the need to write reflectively in certain genres of academic writing in their discipline.

Problem solving was also perceived to be an important skill requirement embedded in academic writing by both students and tutors. Based on the student questionnaire, it was a prominent construct, and for both groups, it was perceived to be connected to the process of CT in academic writing. For students it was especially important during the dissertation research and writing process, and for tutors in the Business School and Sports Institute problem solving was very much embedded in certain written (and non-written) tasks.

In terms of its relationship to CT in academic writing, creativity was the least clear feature. Responses to the question on creativity were mixed. Both students and tutors agreed that academic writing style should not fall into the same genre as creative writing, and for the majority of those who responded, creativity was only tangentially related to CT in academic writing. Others, however, were a lot more positive about the role of creativity in developing critical solutions to problems encountered in academic writing and research.

The key feature that appeared to differentiate the conceptualisation of CT in academic writing between tutors and students in this research appeared to be on the different emphasis tutors and students put on the process 'in-between' 'reading critically' and 'writing critically'. Whereas students emphasised comparing and evaluating different perspectives found in academic literature, tutors focused more on connecting the (knowledge base of) research evidence found in research

literature with wider theoretical knowledge and practice in a discipline. For these students there appeared to be a stress on the relationships between concepts, perspectives and writers, while for the tutors there was more of a focus on the relationships between evidence, theory and practice.



## **7. Findings and analysis for Research Question 3**

### **7.1 Chapter introduction**

*Research Question 3 (RQ3):*

*How do tutors and students in different departments compare in their perception of how best to teach critical thinking at a postgraduate master's level?*

This chapter analyses and presents attitudes towards teaching and learning CT over a one-year masters. The first section (7.2) compares what the students and tutors thought were the most effective ways to teach CT. The second section (7.3) analyses to what extent students and tutors thought their CT had developed over a one-year masters. Whereas the first of these sections focuses on explicit ways of teaching and learning CT skills, the second focuses on how students and tutors perceived the student understanding of CT had developed.

### **7.2 Perception of how CT should be taught in a one-year masters**

In the individual interviews students and tutors were asked what they thought were the most effective ways to teach CT to students in a one-year PGT masters. While the tutors were asked more open questions about how they taught CT and how they thought it should be taught, the students were presented with four different approaches to teaching CT based on Ennis (1989) and Davies (2006) as discussed in section 3.2.2. Students were then asked to comment on which approaches they thought would be most effective. The approaches were:

- (a) General: having a separate course on CT,
- (b) Infusion: Teaching CT explicitly within the teaching of content courses,
- (c) Immersion: Immersing students in the content courses and teaching students implicitly,
- (d) Mixed: A combination of two or more of the above approaches where respondents specify which combinations they thought were best.

The responses by students and tutors, are outlined below.

### 7.2.1 General approach: A separate course (on CT)

#### **Students**

Ten out of the 12 students who were asked this question in the interviews thought having a separate 'course' would be positive. However, when questioned more about this, only two would have actually been keen on a whole course (of five weeks for example). One of these two (David) actually suggested replacing a first semester research methods course with a CT course, while the other one (Marco) implied that the more opportunities they had to learn about and apply CT the better. As Marco (Strength and Conditioning) said, "I think that a separate course can be really helpful, especially because it helps you to practice more, more and more".

During the masters year of this study (2015/16) research methods courses were taught to students from different programmes in the School of Education over two semesters. They focused on teaching students about the assumptions behind the knowledge and methodological approaches used in educational research. Two of the three assessments in this course were based on critical review essays of different educational research articles.

A further four students felt that CT was already covered in the research methods courses (Mara), pre-sessional EAP courses (Fang and Ying) and in-sessional EAP support courses (Yumi). The research methods courses were compulsory for all students, while the pre-sessional EAP courses were only compulsory for those who have not achieved the appropriate English language entry grade, and the in-sessional EAP support courses were voluntary and strongly recommended for students who achieved a minimum English language entry grade.

Two of the students who were most critical of a separate CT course approach highlighted a similar reason; the need to be critical *within* a subject. My interpretation of their reasoning for this was that it was better to teach CT within a specific field of knowledge, rather than having a separate course on it. Nia also had similar concerns, but from a different perspective. She had studied a course on CT in her undergraduate degree which had been compulsory for all students. However, she felt that it was not relevant for all the students, and gave the example of an accountancy student who had to write a standard essay from the CT course on euthanasia, which she did not think was relevant to accountancy.

Two other students thought that one or two hour seminars on CT at the beginning of the first semester (Anika), or before they began their first assignment (Ana) would be sufficient. This seemed to represent the most common compromise position, as highlighted by Anika:

Perhaps at the beginning of the course, maybe induction week, we have a section about critical thinking perhaps, like maybe you could play a video about someone, an expert like demonstrating critical thinking ... sort of a small session. ... It doesn't have to last for a day, only half an hour or one hour, a really short video on how to be critical, how to demonstrate criticality, that would help a lot. (Anika, TESOL)

Overall, although there were quite a range of opinions, a longer separate course on CT was not favoured among students who responded to this question. Rather a short informative session or set of voluntarily attended sessions in the first semester seemed to be more favoured as there was a sense that students were already under pressure from other courses.

### ***Lecturers***

In a similar way to the students, most of the tutors were either ambivalent, negative, or thought that to a certain extent there already were separate courses that did involve the application of CT. This is also the area where the different disciplinary areas had slightly different institutionalised approaches. This section will therefore report on the different approaches undertaken by the Business School and the School of Education. In the university in this research, the Sports Institute is part of the School of Education. However, because the policy and views of tutors in the Sports Institute differed from the rest the School of Education, these are reported separately.

### ***Business School***

In the year of this study, the Business School had two-hour voluntary study skills workshops covering the six programmes in that School at the very beginning of the first semester of the masters. Yang explained this clearly as she was involved in designing and presenting them. For her it was designed to help the students become more independent and reflective learners by being more aware of their learning style, as well as developing wider CT skills. Asked whether these sessions were effective she replied:

I think it was effective in a way that they are more conscious of what they're facing, and what they need to do... and by the end of that two-hour workshop they will know absolutely most of the things. ...We only just direct[ing] them to the right position to say the learning facilities, resources ... . (Yang, Management)

This seemed to be very much a study skills session. As a tutor who had originally come from China and studied her masters and PhD in the UK, she had empathy with some of the difficulties students from China often faced when adjusting to the postgraduate learning environment in the UK. She felt that these workshops were designed to alleviate some of the difficulties in transition from one educational environment to another for Chinese and other East Asian students. In addition to these study skills sessions, the management programme also offered a mid-term critical academic writing clinic for students prior to their first assignment. Again, this was voluntary and involved a two-hour workshop open to all master-level students in any PGT Business School programme. Two of these sessions were run in the first semester. Dag and Calina also mentioned these sessions.

A second type of support for students had been piloted with the Business School where tutors from the English Language Education (ELE) department were allowed to give formative feedback on academic English matters over a five-week period on credit bearing courses while the academic tutors would grade and give content based summative feedback.

A third type of course was Research Methods in Business, which Frank ran in the second semester in advance of the student dissertation research period in the third semester. The focus was on encouraging students to engage in content and methodological literature through a problem-structuring approach. The end goal was to produce a research proposal for their dissertation. For Frank, CT was embedded in the way that students engaged in the literature using a problem-structuring approach whereby students had to define the parameters of their research and justify it with reference to previous research literature.

In the Business School, four tutors made positive comments about separate courses that would encourage or teach CT (Yang, Calina, Dag and Frank), but as the examples above seem to illustrate (with the exception of the Research Methods in Business course), the 'separate courses' seem to be more like short study support sessions which included some features of CT. When asked about having a

separate course on CT, only Frank was really positive, and he may have been a special case due to the nature of his course.

### ***School of Education***

The School of Education had a slightly different take on the 'separate courses' than the Business School. Again, like the Business School, the separate courses were not on CT per se, but were rather one of three types where CT in academic writing were foregrounded. The first were in the Programme Tutorials. Programme Tutorials were additional lectures that the students of TESOL and Language Education were given. These sessions included study skill features. Gillian (TESOL) mentioned that this was where students could be taught about CT explicitly in two programmes in the School of Education.

The second group of courses were those provided by the ELE, which were academic writing support courses in the first and third semesters. They were designed for international students to help them to write more critically in non-credit bearing courses based on voluntary participation. Harry (TESOL) mentioned these ones. Similar to this, but open to all PGT and PGR students, the Institute for Academic Development (IAD) also provided study skills workshops including ones on CT, as highlighted by John (Education).

The third and final approach, mentioned by Iain and Karla, were the research methodology credit bearing courses. For Karla, and to a certain extent Iain, research methods courses provided students with the opportunity to be taught about different perspectives on the phenomena they were studying. This ability to approach a subject from different perspectives is an aspect of CT (Halpern, 2014; Kaufer & Geisler, 1991; Moon, 2008). They were not very explicit about how this was done, but the first research methods course assignment involved a critical review essay of a research journal article, and students were expected to be aware of different ontological and epistemological approaches to research and engage critically with a research article.

### ***Sports Institute***

The third group of lecturers were from the Sports Institute. Both Matt and Neil mentioned the IAD as a place where students could get language and

academic skills support related to CT. They also had their own research methods course that was separate from the rest of the School of Education. Matt from the Sports Institute also felt that his conceptualisation of CT was quite different from that in the rest of the School of Education, and hence the need for a separate course:

I find that lots of stuff that's happening in the School [of Education] isn't anywhere near what we might be wanting with the same named title as it were, so critical thinking for somebody working in education probably wouldn't sell at all if somebody wrote that for something in one of my dissertations. (Matt, Performance Psychology)

For Matt, his conceptualisation of CT should always be embedded in the course being taught, whether that be a research methods course, or a content course. Similar to the rest of the School of Education, the research methods courses in the Sports Institute had a critical review essay that expected students to engage critically with the research methods of a research article. Both Matt and Neil taught this research methods course and they were keen to keep it separate from the research methods courses provided by the rest of the School of Education. This was because what it meant to be critical in the Sports Institute appeared to relate more to the scientific and methodological rigour of the research article under scrutiny in the critical review essay, based on the standards of research adhered to within that discipline. Matt considered these standards to be quite different to that used elsewhere in the School of Education. This was also one justification for having a separate course in research methods in the Sports Institute to the rest of the School of Education master's programmes.

Finally, although Len was also in the Sports Institute, he taught on the Programme of Sports Policy, Management and International Development (SPMID). The support he gave students on CT was embedded in the content courses that he taught, and he had quite a distinctive way of doing this. He arranged for students to meet him for (approximately) 30 minutes before they began writing their essays with an essay plan so that he could give critical feed forward on it. This was done on a voluntary basis.

He also explained that the nature of critique embedded in his discipline was quite different to that of the other two Sports Institute tutors who were interviewed. This critique was embedded in a sociological conceptualisation of knowledge which approached the subject of its research in a different way to the other sports subjects. This also affected the way he conceptualised what it meant to be critical. For him it

focused more on the relationship between empirical evidence and sociological theories.

In conclusion, most of the tutors and students were not enthusiastic about having a separate course on 'critical thinking' in the masters. Rather, they felt that there were already courses in place where students could learn about criticality. There were short study support sessions at the beginning of the first semester given by specific programmes in the Business School and available through the Programme Tutorials in specific programmes in the School of Education, as well as short writing skill courses targeted at international students provided by different departments in the university, such as the ELE and IAD. It was also expected that students would learn about CT through the credit bearing research methods courses in the different Schools. Some students also mentioned that the time and curriculum pressures of the present masters set-up meant that another 'course' would be an additional burden they were not keen to take on.

What was also apparent was that the different departments had different ways of teaching CT based on an assumption that *they* were most suited to teach students how to be critical in *their* discipline. This was especially the case with tutors from the Sports Institute who thought their approach to research was more 'scientific' compared to the rest of the School of Education. Finally, related to this, there was an impression by many students and tutors that it was also the responsibility for the content course tutors to teach students how to be critical in their courses.

### **7.2.2 An infusion approach (to CT)**

Teaching CT through content courses is based on an infusion model of teaching CT (Bailin & Battersby, 2015; Davies, 2006). A definition of this approach is provided by Ennis (1989):

Infusion of critical thinking instruction in subject-matter instruction is deep, thoughtful, well understood subject-matter instruction in which students are encouraged to think critically in the subject, and in which general principles of critical thinking dispositions and abilities are made explicit (p. 5).

#### ***Students***

Students were generally supportive of the infusion approach to teaching CT. Nine students thought it was an effective method. There appeared to be three main

sets of opinions. To begin with there were students who thought it was especially important to have this approach and for tutors to make it explicit to students what they (the tutors) understood CT to mean. Secondly, although some gave examples of tutors who did this effectively, they also gave examples of tutors who did not, and they appeared to be critical of this lack of explicitness.

As for those who thought it was important for tutors to be explicit, Ying (Education) mentioned the importance of this was due to the possibility that different disciplines had different conceptualisations of CT, "Maybe different course[s] ha[ve] different requirements about ... critical thinking, ... that's the reason why the teacher needs to demonstrate what they really want us to [be] critical about."

Students appreciated guidance about how to be critical in terms of how they were expected to engage in the reading they were given, and the discussion of the reading, and guidance in the writing. As Mara (Education) put it, "We had a reading for next week and we would discuss the readings and then ... try to be really critical about it, so that helped a lot."

Some students, however, felt that it did vary depending on the lecturer, and some lecturers did not explain about criticality enough. Fang (Education), seemed to have this impression when she said, "It will be really good if ... the tutor actually told us what they expected you to do... sometimes ... some tutors do[es]n't really tell you about ... their expectation"; as did Min (Human Resource Management) when she noted that, "I hoped that they would tell us a little bit more about how to critique".

However, Anika actually reflected on whether an infusion approach was appropriate to all learners. She seemed to be a bit more sceptical about whether this approach would work when she said:

Some tutors, they would be explicit ... when they are explaining, ... They would list all the theories and then after that, 'I will be critical about this', and some ... of them don't really say it outright, ... but they would infer, so what's the best? I can't decide because as a teacher you have to consider different kinds of students. (Anika, TESOL).

Overall, despite this reservation and some variations in opinion relating to what stage in a masters it was most effective to teach CT, the infusion approach was the one approach that the majority of students were the most positive about.

## ***Tutors***

An infusion approach to teaching CT was also perceived by the tutors to be the most effective type. Twelve of them made positive comments about this. The tutors mentioned this in subtly different ways: as hypothetically desirable, with examples from their own practice, and in more specific ways related to linguistics.

First, teaching CT infused in a content course was considered to be the most effective approach from a hypothetical perspective: “So teaching the subject and then teaching how to be critical about the subject. ... I think that is much more useful, much more fruitful for our courses” (Erika, Human Resource Management). John (Education) also mentions this, “I think the best way to learn it would be in the context of particular courses”. Matt (Performance Psychology) was also of the same mind, and Harry (TESOL) stressed what he thought was the need to be more explicit about being critical.

Secondly, some tutors gave examples of how they were explicit in modelling CT and telling students that they were doing this. Barbara (Marketing) said that she was always explicit about how to be critical. She also made a distinction between ‘criticising’ and ‘critiquing’. Dag also talked about how he explained to students what it meant to be critical:

You make it explicit. ... The fact that I don’t want them to reproduce material. I do expect them to engage with it, and question, to criticise it and so on. So, how do they then build up that skill? Is it partly through the teaching to expose them to some of the articles and some of the literature, but also ... to point out that there are differences in argument, differences in methods, differences in approaches. ... There is not just one way to do something. (Dag, MBA)

Thirdly, there were tutors who gave examples of the language of CT that they would encourage in students. Gillian (TESOL) and Karla (Outdoor Education) both said that they provided examples of language that students should use in their writing to indicate a certain amount of critical engagement.

Overall, the majority of the tutors were positive about an infusion approach to teaching CT through lecture content. Some were more hypothetical, while others gave examples of how they did this, including encouraging the use of the linguistic features associated with CT. An infusion approach was also a popular approach among students. Teaching explicitly about CT within content courses, including how

to engage critically with reading and data and write critically, was considered to be an effective way to learn how to be critical.

### **7.2.3 An immersion approach (to CT)**

Ennis (1989) defined an immersion approach as, “subject-matter instruction in which students do get deeply immersed in the subject, but in which general CT principles are not made explicit” (p. 5). There were three main reactions to whether this was an effective approach to teaching CT. These were: that it was an effective way to teach CT, that it was not an effective way to teach it, and that it was a common way in which critical teaching was taught in their masters without comment as to whether it was effective or not.

#### ***Students***

Four students said that it was an appropriate and effective way to learn about CT in a subject (Anika, David, Fang and Min), but in combination with another approach:

What I would think [would work] well for this course would be a mixture of A [separate course] and C [immersion]. I think, at the start of the year having a specific course, talking about some of these ideas and then building on those through immersion would probably work quite well for the TESOL course here. (David, TESOL)

On the other hand, four students had negative responses to this approach. For example, Marco (Sports Science) stated that, “I don’t think that you can learn how to be critical especially like if you [had] never heard about that before if no one tell[s] you how to do that”, and Marie (Performance Psychology) was also frustrated with this response, “It’s just like this is just frustrating ... cos we know it’s important but we’re not given ... a definition”.

Finally, five students suggested that an immersion approach was commonly used in teaching CT, either on its own, or in combination with another approach. For instance, Wei (Language Education) stated that, “I would say it’s the combination of infused and immersion”. Overall, it would seem that an immersion approach was perceived by the students to have been practiced as a way of teaching CT in a subject, but it was not necessarily considered to be an effective approach on its

own. Rather, it was more accepted if combined with another approach, such as an infusion approach.

My impression was that some students only realised that they had been taught through an immersion approach on later reflection. It was during the interviews, which were conducted at the very end of their master's programme, that some of them realised that they had been taught to be critical in this way. This does not mean that they were necessarily aware that they were being taught to be critical at the time.

### ***Tutors***

The tutors were a lot more tentative about commenting on the immersion approach, with only two tutors mentioning it in any depth (John and Harry). The interview extract below illustrates the difference between how CT should be taught (in the opinion of the interviewee) as part of a content course, and how it may actually be taught.

**Harry:** It should be possible in every lecture really to, just to get them to demonstrate how you talk about two or three different concepts. ... Maybe what we need to do is be much more upfront about it and say to them look I'm contrasting this one with this one, and I'm doing this and I'm doing that. These derived from this. Maybe if we were a bit more upfront we would kind of scaffold that particular discourse ...

**Interviewer:** And the lecturers generally do that?

**Harry:** I don't think so.

The comment that, "Maybe what we need to do is be much more upfront about it" suggests that tutors are not always very explicit about what it means to be critical in their disciplines. Overall, the students were a lot more critical than tutors about the use of the immersion approach to teaching CT. The students said that it was employed by tutors when teaching the masters, but students thought that it was not necessarily an effective approach, especially when it was the only approach.

The question relating to which teaching approach was most effective involved a task where interviewees commenting on the four different approaches to teaching CT (Appendices O, P, R). Tutors appeared to be a lot more reluctant to comment on this particular approach, maybe because they were expected to comment on approaches that were *more* effective.

## 7.2.4 Combined approaches

### **Students**

A number of students and tutors also thought that combining approaches was the most effective way to teach CT in a masters-level programme. From the student perspective, Mara (Education) linked the research methods course with a CT course and mentioned that the CT skills learned from the research methods course could be transferred to the content courses.

Other students favoured a combination of different approaches, often in a sequenced manner. For example, David thought that the separate [A] course was appropriate at the beginning, followed by an immersion [C] approach later. Wei, Marie and Marco also thought it was especially important at the beginning to be explicit (though it was not clear whether this should be through a separate course or through an infusion approach), but later on was not so important for students to be explained explicitly about it (assuming that they had understood what it meant to be critical by that stage). As Wei suggested:

At the beginning of the course you have to explicitly point out what is ... critical thinking in my course in this field, and as the programme goes [on] you just implicitly explain some points. (Wei, Language Education)

Others (Fang, Marie and Marco) suggested that the ideal approach would be a combination of a separate course [A], infusion [B] and immersion [C]. As Fang (Education) put it, "I think ... I would choose a mixture of... two [B] and three... [C] because I think we already have a separate course [A] about ... academic writing".

### **Tutors**

From the tutor perspective, Yang (Management) stressed that if students were taught about CT in a separate course there was still a need to link the skills they had learned into a content course. Yang and Matt were in quite unique situations in that they were tutors on courses that taught about 'critical thinking' in the separate course and content courses, and they encouraged students to make links between them.

In conclusion, some kind of combination of courses was popular among tutors and students. This would first consist of an 'A' course conceptualised either as voluntary study skills sessions, or set of sessions coming at the beginning and just

before the first writing assignment in the first semester; and/or as a compulsory research methods course early in the first semester where in each case CT would be addressed explicitly. This approach would then be in conjunction with content courses where lecturers were explicit about teaching CT as part of their subject (i.e. an infusion approach). The majority of students thought that an infusion approach would be most effective, either on its own or in combination with another approach.

### **7.2.5 Feedback to students**

As well as being given four different options on how to teach CT in a masters-level course, students were also given the opportunity at different stages of the interviews to make further suggestions on how CT in academic writing could be taught. The most common theme that emerged from these more open questions was the importance of *feedback*. Unlike the different approaches to teaching CT highlighted above, which are confirmatory in nature in that they are based on Ennis (1989) and Davies's (2006) pedagogical concepts, feedback was more of an emergent theme. Feedback came in different forms. The most common form was feedback from written assignments. Eight students highlighted positive and not so positive examples of feedback. The following summary has been divided up based on the different types of feedback that students talked about.

#### ***Feedback on essays based on criteria and reference to additional support***

One area highlighted by students was that feedback should be based on the criteria of assessment which was related to their essay grades. One of the criteria in the master's courses involves 'Critical Reflection on Theory and Practice', and marking criteria in each department is expected to be benchmarked to the SCQF (Level 11) which includes statements on criticality. Five students explicitly made the connection between feedback, assessment criteria and essay grades. Although not stated directly, better grades appeared to be equated with a higher level of criticality in essay writing. As Anika highlighted:

For masters-level we have ... criteria[s], like you know the rubric for assignments. So when the tutor gives us feedback following those criteria and commenting how we did in each section, that helps a lot. (Anika, TESOL)

Min (Human Resource Management) also felt that giving a reason why a criteria in the marking schemes for an assignment was very good, adequate or inadequate at that level helped clarify her understanding of why the assignment had been graded at that particular level. A second type of positive feedback involved directing students to support the university could provide them through study skill courses (e.g. in the ELE and IAD study skills support departments). Anika also highlighted this, but she also felt that not all the students knew where to look for additional support on how to write critically.

### ***Feeding forward to success***

According to some students, if they wanted to improve, then they would read the feedback, and use it in a positive way to improve in the future, using it to feed forward into future written assignments. Four students talked about this idea explicitly. For example, Marco highlighted how he had progressed through the masters by learning from feedback. Marco read and reflected on the feedback he had received and fed it forward into future assignments. Of course, not all the feedback was related to CT; though Marco did seem to suggest that they went together (i.e. the development of his CT and writing skills went hand-in-hand with the improvement in his assignment grades). Yumi also implied that she had applied a similar approach of critical reflective thinking: reflection on feedback and reflection on different literature and how that literature could be used in her academic writing.

### ***Examples of poorer feedback***

There were also examples of what students perceived were poor feedback. First, there were examples of the need to 'be more critical':

**Melissa:** For the first assignment I received [a] feedback on 'you need to be more critical on the findings and the biases' etc., ...

**Interviewer:** And did they explain how, and was it useful?

**Melissa:** It was useful to receive the feedback, but they didn't really explain how I can ... be more critical.

**Interviewer:** Did you manage to work out how you could be more critical?

**Melissa:** Yes, I think so. Well, after that I never received that feedback[s] again.

Melissa was not sure how she could be more critical but later felt that she had improved in this area. Ying (Education) also had written feedback that stated that she should be 'more critical', and like Melissa, she did not understand this at first, but later on developed a clearer understanding of it.

Different departments had different ways of giving feedback, but also different ways of conceptualising criticality. For instance, Mara highlighted this when she compared different types of feedback relating to criticality across different subject areas:

I'm not quite sure whether the feedback ... work[s] for me, since I know that since in my programme there are different courses ... For example I have a course. ... I know that ... the critical thinking[s] requirement is quite different from these [other courses]. (Mara, Education)

Mara seemed to be suggesting that feedback on CT from one course assignment was not necessarily transferable to another course assignment, as criticality varied depending on the subject matter. In this sense, feedback on criticality from one course was not appropriate for another course.

### ***Role of the personal and course tutors***

Finally, five students mentioned the role of the Personal Tutor (PT), or course tutors, in clarifying what CT meant. Although the role of the PT was mainly pastoral, students would occasionally ask them about CT:

In [the] first semester, I had my first personal meeting with [personal tutor name] and what I asked to her, 'How do I show critical thinking?'... At first she said something to me so abstract. (Ana, TESOL)

At first Ana was confused by the answer she was given by her PT. However, her PT happened to be a tutor for one of her courses, and it was from feedback through that course that Ana received more clarity on what CT meant. Yumi (TESOL) also went to her PT for help in writing more critically, as she mentioned that, "sometimes I go to the personal tutor to talk about my weakness for the writing. He gave me some advice[s] [to] how I can improve my writing, so that helps me a lot". The personal tutor could help students in understanding CT in academic writing. Although this is not necessarily part of their remit, the tutors who were prepared to help in this area were appreciated more.

Overall, there were many ways in which feedback was used or could be used to help foster (or hinder) more effective CT in the writing of assignments. Positive examples included where students could improve as a result of receiving feedback on how to write critically, and applying that advice in future assignments. Less positive examples were also evident where students were not clear what was meant by being critical. Finally, differences in conceptualisations of CT in different subjects or by different tutors could also hinder success in academic writing.

### **7.3 The development of CT over a one-year PGT masters**

The perception of how best to *teach* CT in a masters, whether students are taught separately, through infusion, immersion or a combination of the above approaches, is important. However, what was also important was the extent to which they perceived they had *learned* what it means to be a critical thinker in one-year of postgraduate study. Previous research by Perry (1970), Baxter Magolda (1996) and more recently Moon (2008) has suggested that a shift in student epistemological development is related to a development in CT. However, this research has mainly been at undergraduate level. The aim of this section of this chapter is less to evaluate whether there had been a shift in terms of student CT skills or conceptualisation of knowledge, but rather to find out whether students and tutors *perceived* that the CT abilities of the students had developed over a one-year masters.

#### **7.3.1 Students' view on how their CT had developed**

Students were asked in the focus groups and the interviews the question:

*Do you think that during your time studying your master's you have changed in your view of critical thinking?*

The focus groups were conducted between late January and March, while the interviews were conducted between July and August, towards the end of the masters. All the focus group respondents stated that they had developed in their understanding of CT, but it was quite tentative at times. This is probably a reflection of the stage at which the focus groups were conducted. Both students who had some knowledge of CT before beginning their masters and those to whom the

concept was new seemed to be very much in the process of developing their CT skills.

Those who already felt they knew something about CT tended to be sceptical about their development at that stage. For example, the following students had learned about CT in their undergraduate degree, or in a pre-sessional EAP course: "I think ... [I have] improved, but not a lot" (Jun, Management); "I think it's developed, but it's not a big change for me" (Li, Education), and "I hesitate to say I have developed. It's been a process and I think it will continue" (Alex, TESOL).

Those who did not know about CT at the beginning of the masters seemed to be more enthusiastic about their development and understanding: "I can't say I have developed my critical thinking, but I [have] started to think in a critical way" (Cristina, TESOL); "I'm definitely more critical than when I got here first" (Azeera, TESOL), and:

I think better understanding of critical thinking leads to better performance of being critical. I have deepened my understanding in this area, so that I can create something more critical in writing. (Wei, Language Education)

For the interviewees, it was an opportunity for students to reflect on how their CT had developed over the one-year masters. Thirteen out of 14 students who were interviewed were positive in how their CT had changed or developed. As with the focus group participants, some students had encountered CT in their previous studies, while others had not. Those who thought that their understanding had changed began from a very basic, or no real clear understanding of CT, while one of the interviewees seemed less sure of what CT was. Among the more enthusiastic ones was Marco:

The first time that I heard two words together 'critical thinking' was here, was in the first day I came here, I didn't know ... what was that and so my improvement was like, I mean it's massive. (Marco, Strength and Conditioning)

Even Nia (Performance Psychology), who already had some knowledge of CT from her undergraduate degree, still thought that she had developed, "I don't think it's changed, but I think it ... has developed quite a lot, ... how to write my assignments, and how to critically write them".

Finally, Wei (Language Education) appeared to have become a little more confused in his understanding of CT. In contrast to the above quote from the focus

group he participated in, the following quotes appear to demonstrate more ambiguity, “Yes, I sometimes really need a clear idea of the critical thinking”, and “I’m still looking for the opportunity to be pointed out ... clearly [the] idea of critical thinking”. It is possible that he had an over-simplistic understanding of CT earlier on or had been confused after receiving contradictory messages about what CT entails.

Despite Wei’s apparent shift in understanding of what CT entailed, the vast majority of students felt that their understanding of what it meant to be critical had developed and improved over the one-year masters. Evidence from the focus group participants who were questioned midway through the course suggested more tentative development, but by the end, the majority (including four who had had follow-up interviews) perceived that they had developed in their CT.

### **7.3.2 Tutor perspectives on student development**

The tutors were asked a similar question regarding whether they thought students had developed in terms of their CT abilities. The tutors tended to be less emphatic and they felt that it did very much depended on the individual student; that some did develop while others did not necessarily do so.

To begin with there were tutors who were very positive about student progress in terms of developing their CT skills:

I always see a difference from students from September time. I see difference in their attitudes ...and then they come to the end and they sit there and they say actually it’s been the best thing, and I’m such a different learner now because I can engage in this way. ... And generally a lot of them mentioned criticality. (Gillian, TESOL)

From this quotation Gillian seemed to imply that most of her students had developed in their understanding of what it meant to be critical during their masters. Secondly, there were those who thought that students did generally progress, but often started (when beginning their masters) at different levels of understanding of CT:

If the student comes good, they would be likely to leave good. And likewise if they come in quite low down in the cohort they will probably still be quite low down, but they might all have gone from A to B, but just at proportional levels. (Matt, Performance Psychology)

Some, pretty much stay the same. I would not say that anyone kind of decline[s], or you can see maybe some of the examples who have kind of

deteriorated in their ability. ... That's because they've just lost motivation, or they just want to have a degree. (Erika, Human Resource Management)

The implication of the phrase "if the student comes good, they would be likely to leave good" by Matt was that student CT skills at the beginning of their masters is important. These two quotations above suggest a sense of inertia based on what they come with at the beginning of the masters. Although there may be progress over the masters (as implied by Matt), where they are at the beginning in terms of their CT skills and dispositions helps a lot. Erika also pointed out the importance of motivation for studying and completing a masters. Connected to this idea of individual motivation was the idea that it very much depended on the individual student:

They tend to be, because it all depends on personality as well. Those that tend to be critical [are] more likely to develop the skills more, whereas [for] the few that do[es] not have this way of thinking [it] is difficult to develop. (Len, SPMID)

Some definitely get it. Some come with it. ...We had a German student ... three/four years ago, and I marked her exam paper, it was obviously anonymous, but afterwards [I thought] who was that? I couldn't have written it. It was just brilliant ... So you can spot some. (Barbara, Marketing)

Finally, Iain had a more hopeful but hedged opinion, focusing on how finding a voice related to the development of their CT, and how that manifests itself in academic writing:

One sees individuals blossoming as you say ... in their intellectual engagement, but that could just be about them finding their voice ... But it's not that they are more critically attuned, but they are just finding the confidence to express themselves better and therefore the critical perspective shows more. (Iain, Digital Education)

Overall, the tutors were more of a mixed opinion as to whether students did develop in their understanding and application of CT. Although, generally the view was of positive development, there were also numerous caveats relating to student disposition, motivation and individual differences in student application. This is in slight contrast to the students, where the majority of students interviewed were positive about how their understanding of CT had developed. The more positive opinion of students could actually have reflected a 'sample bias' in that the students who were more willing to come forward for interview tended to be those who had

had a more positive experience in the development of their CT than those who were not interviewed.

#### 7.4 Chapter conclusion

This chapter has focused on what students and tutors perceived were the most effective ways to teach CT skills in a one-year masters. Four different options were presented to students and tutors during the interviews based on Ennis's (1989) taxonomy. These involved interviewees commenting on one or more of the following approaches:

- (a) teaching a *separate* course on CT alongside their content courses;
- (b) an *infusion* approach where students are taught how to be explicitly critical as part of their content courses;
- (c) an *immersion* approach where students are taught content courses and are expected to learn how to be critical implicitly through exposure to content;
- (d) a *mixture* of two or more of the above.

Overall, an infusion approach was seen to be the most effective by students and tutors alike. The second most common approach was a combination of an infusion approach and a separate set of sessions that would address CT in academic writing. Students and tutors were not too enthusiastic about having courses on CT per se. Rather, they felt that CT in academic writing were already dealt with in study support sessions within specific Schools, separate more generic voluntary writing courses, or through credit-bearing courses on research methods.

A theme also emerged relating to how else students could learn to be critical. In response to open questions on how else students could be supported in developing their critical writing skills, they highlighted the benefits of personalised feedback from personal or course tutors. These could be based on assessment criteria and could be effectively used to help them improve their critical writing in future. However, sometimes there were possible over generalisations in the connection they made between improvements in their academic writing and improvements in their CT skills.

The final section asked students and tutors to what extent they thought the students had developed in their understanding of CT in academic writing during the one-year masters. Although more tentative at the mid-year point, by the end of the master's year the majority of students who were interviewed thought that they had improved in their understanding and application of critical writing. The tutors, on the other hand, were more cautious. They felt that although progress was clear among students, it depended on where the students were in terms of their critical abilities at the beginning of the masters, as well as their motivation to improve throughout. Some students progressed more than others. This also suggests that they had an underlying assumption that criticality is at least partly based on personal disposition. How critical students were at the beginning of a masters was also affected by student educational and home background environments; a factor that students also noted.



## 8. Discussion of results

### 8.1 Chapter introduction

Critical thinking as conceptualised by the tutors and students contained many similar features found in previous literature. The following discussion compares the findings in chapters 5, 6 and 7 with previous conceptual and research literature. I then synthesis the insights from these different perspectives and present possible new insights and models.

This chapter consists of four sections. The first section (8.2) is predominantly based on the findings from the questionnaire and highlights the interwoven nature of the argumentation approaches and cognitive CT skills. The second section (8.3) discusses the findings based on RQ1 and RQ2, mainly derived from the interviews. This leads to the presentation of a three-phase model of CT in academic writing based on a process-product approach to (critical) academic writing. The third part (8.4) discusses trans-themes which represent features of CT that transect the three phases in the model. Finally, the fourth section (8.5) is based on RQ3 and covers some of the pedagogical implications of the research.

### 8.2 The interwoven nature of argumentation and cognitive CT skills

Results from the questionnaire indicate that students believed that good academic writing was characterised by features of clear *micro argumentation*, such as Describing and summarising (DeSu) (Table 5.3) and Explanation and illustration (ExII) (Tables 5.1 & 5.3) – the two highest ranked groups. Both of these pre-conceived construct groups fit into Toulmin's (2003) simple micro argument structure, Beardsley-Freeman's complex micro argument structures (Harrell & Wetzel, 2015), and Anderson et al.'s (2014) taxonomy of cognitive skills.

Table 8.1 summarises the way in which concepts of argumentation interweave with the cognitive skills in my research. Firstly, students can demonstrate the ability to accurately describe and summarising different 'claims' (Toulmin) or 'conclusions' (Beardsley-Freeman) of an argument. Secondly, such claims/conclusions are supported by the warrants, backing and data (Toulmin) or premises (Beardsley-Freeman), which equate to the explanation and illustrations. The reliability of this basic argument structure is further reinforced by the PCA which yielded a new group which connected the description (of a conclusion) with the

premise(s) that support that conclusion in a new category labelled 'Describing and explaining concepts and viewpoints' (DeEx). Moreover, all these functions of clear micro argumentation fit into Anderson et al.'s (2014) cognitive concept of *understanding*.

Table 8.1

*How argumentation relates to cognitive skills in academic writing*

<i>Argumentation</i> (Toulmin, 2003; Kaufer & Geisler, 1991)	<i>Pre-conceived Groups from questionnaire</i>	<i>PCA groups from questionnaire</i>	<i>Cognitive skills</i> (Anderson et al., 2014)
<i>Micro Argumentation</i>			
<i>Claim</i>	Describing & summarising (DeSu)	Describing & explaining concepts and viewpoints (DeEx)	<b>Understanding</b>
<i>Warrants, backing, data</i>	Explaining & illustrating (ExII)		
<i>Macro argumentation</i>			
<i>Faulty paths, return path</i>	Comparing & evaluating (CoEv)	Comparing & evaluating concepts	<b>Analysing Evaluating</b>
<i>Main path</i>	Voice & stance (VoSt)	Expressing a personal stance	<b>Creating</b>
<i>Meta and multi- cognitive processes</i>			
<i>Reflective practice</i>	Reflection (Re)	Reflection on theory & practice	<b>Meta-cognitive</b>
<i>Problem solving</i>	Problem solving (PrSo)	(Comparing & evaluating concepts)	(Multi-cognitive)

Although these represent fundamental yet quite basic understandings of critical writing embedded in basic notions of micro argument, there is also another level of argumentation that is connected to CT in academic writing that consists of

two main features. These are the *macro argument* structure of high-level academic writing based on Kaufer and Geisler's (1991) model of written argument. Alongside this is the importance of the writer's voice and stance in academic writing (Hyland, 2005).

The importance of both these features emerged through a PCA of the statements in the questionnaire. The PCA yielded two strong groupings which fall into the macro argument constructs: 'comparing and evaluating concepts' (Table, 5.4), and 'expressing a personal stance' (table 5.5). These fit into Kaufer and Geisler's (1991) model for representing a written argument quite well (Figure 3.1), as they involve analysing, evaluating and comparing different conclusions (and premises), which eventually leads to the expression of the writer's argument and position. This writing structure also fits into Anderson et al.'s (2014) taxonomy under the conceptual categories of *analysing*, *evaluating*, and *creating*. The writer 'creates' an argument based on an analysis, evaluation and comparison of the different conclusions (i.e. claims of different writers).

These key findings from the questionnaire also emerge in different ways in the themes from the student and tutor interviews. From the student interviews, micro argumentation is important to demonstrate an *understanding* of different perspectives (Theme 2a., Table 5.8), and to justify an opinion (Theme 3b., Table 5.8) in critical academic writing. Macro argumentation is important in comparing and evaluating different viewpoints (Theme 2b., Table 5.8) and making informed judgements (Theme 3a., Table 5.8) in critical academic writing. The tutors also highlighted the importance of comparing and evaluating claims (Theme 1b., Table 6.1) as a form of engagement in critical academic reading, and presenting well-supported arguments in critical academic writing (Theme 3, Table 6.1).

The cognitive skills involved in presenting a critically written argument therefore appear to be *interwoven* into the various argument patterns. This also seems to reflect Davies and Barnett's (2015) view that the argumentation and cognitive skills are part of the CTM, but it is in contrast to Paul's (2011) view where the logical argumentation and cognitive skills are represented as separate phases in the conceptualisation of CT.

In academic writing, students can demonstrate an *understanding* of knowledge claims through accurate description, explanation and illustration that supports those claims. However, in *critical* academic writing, this is not sufficient.

Students need to *analyse, evaluate* and compare the different arguments, and finally they are expected to present their position and argument (that supports that position) on an issue through the *creative synthesis* of theoretical and empirical research and practice, leading to informed decisions and judgements.

**8.3 Discussion of major themes for students and tutors**

In answer to the question of how students and tutors conceptualised CT in academic writing, three main themes were highlighted. These were the importance of engaging critically with reading, clear argumentation and voice in writing, and having a critical orientation towards research methods (Table 6.2). By fitting the first two of these themes into an Intellectual/Rhetorical approach to academic writing (Tribble, 2009; 2015), a three ‘phase’ model is presented. An outline of the different features of these three major phases and how the trans-themes are located within this process is found in Figure 8.1. This diagram provides a synthesis of the findings from the students and the tutors and will be discussed in more detail in the following sections.

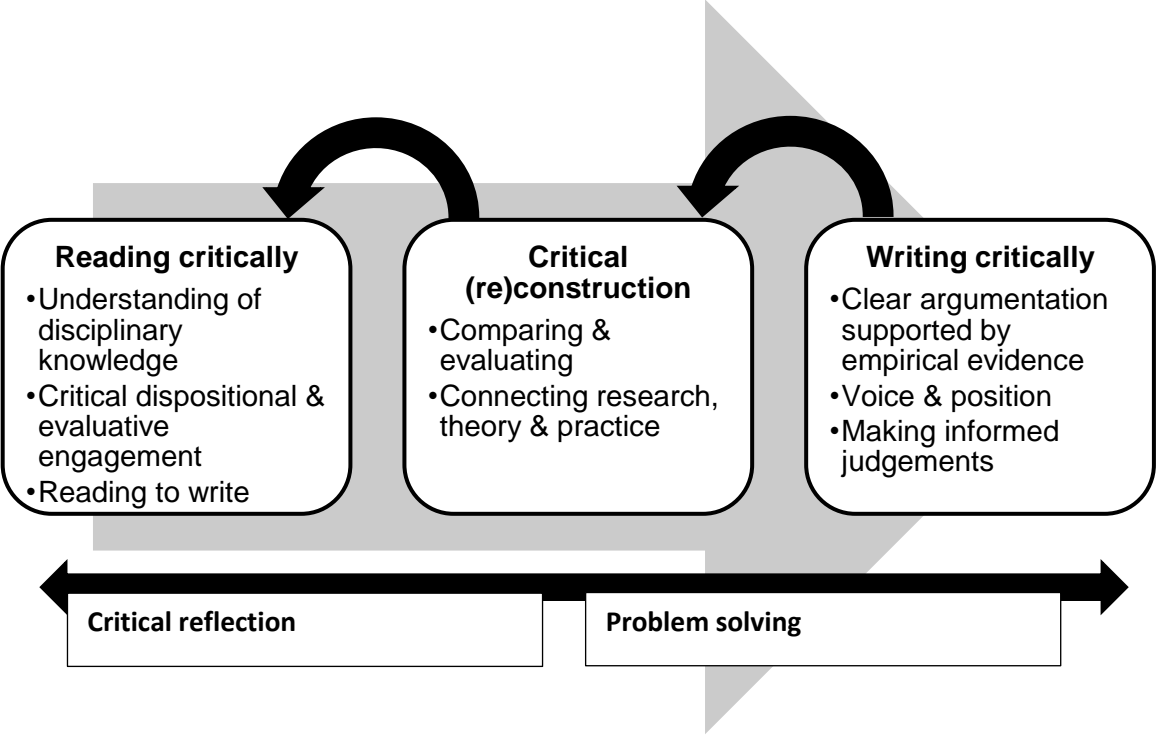


Figure 8.1 Three phases in the process of CT in academic writing

### 8.3.1 Reading critically

There were various perspectives voiced by students (chapter 5.3.2) and tutors (chapter 6.2.1) on what it meant to engage critically with reading. Combined together, they amount to the following sub-themes: the role of reading in better *understanding* a discipline; critical dispositional and evaluative *engagement* in reading, and the strategic *connecting* of critical reading and writing skills (Figure 8.2).

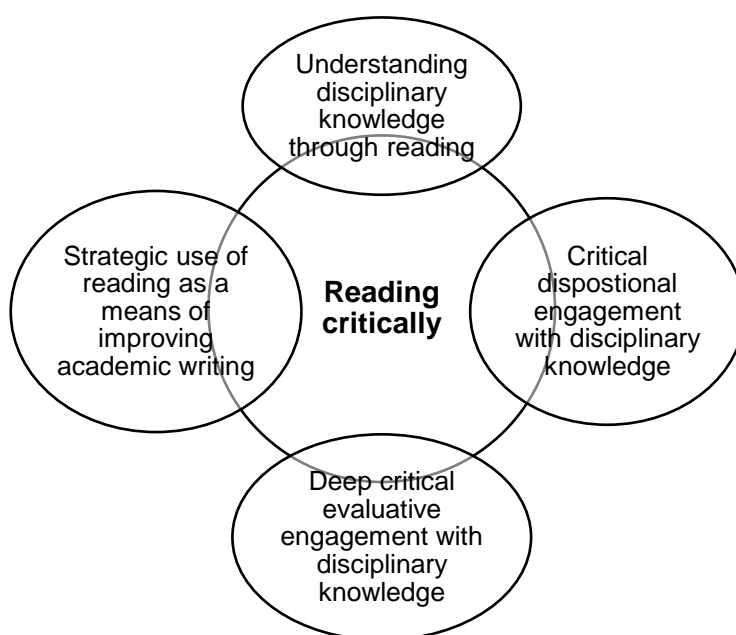


Figure 8.2 *Different aspects of critical reading*

#### ***The importance of disciplinary knowledge***

Among some students there was the emphasis on the acquisition of disciplinary subject knowledge prior to or at the same time as critical engagement with literature. For students whose undergraduate degree was not the same as their postgraduate degree this was a specific concern (e.g. Min, Jun, Yichun, Ying). Although this was not a major theme shared with tutors, tutors did assume that students should have a certain level of subject knowledge at the beginning of a masters. Even if student subject knowledge was not fully developed (as students with different undergraduate degree backgrounds were accepted on many programmes), they were expected to build on their subject knowledge.

In Thomas and Lok's (2015) framework of CT, *knowledge* is one of the three main attributes (alongside CT *skills* and *dispositions*). Reading extensively in a subject was a significant way in which students acquired knowledge of their subject, and knowledge of a subject is a key pre-condition to being critical (McPeck, 1981; 1990). In order to acquire knowledge you first have to understand it. According to Anderson et al. (2014), 'remembering' and 'understanding' are the first two cognitive skills that all learners need to begin with when reading a subject. Writers have debated which is more important - knowledge of a subject or transferable CT skills (Davies, 2006; Ennis, 1990; McPeck, 1990; Moore, 2004). Those who focus on the importance of CT skills acknowledge that you have to be critical in a subject or discipline (e.g. Ennis, 1990; Facione, 1990, 2015).

### ***Critical disposition and engagement with disciplinary content***

One of the distinguishing features of a masters was less about how much more knowledge students were able to acquire above that of an undergraduate degree, but more about how they *engaged* critically with that knowledge. For both students and tutors it was not always exactly clear what 'engagement' meant. For some, it seemed to be more *dispositional* (e.g. tutors: Dag, and Karla), while for others it seemed to be more *evaluative* in relation to research (e.g. tutors: Erika, Frank, and John; student: Mara). Both approaches involved some kind of *response* to or *interaction* with a text; not just believing everything in it, but rather questioning it and deciding what to agree with and what not to agree with (Davies, 2011b). From my research, reading critically appeared to be about a dispositional attitude to academic literature (Wilson, 2016), and about the skills required to evaluate the research and the claims found in that literature (Metcalf, 2006; van den Brink-Budgen, 1996; Wallace & Wray, 2016).

A distinction is also made in the literature between CT dispositions and skills (e.g. Ennis, 2015; Facione, 2015, Thomas & Lok, 2015). To be more specific, CT dispositions tend to be conceptualised as more personality based, 'attitudinal' (Halpern, 2014), relating to a *propensity* to think more critically (Halonen, 1995) and falling within an *affective* domain (Bloom et al., 1964; Facione 1990; Nickerson, 1987), rather than the more *cognitive* domain of skills or abilities (Bloom et al., 1956).

The dispositional aspect seems to be similar to Moore's (2013), "sceptical and provisional view of knowledge" (p. 512). Having a critical disposition is an important aspect of CT according to some writers on the subject, and it includes a dispositional approach towards reading (e.g. Coles & Robinson, 1991; Ennis, 2015; Facione, 1990, 2015; Thomas & Lok, 2015, Wilson, 2016). Thomas and Lok (2015) outline 16 different 'dispositions' connected to CT based on seven key writers on the subject. These include being 'inquisitive' and 'open-minded'.

Engaging critically with literature also seems to involve a higher level of cognitive engagement. Anderson et al. (2014) write about two cognitive skills that appear to be similar to the engagement in literature; these are 'analysing' and 'evaluating' which are part of a 'deep' approach to learning (Marton et al., 1997).

### ***Connecting critical reading with writing skills***

Some students highlighted the importance of integrating critical reading with writing. They indicated that academic writing can improve as a result of reading extensively and critically, and through imitating the writing style of published writers. The sub-theme of 'critical reading and writing skills' (Table 5.8) focused less on the process or outcome of reading or learning, but more on how reading academic literature can have a positive effect on writing critically. This seemed to suggest that an approach where students were immersed in the literature of the discipline led to a certain extent to effective learning. However, they needed to be reading for a *purpose* (Marton & Säljö, 1997). That purpose was in order to write critically.

A third approach to reading alongside the 'surface' and 'deep' approaches of Marton et al. (1997), is outlined by Entwistle (1997). This is a 'strategic' approach to learning where students work to produce the desired results in terms of academic achievement without necessarily a desire for a deep understanding of the subject. In my research, some students talked about how they had improved the efficiency and effectiveness of their reading by the second semester, or dissertation stage, of their masters, but this was rare in the first semester. At a postgraduate masters level it is not unusual for students to struggle with the quantity and comprehension of reading material (Wiles, Allen & Butler, 2016). However, this approach is associated less with a critical approach to learning (Entwistle, 1997), and appears more to be like a 'survival skill' based on a motivation to complete a course successfully.

In conclusion, it is argued that one important phase in the linking of CT with academic writing is developing the ability to *read critically* (Figure 8.2). This involves developing a greater *understanding* of the subject and being able to engage critically in a subject. Critical engagement appears to involve both *dispositional* (Wilson, 2016) and *evaluative* (Davies, 2011b, van den Brink-Budgen, 1996; Wallace & Wary, 2016) features. Finally, there is a *strategic* aspect (Entwistle, 1997) to reading critically, where students explicitly or implicitly imitate the writing style of published literature to develop a critical style of academic writing.

### 8.3.2 Critical (re)construction: Making connections

In the second major theme highlighted by students (Table 5.8) and tutors (Table 6.1), the students focused on comparing different viewpoints and perspectives, while the tutors highlighted the importance of connecting research with theory and practice. I have combined these themes together in Figure 8.3.

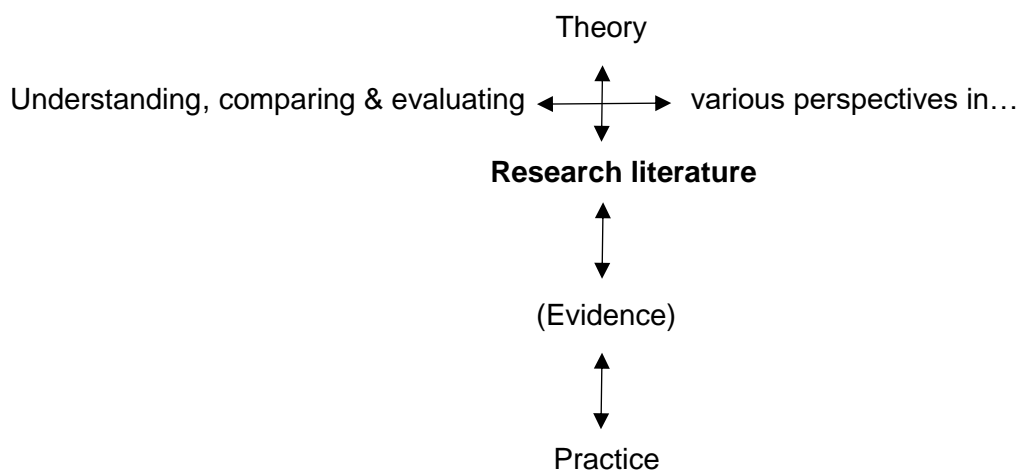


Figure 8.3 *Critical (re)construction: making connections across research*

#### ***Understanding, comparing and evaluating different perspectives***

The students in this research indicated that they needed to understand the different literature and different viewpoints that they read. Comparing and evaluating different viewpoints emerged as a sub-theme in the wider theme of 'considering different viewpoints' which emerged from the student interviews and focus groups.

'Comparing and evaluating concepts' (CoEv) was also one of four groups that emerged from the PCA.

Comparing, contrasting and evaluating different concepts and viewpoints also represent a fairly standard feature of CT (e.g. Cottrell, 2011; Halpern, 2014). Viewing phenomena from different perspectives is quite a basic conceptualised feature highlighted by students (e.g. Durkin, 2008; Phillips & Bond, 2004) and tutors (e.g. Jones, 2007; Moore, 2013) in previous research and is a core aspect of CT (Ennis, 2015). When students compare and evaluate different viewpoints, this is conceptualised as a stage or phase in learning to become better critical thinkers. According to Säljö (1997), it is during this phase where learning occurs most effectively:

*[It is] precisely in such encounters between different conceptions of the same phenomena, or between different 'versions of the world', that new insights may result i.e. that learning can occur. [Emphasis in original] (p.100)*

To a certain extent, it resonates more with a 'relativist' approach to knowledge where there is a pre-acceptance that different views are of similar value. The 'independent' relativist stage in student 'epistemological development' is not considered to be a fully mature stage (Table 2.2). Numerous writers view this stage as a point on a continuum towards a more mature 'contextual' understanding (Baxter-Magolda, 2004; Greene et al., 2008; Perry, 1970). I therefore view this phase as a point in the development of a more critically reflective perspective where a learner can return to iteratively as they (re)construct their understanding of knowledge in a discipline, and as they move from a relativist to a more contextual understanding.

This critical (re)construction phase also seems to be quite similar to English's (2013) 'in-between' concept of learning. Based on Günter Buck's concept of *Umlernen* which implies that real learning involves a transformational process that, involves struggle, disillusionment, or suffering because it involves encounters with something new, such as a new concept, a different perspective or an unfamiliar activity that we are trying to get to know and understand. (cited in English, 2013, p. 118)

This in-between phase of learning is connected to the (re)construction of CT through reflective practice (English, 2013). It is at this phase where students are

'making connections', where there is the greatest potential to learn to be more critical, and it is often through *struggle* that students learn.

### ***Engaging and connecting research with theory and practice***

Tutors appear to bring an additional insight into what it means to be critical with their focus on connecting research with theory and practice. The second major theme for tutors involved the engagement of empirical evidence found in research literature with wider theory and practice in a specific discipline. A central part of this theme involved teaching and encouraging students to engage critically with the research methods embedded in research articles, as well as the research methodologies in their own dissertation research.

The importance of engaging and connecting research with theory and practice has been highlighted by writers who specialise in CT and academic writing. For example, Facione (1990, 2015) and Wallace and Wray (2016) highlight the importance of comparing and evaluating concepts, theories, arguments and methods when engaging critically. The connections that tutors seem to be highlighting are between theories, models, concepts or claims, and empirical evidence presented in research literature, and the application of these theories, models, concepts or claims in the practice of a subject (Figure 8.3).

The importance of 'interrogating' *research* literature is a theme which rarely occurs in other empirical literature on CT based on interviews with tutors or students (e.g. Jones, 2007; Moore, 2013; Phillips & Bond, 2004), even when the participants were postgraduates (e.g. Durkin, 2008). It is suggested here that this focus on engaging critically with the research methods found in research literature (or research methods in student dissertations) is a distinctive feature of criticality that is particularly important at a postgraduate master's level.

This may be due in part to a greater emphasis being placed on *empirical research* at a masters, as most dissertations consist of an individual piece of original empirical research. The relatively high score for the statement, 'Doing independent research as part of your studies' (ranked sixth) in the questionnaire also indicates that students thought that independent research was an important component of their masters well before embarking on their dissertation.

Certainly, in the departments in the university where this research was conducted, there are research methods courses that aimed to provide the foundation for the individual research dissertation. Some tutors were also actively involved in teaching these courses (Frank, Harry, Matt), but even those tutors who did not teach on these courses seemed to stress the importance of being critical in relation to the research methods used in research literature (Calina, Iain, and Karla) without any prompting by me, the interviewer.

I have characterised the critical (re)construction phase as the most important 'thinking' phase in the process of critical academic writing. It appears to be a dialogical phase involving an evaluation of different viewpoints leading to an informed decision (Paul, 1987). It could also involve a re-organisation of a student's epistemological view of a subject from a relativist to a more contextual understanding (Baxter Magolda, 2004; Perry, 1970) and a (re)connecting of theory, evidence and practice which involves a 'synthesis' of knowledge and practice (Bloom et al., 1956).

### **8.3.3 Critical writing**

The third theme highlighted by students and tutors share similar characteristics with each other (Figure 8.1). First, there was a focus on *clear argumentation* by both students and tutors. Secondly, *voice and position* were highlighted more by tutors than students. Finally, the importance of critically *informed judgement* was also highlighted.

#### ***Argumentation and voice***

Although in Figure 8.1 argumentation, voice and position are separate sub-themes of the larger writing theme, I have combined these into one key feature of CT in academic writing. This is because the writer's argument and position are interwoven and difficult to separate from each other (Davies, 2011b).

Voice, stance and position, and justification are embedded in the argumentation aspect of CT in academic writing, and this was recognised by the tutors more so than by the students. Voice and positioning within the academy can also be connected to developmental aspects of a student's academic identity. This could be evident in the contrast of ratings of voice in the questionnaire (conducted in

October and November in the first semester) where it was the lowest-ranked construct, compared with the more positive comments found in some interviews (in July-August) towards the end of the masters.

Although the questionnaire and interview responses are not directly comparable due to the different methodologies involved, the way in which students talked about doing their dissertation would suggest that they had become more confident in critically reflecting upon and giving voice to their research.

Groom (2000) highlights three different types of weak written argument responses by students. The first involves students expressing their opinion without reference to literature which is labelled the 'solipsistic voice' where 'personal justification' (Greene et al., 2008) is strong. Yang (Management) made a similar point about some American students who were keen to express their opinion, but weak in supporting it with evidence. Secondly, Groom writes about the 'unaverred voice' where students put together a summary of the different ideas of different writers which seems to reflect a dogmatic justification of knowledge (Greene et al., 2008) or a relativist understanding (Baxter Magolda, 2004). This echoes what Mara (Education student) said, where she appeared to downplay the writer's voice and preferred to write 'objectively'. It may also be a perspective that is reflected in the high rating of the 'writing in an objective style' statement in the questionnaire. Groom also writes about the 'unattributed voice' where students adopt someone else's voice or opinion as their own and fail to give voice to their own view. It is not clear whether anyone talked about this though.

Stance and position are also related to voice, which is an aspect of writing that students can struggle with (Read, Francis & Robson, 2001; Wiles et al., 2016). Student voice can also be hindered by the power relations involved between academic tutors and students, especially when students disagree with the tutors - who may be marking and grading their written assignments (Read et al., 2001).

Finally, the close relationship between written argumentation and position has already been highlighted in previous research (e.g. Andrews, 2015; Davies, 2011b; Wingate, 2012) and the importance of strong and clear argumentation in postgraduate level academic writing has a direct link to wider research both on CT and argumentation (e.g. Andrews, 2015; Ennis, 2001; Halpern, 2014; Swarthridge, 2014; Wallace & Wray, 2016).

### ***Making informed judgements and decisions***

Whereas some students stressed the importance of making informed judgments and decisions, tutors focused more on presenting supported arguments. Those students who highlighted this feature focused on this as a kind of 'end goal' of critical writing, while tutors emphasised the means of achieving this goal.

The importance of informed judgement and decisions is a core principle of various conceptualisations of CT, as well as being embedded in supranational and national qualifications frameworks (EC, 2005; SCQF, 2012). Facione (1990; 2015) highlights the importance of 'reflective judgement', and Ennis (2015) defines CT as "deciding what to believe or do". Anderson et al. (2014) highlight the cognitive process of 'critiquing', which they view as at the core of CT. Critiquing, "involves judging a product or operation based on externally imposed criteria and standards" (p. 84). In academic writing, making decisions and informed judgements are associated with such aspects of academic writing that are not always immediately obvious to novice writers (Street, 2009), but is directly linked to CT (Facione, 2015).

What was not clear from the responses of the students and tutors was how sound argumentation and the importance placed on informed decisions may vary across disciplines (Paul, 2011; Toulmin, 2003). Although there were some examples in the Business School and Sports Institute where tutors clearly stated that students had to make decisions and give recommendations in their written assignment, interviews are not necessarily the most effective method to investigate the differences between written assignment types. The work of Lea and Street (1998) does however provide evidence of how strong argumentation in one discipline may be considered to be weak in another.

Overall, three major interlinking features of postgraduate critical academic writing were considered to be important by students and tutors. These were: the importance of clear argumentation where a claim is supported by credible evidence; the role of student voice in critical academic writing, and the requirement of some kind of informed judgment or decision. This view of critical writing does match up with previous literature in this area. However, these findings are tentative in that they represented the views of some and not all students and tutors who were interviewed; some students were less clear about the use of voice for example.

Moreover, it was not clear how different genres of writing across different disciplines varied in their emphasis on different features.

### ***A three-phase model of critical academic writing***

Although the critical reading and critical writing phases of this three phase model appear to be quite clear, the 'second' may require more explanation and illustration. It is possible to conceptualise a phase that is in-between the critical reading and critical writing phases in this process of critical academic writing (Figures 8.1 & 8.3). I would argue that this phrase is predominantly a *thinking* phase that involves the cognitive skills of analysis, evaluation, comparison and synthesis for example. These combined cognitive skills may be used to 'solve a problem'. This is why I classified 'problem solving' as predominantly a 'multi-cognitive' skill. The 'problem' may just be how to write a clear, well-presented critical essay on a specific topic.

In addition, this thinking phase may also involve *meta-cognitive* reflection, which involves the (re)construction of how a writer (re)thinks about the connections between different perspectives and concepts (students' Theme 2, Table 5.8), and (re)constructs the connections between theoretical knowledge, evidence-based knowledge and practical knowledge (tutors' Theme 2, Table 6.1).

Although 'critical reading' and 'critical writing' are characterised as 'phases' in the process of critical academic writing, this does not necessarily imply a linear sequence from reading critically to writing critically. For instance, the process of critical academic writing could involve the following sequence:

- (a) *reading* academic literature to acquire knowledge and understanding of a topic, and to begin to engage critically with that literature (dispositionally and evaluatively),
- (b) *writing* descriptive, comparative and evaluative notes on the different concepts and research evidence from the academic literature,
- (c) *writing* an outline of an argument based on critical reflection on those notes,
- (d) *reading* critically by (re)engaging with academic literature to find more support (or counter-arguments) for the written argument and writer's position,

(e) *(re)writing* / (re)drafting the written argument.

In this example, critical reading is followed by different types of critical writing, which is followed by further critical reading, which is then be followed by more critical (re)writing etc. This process of critical academic writing can therefore be conceptualised as *iterative* in nature. Eventually, in critical academic writing writers are expected to state their position based on clear arguments (Davies, 2011b). Finally, it is difficult and maybe not necessary to fully separate the critical academic writing phase from the critical reading and critical (thinking) (re)construction phases. Rather, they appear to be inherently connected to each other.

#### **8.4 Discussion of trans-themes**

In addition to the major themes above, which have been re-conceptualised as representing three different phases in critical academic writing, two further themes appeared throughout the interviews. These were the concepts of reflection and problem solving (Figure 8.1). I would argue that these are re-occurring themes that transect the reading-to-writing process. They also do not necessarily fit into a specific phase of either reading, critical (re)construction or writing, but occur throughout that overall process. At the same time, there may be periods in the process of reading and writing critically when being more reflective, or using problem-solving skills are more pronounced, such as during the critical (re)construction phase where critical reflection can lead to new understanding and learning (English, 2013). Overall, however, trans-themes tend to appear throughout and across the iterative processes of drafting and re-drafting, and involve different aspects of reflection, and problem solving.

##### **8.4.1 Critical reflection**

Both students and tutors thought that critical reflection was important in the process of critical academic writing. However, whereas the tutors focused more on the importance of reflecting on professional practice, students focused more on the importance of reflecting on feedback that they had received from previous writing assignments in order to improve in future assignments.

Shön (1983, 1987) emphasised the importance of 'reflection-on-action'. This seemed to be similar to one type of reflection that tutors and at least one student highlighted (tutors: John, Harry, and Karla; student: Anika). However, whereas students emphasised reflecting upon feedback from a written assignment and how their writing could be improved in the future, tutors stressed the importance of reflection on professional practice (through writing). This is arguably a relatively simple conceptualisation of reflectivity and CT that seems to fall into what van Manen (1977) termed a more 'technical-instrumental' approach to reflection.

The second type of reflection 'as a cognitive process' seems to fall into van Manen's (1977) hermeneutic-interpretivist tradition which gives students the opportunity to reflect on their experiences. In many ways, the interviews with the students towards the very end of their masters was an opportunity for the students *to reflect* on what they had learned and how they had developed cognitively and meta-cognitively over the year, not only in terms of the knowledge that they had acquired, but also in the CT and research skills that they had learned. Out of all the students who were asked about its importance only one student thought that reflection was not important.

The third type of (van Manen's) critical reflection is based on the Habermasian tradition of emancipatory educational practice. Although it was emphasised less in the response by tutors, two tutors in Education did hint at this (tutors: Harry, and John). There was not much evidence of this approach from students, with the exception of Mara (Education) whose dissertation involved 'critical discourse analysis' which implies that she was aware of this 'critical' academic tradition.

Both the technical and cognitive types of reflection could also be related to a specific genre of writing tasks that students were expected to undertake within certain disciplines. Reflective writing also seems to be very much embedded in educational practice (Murphy, 2015). Whether students were required to be reflective in writing may have depended on the written task set by a tutor which itself is embedded within a specific genre and disciplinary discourse community (Swales, 1990).

The extent to which students who I interviewed were critically reflective in their academic writing is difficult to measure without evidence of their actual writing. However, there are hints of their level of critical reflection through what they said

(students: Marco, and Yumi). In this respect, MacLellan's (2004) research does provide insight into the different ways students of a social science can be reflective; from the more basic form of 'technical reflection', through 'descriptive reflection' and 'dialogical reflection' to the 'highest' level of reflective writing known as 'critical reflection'. (These different types of reflection also partly map onto those of van Manen's (1977) typology).

MacLellan's (2004) study of 40 'merit' level postgraduate essays in education found that the majority of essays (109 instances out of 120) displayed examples of descriptive and dialogical reflection in their writing, with only seven examples of 'critical reflection'. Despite this seemingly low amount of critical reflection-in-writing, MacLellan still believed that from the senior undergraduate level, "critical reflection is a reasonable goal for all in higher education" (p. 87). Based on my interviews with the students, it is probable that they displayed a range of types of reflection in the process of academic writing, from the technical to the critical.

In terms of whether there were disciplinary differences in the conceptualisation of CT, tutors in Education (Gillian, Harry and Karla specifically) were more confident to talk about it and make the link between critical reflection and CT in academic writing than those in the Business School. There is a long tradition of critical reflection in education (e.g. Dewey, 1933; Ecclestone, 1996; Lipman, 2003), but some of the Business School tutors were also keen to include this practice more, or felt that critical reflection was essential to their discipline.

The mean scores for the three 'Reflection' statements in the student questionnaire were also compared based on the responses by students in the Business School (n=100) and the School of Education (n=138). The mean ratings on the 1-10 scale were 7.55 (Business School) and 7.71 (School of Education). This difference between means, however, was minimal. Therefore, from the interviews with tutors and students, and the responses from the student questionnaire, it cannot be concluded that critical reflection was perceived to be more important in the School of Education than the Business School. Rather, it was perceived to be important in *both* Schools.

### ***The role of assessment criteria in the reflective process***

Some of the students and tutors also made direct reference to the assessment criteria as a basis on which to inform (and evaluate) students level of

critical writing ability. Students mentioned how useful reference to criteria was when they read feedback on written assignments. Furthermore, students engaged in reflective practice (on this feedback) to feed forward to future written assignments

There is a marking criteria entitled, 'Critical Reflection on Theory and Practice' which explicitly states the need for comparison of different perspectives, the evaluation of arguments and evidence. The 'distinction' band level descriptor below represented the highest within a specific master's programme (TESOL) at the time of the empirical research stage of this thesis. It is interesting to view how it includes many of the features of CT conceptualised above:

The work demonstrates a constant and integrated critical engagement with the issue under discussion. This is clear in the way it applies evaluative criteria to the arguments of other commentators as well as its own, drawing on different perspectives. The evaluation of the evidence forms the basis of original and creative responses to issues that are developed in the work. The strengths and weaknesses of relevant data/information are teased out and an informed judgement is communicated. (UoE, 2016b, p. 10).

Phrases such as 'critical engagement', 'evaluative criteria', 'different perspectives', 'evaluation of the evidence', and 'informed judgement' were all terms used by students and tutors to conceptualise CT in academic writing. These criteria can provide positive washback into writing assignments by highlighting important features of CT embedded in academic writing (Messick, 1996). Moreover, assessment criteria are benchmarked with the national qualification framework for postgraduate courses in Scotland (QAA Scotland, 2014) where critical engagement is prominent in different descriptors.

In conclusion, there are different forms of (critical) reflection that may manifest themselves in different ways in academic writing based on the task or genre, and across different disciplines. What was important from this research though was the almost universal agreement by students and tutors that reflection was an important feature throughout the academic writing process, as well as the learning process at the master's level.

#### **8.4.2 Problem solving**

For both tutors and students, the relationship between problem solving and CT in academic writing elicited a generally positive response. For students who thought that there was a link (the majority), problem-solving skills also seemed to

transect the different phases of the critical writing process. It was connected to CT and evident in the processes of academic writing and in the process of data collection and analysis embedded in independent research. For tutors, problem solving was also connected to CT and related to cognitive concepts such as 'analysis', 'synthesis' and 'evaluation'. This is why I have viewed problem solving as a multi-cognitive skill, involving more than one set of cognitive skills based on Anderson et al.'s (2014) taxonomy. Problem solving is also connected to academic writing in the sense that it is embedded within specific tasks (Swales, 1990), especially in the Business School and Sports Institute. Thirdly, there was a more open-ended understanding of problem solving which students often encountered in their dissertations.

Halpern's (2014) understanding of problem solving based on a procedural approach embedded in CT seems to fit in with the more process-oriented approaches highlighted by the Business School tutors Erika and Calina. This is where students were expected to follow a problem-solving procedure in their writing tasks. The Gestalt psychology approach to problem solving (Laurillard, 1997) seems to be a lot more connected to the 'problem structuring' that Frank (Research Methods in Business tutor) talked about. In this approach, the way in which we solve problems is not so much about following a procedure or strategy, but more in how we perceive the problem. This represents a more open-ended approach, more akin to the problems posed in dissertation research design (noted by Gillian, TESOL tutor).

Swales (2004) has noted that different discourse communities tend to develop their own style of writing. Previous literature suggests that problem solving tends to be embedded more strongly in business disciplines (Meisel & Fearon, 2006; Hammer & Green, 2011), and one particular feature that is common in writing in business schools is the problem-solving function (Canseco & Byrd, 1989; Zhu, 2004). This previous research does seem to corroborate with the comments of the tutors in the Management department of the Business School. Finally, tutors and students in the Sports Institute were also confident about the link between problem solving and CT in their subject area.

The mean scores for the six 'problem-solving' statements in the student questionnaire were also compared based on the responses by students in the two Schools. The mean ratings were 7.63 (Business School) and 7.83 (School of

Education). Although the students in the School of Education rated the problem-solving statements more highly, it was not deemed to be minimal. However, unlike with critical reflection, and based mainly on the interview responses of the tutors, it is argued here that there was more of a distinct emphasis on problem solving in the Business School and Sports Institute than the School of Education.

Problem solving seemed to be as part of the process of CT that was embedded within specific genres of writing within specific disciplines. Most tutors and students in the Business School and Sports Institute considered problem solving to be connected to CT in their discipline, while those in the School of Education were less sure. At the same time, problem solving was also somehow different to CT. This is also why I have labelled it as a trans-theme. Furthermore, graduate attribute statements in different universities often treat 'problem solving' as a separate set of skills to 'CT' (see Introduction section 1.3.1).

### **8.4.3 Creativity**

The link between creativity, creativeness and CT was the most ambiguous for students and tutors alike. Some thought there were linkages in the process of engagement with literature and the stimulation, creation and expression of new ideas (students: Azeera, Nia, Melissa, Qiang), while others were a lot less sure, or felt that it very much depended (students: David, Marco, Ying, Yumi). Creativity was therefore not seen as an integral part of CT, but may have been required at specific stages. For some tutors, especially in the Business School, creativity was connected to innovation. Those in the Sports Institute, like those in the School of Education, were less sure of the creative aspect of it in respect to CT in academic writing.

Davies (2015) highlights the importance of creativity when conceptualising CT. However, there is little elaboration on the 'creative' nature of this form of CT by Davies. Anderson et al. (2014) also make a direct connection between creativity and problem solving. Their highest order cognitive dimension is labelled as 'create'. The creative processes involved in this dimension is actually divided into three main parts of a problem-solving process:

The creative process can be broken into three phases: problem representation, in which students attempt to understand a task and generate possible solutions; solution planning, in which a student examines the possibilities and devises a workable plan; and solution execution, in which a student successfully carries out a plan. (p. 85)

The fact that the Business School tutors seemed to be most positive towards the notion of creativity and its connection to problem solving and innovation is reflected in international business reports that highlight the importance of these skills. For example, the WEF (2018) *Future of Jobs Report* placed 'Analytical thinking and innovation', 'Complex problem-solving', 'Critical thinking and analysis' and 'Creativity, originality and initiative' (p. 12) all in the top five skills demanded by employers, while 'Creative problem solving' was one of the top four 'less common, more desired' management skills most valued by employers (Bloomberg, 2016).

'Generating' appears to be the most creative feature of Anderson et al.'s (2014) creation process and seems to be quite similar to Frank's (Research Methods in Business) 'problem structuring' at its most creative. As Anderson et al. highlight, "*generating* transcends the boundaries or constraints of prior knowledge and existing theories". They further emphasise that, "it involves divergent thinking and forms the core of what can be called creative thinking." [Emphasis in original] (p. 86). It also appears to be similar to the Gestalt conceptualisation of problem solving. The second and third parts of the problem-solving process, the 'solution planning' and 'solution execution' from the longer quote above appear to be more like the procedural conceptualisation of problem solving.

#### **8.4.4 Disciplinary differences(?)**

Unlike the major themes where it was often difficult to identify differences between Schools, there appeared to be more of a pronounced difference between Schools in their understanding of the importance of the trans-themes. One of the main reasons why I think it was difficult to distinguish between Schools in the major themes was because within each School there were tutors from diverse disciplinary backgrounds. In hindsight, if all the tutors I had interviewed had been from one discipline in each School then there may have been a greater likelihood of thematic differences, as seen in the research of Jones, (2007; 2015) and Moore (2013) where those interviewed were grouped in more specific discipline areas.

At the same time, there were hints that two discipline areas displayed tendencies towards a specific 'rhetoric' (Berlin, 1988). The Sports institute and the Business School tended to be oriented more towards a 'cognitive rhetoric' with a greater focus on problem solving. However, from the evidence of this thesis it was not possible to gauge whether there was a specific rhetoric that influenced the

Education disciplines. Moreover, because I did not interview sufficient respondents from each discipline (in each School) it is difficult to say whether specific disciplines were more 'paradigmatic' or 'non-paradigmatic' (Biglan, 1973a, 1973b).

On the other hand, there were hints that certain subject areas favoured specific *research methods* which had a higher level of credibility and usage within those disciplines. This resonates with Bondi's (2006) research that compared the different types of methods more frequently used and accepted in the disciplines of business and economics. However, there was not sufficient evidence in this thesis to clearly identify different and distinctive 'communities of practice' (Lave & Wenger, 1991) between Schools.

## **8.5 How should CT be taught in a PGT masters-level programme?**

Being able to think and write critically is a generic attribute that students are expected to have at a postgraduate level in the UK, Australasia and North America. If students studying PGT masters in the UK are not from the UK, nor from an Anglo-American higher educational tradition, it cannot be assumed that students beginning a master's degree in the UK have acquired or developed CT skills or dispositions to the same extent as those graduating from Anglo-American universities (Shaheen, 2012). The following sections compare the views of students and tutors with previous literature based around Ennis's (1989) four approaches to teaching CT.

### **8.5.1 Teaching CT as a separate course**

Teaching CT as a separate generic course has been shown to be effective in helping students to think critically and critically evaluate arguments in some situations; for example through the use computer based modelling (Davies, 2009; Harrell, 2011; Twardy, 2004, van Gelder 2015). However, courses on CT are not always effective at the undergraduate level (Arum & Roksa, 2011; Pascarella, 1989; Stenning et al., 1995) despite the prominence of critical writing essay courses in the early years of higher education in some countries like the USA (Robinson, 2011).

The different approaches and interpretation of what it means to teach CT, where to teach it and when to teach it in an intensive one-year postgraduate degree varied in my research. From those interviewed, there were six different interpretations of what it meant to teach CT as a 'separate' course (Figure 8.4),

none of them being identical to the examples from the undergraduate research above. Most of the separate courses were study skills and writing skills courses that had CT and writing skills embedded in them.

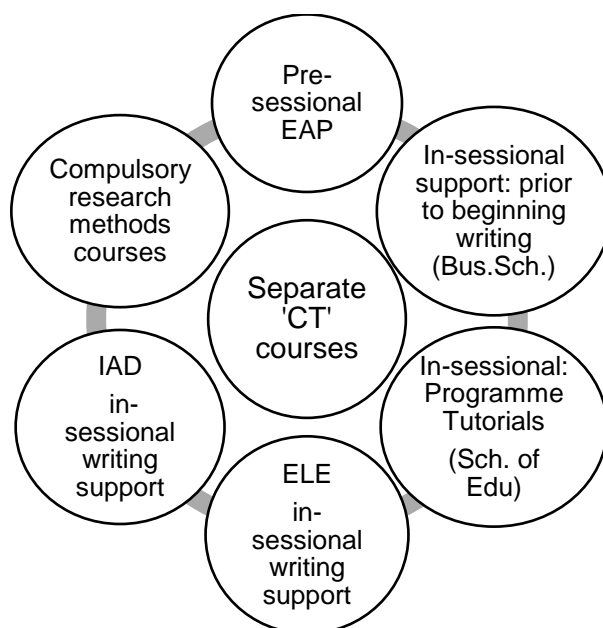


Figure 8.4 *Different types of separate 'CT' courses*

The first, mentioned by students, was the pre-sessional EAP courses lasting from four to ten weeks and designed for students who had not met the official English language entry requirements for the masters. How to read, write and talk in an academic discourse community was taught and encouraged by tutors. Two limitations of pre-sessional courses are: that they are only for specific (international) students, and they do not always provide enough opportunity for students to be immersed in the *knowledge* of a discipline in order to be more critical in it.

In my research, the second and third separate approaches consisted of separate sessions that targeted all students entering their masters. These were really more like study skills sessions where CT was embedded. This was the case in the Business School, and the School of Education where Programme Tutorials included sessions on reading and writing critically. These types of academic support courses would most likely be examples of what Barrie (2006) terms 'complementary' courses which provide essential generic and academic writing skills based on clear argumentation to prepare and help students operate more effectively within a

discipline. They appear to be a level below the generic CT skills in Barrie's typology. However, I would argue that clear written argumentation is an essential part of CT in academic writing.

One of the main criticisms of teaching CT skills separately is the problem of transfer where instruction in one situation fails to apply in another (Perkins, 1987a; van Gelder, 2015). In order to overcome this problem, Perkins (1987a) argues for the teaching of generic 'thinking frames', such as evaluating the strength of an argument. Specific university courses on argument analysis and modelling have been shown to be effective in helping develop CT skills at an undergraduate level (Twardy, 2004; Davies, 2006), but these require continuous practice (van Gelder et al., 2004).

Due to the limitations of short-term memory, the timing of instruction in CT can be important (Anderson et al., 2014). If students are taught how to think and read critically prior to doing a lot of reading they are more likely to apply it; if they are taught how to write critically prior to writing it, they are also more likely to apply it. Having a session on critical reading at the beginning of the first semester, and one on critical writing prior to the first writing assignment (possibly connected to the assessment criteria) could make these sessions more effective due to the greater potential for transferability.

The fourth and fifth ways of viewing of CT as separate courses were similar to the in-house study sessions above, but referred to departments that provided study support (IAD) and language support (ELE). Again, these are not courses on CT per se, but reading and writing critically are taught as components of some of the courses offered in these departments.

### **8.5.2 Role of research methods courses in teaching generic CT**

The final understanding of a 'critical thinking' course was that of the compulsory and credit-bearing research method courses. The role of research methods courses in the teaching, promoting and development of CT skills is rarely emphasised in literature on the teaching of CT. Maybe this is partly because so much research is focused at the undergraduate level. At the same time, undergraduates degrees often do include courses on research methods at a stage of learning (prior to embarking on the undergraduate dissertation) that also

corresponds well with a period when students would be expected to develop their CT skills (Greene et al., 2008; Moon, 2008; SCQF, 2012).

These types of courses can be used to promote more generic concepts of CT at a postgraduate level that can be 'translated' to different learning contexts and 'transform' the product of university learning (Barrie, 2006). There are certainly opportunities to teach students how to be critical in the research methods courses. For example, a critical review essay can involve a critical evaluation of the research methods of a research paper. The CT skills learned in a research methods courses are also potentially transferable to other written assignments, especially to the end-of-course master's dissertation (Andrews, 2007).

However, it is important that tutors are explicit about the CT elements of such courses, and teach these to students (Facione, 1990; Halpern, 2014). It is also important for students to not only understand different perspectives of different writers, but also evaluate those perspectives based on criteria that they have learned. This evaluation can be based on features such as the credibility, validity, reliability of different sources of knowledge and methods of gathering evidence (Bryman et al., 2008; Onwuegbuzie & Leech, 2007), as well as of the argument claims (Bowell & Kemp, 2002; Halpern 2014; Kaufer & Geisler, 1991; Swatridge, 2014; Toulmin, 2003). As the tutors in my research highlighted, interrogating the 'data' that supports a claim, and how that data has been 'generated' through specific research methods of enquiry, analysis and synthesis is a key feature of engaging critically with research literature.

On the other hand, there are some possible limitations to the generic transferable nature of this 'critical methodological' approach that are hinted at in the interviews. Although the disciplinary differences in the conceptualisation of CT is not prominent in my research, there are hints of the disciplinary differences through the research method preferences. For example, Iain (Digital Education), Matt (Performance Psychology) and Karla (Outdoor Education) gave examples of the connection between their disciplines and the preferred methodological and research approaches in those disciplines. What were considered to be common and credible research methods and approaches in respective disciplines differed from each other. In this sense, the criteria used to evaluate evidence in one discipline may differ from another depending on the methodological tradition (Bryman et al., 2008). Without understanding those methodological traditions, it is difficult to be critical

within that tradition, and this is in addition to the difficulties one might face in understanding (and therefore being critical of) the content (knowledge) of that discipline.

Alongside the desire to help students develop their CT skills through research methods courses is a desire to help students become more independent learners. From the student questionnaire it was clear that students were aware that doing independent research was an important aspect of academic writing that master's students were expected to do. The point at which students are given the greatest opportunity to do independent research is at the dissertation stage of the masters. It is also at this point where most students have the opportunity to apply specific methodological approaches to their research. It is also where they have to overcome practical research problems, and hopefully have a little more time to critically reflect on their own independent research. Finally, it should be at this stage in a masters that their CT skills have the greatest opportunity to develop and manifest themselves.

In summary, the students and tutors had a slightly different understanding of the separate courses on CT compared to that in the literature (e.g. Ennis, 1989; Twardy, 2004; van Gelder et al., 2004). This may be in part because most previous research was on undergraduate courses. In my postgraduate research, separate CT courses were conceptualised as other more generic study skills, writing skills sessions, or research methods courses.

### **8.5.3 An infusion approach to teaching CT**

The infusion approach where CT was taught as part of a content course was the most popular approach advanced by students and tutors alike. This resonates with previous research that has shown this is at least part of an effective way of teaching CT (Abrami et al., 2008; Davies, 2006). On theoretical and practical grounds, this approach seems to be the most efficient and effective way of overcoming the problem of transfer (Perkins, 1987b). Students and some tutors thought that it was important for the tutors to highlight to the students the times when they were being critical in their lectures and seminars (i.e. to be very explicit when they were 'being critical'). This could also be more effective as it was a combination of discipline specific content knowledge with CT skills (Davies, 2006; Paul, 2011). However, tutors modelling CT in their content courses is not enough,

students also have to practise their CT (van Gelder et al., 2004) in seminars and in their academic writing for example. One way in which this could be encouraged is to have formative feedback on drafts of writing (which does already occur in the dissertation supervision process).

Another advantage of the infusion approach is that it takes into consideration different conceptualisations of CT, argumentation, reading and writing across disciplines (Jones, 2007; Lea & Street, 1998; Moore, 2013; Swales, 1990). However, responsibility is also placed on individual tutors, and/or course directors to explain what it is to be critical in that discipline. Students implied that this was not always happening.

#### **8.5.4 Immersion and mixed approaches to teaching CT**

A number of students and one lecturer pointed out that teaching CT *implicitly* in a discipline was a common approach. However, students were not enthusiastic towards this approach, except when it was combined with one of the two approaches above, and even in that case they thought teaching critically implicitly was better later on in a masters after students had understood how to write critically. Teaching CT implicitly is an approach that is commonly observed in higher educational contexts (e.g. Durkin, 2008; Fakunle et al., 2016), but on its own has been shown to be less effective, unless in combination with other approaches (Abrami et al., 2008).

The overall consensus among students and tutors was that a mixture of different approaches to teaching CT was favourable. This corroborates with previous meta-analysis of different approaches to teaching CT based on Ennis's (1989) four approaches (Abrami et al., 2008). This would also cater to both the views of the 'generalists' (Ennis, 2015; Paul, 2011) and the 'specificist' (McPeck, 1990; Moore, 2004; 2013). For the generalist, having sessions or courses where CT was taught explicitly could help students begin from a shared understanding of what is expected of them in terms of critical engagement in their masters. However, an interesting point in this research is that none of those interviewed gave positive examples of actual separate CT courses. Rather, they gave examples of voluntary sessions based on study skills or academic writing skills, or courses where it was expected that CT would be taught. Probably the most concrete example of this was in the research methods courses. It is therefore my suggestion that there are

opportunities for students to develop and practice generic critical reading, CT and critical writing through the research methods courses.

In addition to the research methods courses, it is suggested here that content course tutors should be more explicit where and when they were critically engaging in literature, and model this to the students (Wilson, 2016). This is especially the case in the first semester where many students may still be familiarising themselves with the concept of CT. In this case a more infused approach is encouraged (Davies, 2006).

### **8.5.5 Benchmarking language skills to cognitive skills**

A wider approach to teaching CT skills could involve the benchmarking of language writing skills to the argumentation and cognitive skills found in Table 8.1 above. An example of this is provided in Table 8.2 below. Cognitive skills which are connected to CT such as, understanding, analysis and evaluation (Anderson et al., 2014) can be linked to specific rhetorical writing functions which are connected to argument patterns (Toulmin, 2003), such as describing, explaining, justifying and illustrating claims, which can lead to the (critical) evaluation of the strengths and limitations of claims based on field-dependent criteria.

Another form of benchmarking involves connecting and benchmarking from the supranational qualification framework down to programme and disciplinary assessment criteria. Critical reading and critical writing can be embedded the skills in learning objectives (Anderson et al., 2014; Biggs & Tang, 2011) and assessment criteria (UoE, 2016b), and to encourage positive washback through how students are taught (Messick, 1996). This could also be benchmarked to the supranational and national qualification frameworks (EC, 2005; QCF, 2008 QAA Scotland, 2014) and assessment criteria and graduate attributes of a university (e.g. UoE, 2016a; UoE, 2018; UoM, 2018).

For instance, at the national level in Scotland there are already key aspects of CT skills embedded in the learning outcomes at a master's level (SCQF, Level 11). This requires students to display “critical understanding ... critical analysis, evaluation and synthesis ... creative responses to problems ” and “critical reflection” (SCQF, 2012, p.27), and can be applied more specifically to the learning outcomes that relate directly to the CT skills discussed in this thesis (Table 8.2).

Table 8.2

*Benchmarking CT skills as learning outcomes to a national framework*

<i>Framework descriptors at a master's level</i>	<i>Cognitive and meta-cognitive CT skills</i>	<i>Suggested learning outcome 'verbs'</i>
Critical understanding*	Understanding***	Describe Explain Illustrate
Critical analysis*	Analysis***	Analyse Compare
Critical evaluation*	Evaluation***	Evaluate
Creative synthesis	Synthesis****	Synthesise Create
Problem solving*	Creating***	Create Apply Solve
Critical reflection* Evaluating and critiquing methodologies**	Reflection***	Reflect Evaluate Apply

SCQF, 2012 \* QAA, Scotland, 2014\*\* Anderson et al., 2014\*\*\* Bloom et al., 1956\*\*\*\*

### 8.5.6 National, university and disciplinary teaching contexts

Three further issues need to be taken into consideration. These relate to the way that EAP courses fit into a university's organisational structure, the different academic traditions of HEI in the Anglosphere, and the type of students who are currently in the majority in PGT masters in the UK.

Firstly, universities have quite different ways of organising their EAP and language support departments with different responsibilities being given to language support tutors and discipline specific content tutors (Furieux, 2017). How CT in academic writing is taught has to take this into consideration. It is also important to note that different disciplines often focus on different aspects of CT skills and dispositions embedded within their discipline.

Secondly, although there is a teaching and research tradition centred round the teaching of undergraduate writing to L1 learners of English in North America, this is less common in the UK. The different contexts in which CT is taught or

learned in HEIs in North America, the UK and Australasia should therefore be taken into consideration.

Finally, the focus of this research is mainly on international students whose first language is not English, and because within the UK context general courses in CT are rare at the postgraduate level (Andrews, 2007). In light of the higher proportions of international PGT master's students studying in UK universities (around 60% in 2015/16) (HESA, 2018b), there may be more of a need for language and generic skills support at this level. Combined with the intense one-year nature of a UK master's degree, the period an international student in the UK has to adapt to the academic culture and specific academic linguistic requirements is relatively short.

## **8.6 Chapter conclusion**

This chapter has discussed four aspects of the findings based on the three research questions relating to how students and tutors conceptualised CT in academic writing at a master's level. The first aspect highlighted the interwoven nature of the argumentation and cognitive CT skills approaches to academic writing mainly based on the results of the questionnaire (Table 8.1).

The second highlighted the three major themes from the focus groups and interviews (Figure 8.1): *critical reading*, *critical (re)construction* and *critical writing* based on an Intellectual/Rhetorical approach to academic writing (Tribble, 2015). Although they are conceptualised as 'phases', this does not imply that they necessarily occur in a specific sequential order, but they do overlap and sometimes occur concurrently in the process of critical academic writing.

The third main section of this chapter (8.4) discussed three specific trans-themes that are connected to CT, but also separate from it. These are skills required throughout the process of critical academic writing. The first involved critical reflection (English, 2013; Lipman, 2003; MacLellan, 2004; Shön, 1987). The second and third are problem solving and creativity (Anderson et al., 2014). Unlike critical reflection, problem-solving and creative skills seemed to be more disciplinary dependent, with the Business School the most positive about their linkages to critical academic writing (Jones, 2007; Hammer & Green, 2011; Meisel & Fearon, 2006).

The final main section (8.5) focused on discussing the pedagogical applications of teaching CT at a master's level. A *mixed approach* was suggested that combined a number of approaches. The first encouraged an infusion approach where content tutors were explicit about CT in their disciplines (Davies, 2006). Secondly, study and *academic writing support* were identified as useful in helping students develop their critical writing skills at a more fundamental level (Barrie, 2006). This is especially in light of the large proportions of non-UK domicile students (where English is their L2) who are studying at a postgraduate master's level in this institution (UoE, 2016a), and more broadly in a UK context (HESA, 2018a).

Finally, an important role for *research methods courses* was identified in teaching CT. This emphasis on critically engagement with research methods is certainly evident in learning outcomes in the national qualification framework (QAA, Scotland, 2014). This critical approach to research methodology also has the potential to be transferable across and beyond disciplines. Together, these three approaches to teaching CT could help cater for the different needs and range of master's students in the UK under the curriculum and time constraints of a one-year masters



## 9. Conclusion

### 9.1 Chapter introduction

This concluding chapter brings together different conceptual perspectives on CT with the empirical results from this thesis, and relates how this can impact on the teaching of CT at a master's level in a UK university. It begins by providing a summary of the results in the context of wider research and policy relating to CT (9.2). This is followed by an outline of some of the limitations of this research (9.3). The third section outlines what I consider to be the main conceptual, empirical and practical contributions of this research (9.4), while the fourth deals with some of the pedagogical implications (9.5) before a final conclusion is presented.

### 9.2 Concluding summary and reflections on the findings

This thesis focused on how postgraduate students and tutors conceptualised CT, and how that related to academic writing in their discipline. It aimed to answer the following research questions:

- 1. What do master's students consider to be the most important features of academic writing that relate to critical thinking?*
- 2. How do students and tutors in different departments compare in their conceptualisation of critical thinking as embedded in academic writing at a postgraduate master's level?*
- 3. How do tutors and students in different departments compare in their perception of how best to teach critical thinking at a postgraduate master's level?*

In order to answer the three research questions above, a mixed methods research design was employed involving a questionnaire to 238 postgraduate master's students, focus groups and interviews with 21 such students, and individual interviews with 14 tutors. It was conducted in one UK Russell Group university in three discipline areas: Business, Education and Sports Science.

## 9.2.1 Linking concepts with findings

The questions asked in the questionnaire, focus groups and interviews were informed by previous conceptual understandings of CT by experts in this knowledge domain (e.g. Davies & Barnett, 2015; Ennis, 2015; Facione, 2015), empirical research with academic practitioners in the field (e.g. Durkin, 2008; Jones, 2015; Moore, 2013), and policy documentation from national qualification frameworks (e.g. QCF, 2008; QAA Scotland, 2014). This led to the creation of 'A framework for understanding CT in academic writing in higher education' (Tables 3.2 and 9.1) that informed the specific questions asked in my research (Appendix B).

Table 9.1

### *A framework for understanding CT in academic writing in higher education revisited*

<i>Categories and sub-categories</i>
A. Argumentation and voice
A1 Logical argument A2 Voice and stance
B. Cognitive and meta-cognitive skills
B1 Understanding B2 Analysis B3 Evaluation
B4 Creation B5 Reflectivity B6 Problem solving
C. Disposition and attitudinal development
C1 CT dispositions C2 Attitude to learning C3 Epistemological development
D. CT pedagogy
D1 Contextual features D2 Generic and transferable features D3 Different approaches to teaching
E. Knowledge and application
E1 Knowledge E2 Practical application

This framework consisted of three broad categories that related to the conceptualisation of CT, and two that related to its application. Those that related to its conceptualisation were:

- a) Argumentation and voice
- b) Cognitive and meta-cognitive skills
- c) Dispositions and attitudinal development.

Those that related to its application were:

- d) CT pedagogy
- e) Knowledge and application.

In terms of how to apply CT, I decided to focus on one specific area of academic practice at a postgraduate level, academic writing. From this focus, a second framework was created that connected four approaches to CT and its practice to four broad approaches to teaching EAP (Tables 3.1 and 9.2).

Table 9.2

*Connecting the teaching of academic writing and CT revisited*

<i>Key threads</i>	<i>CT</i>	<i>Academic writing</i>	<i>Examples</i>
Text	Logical argumentation	Intellectual/Rhetorical product	Essay level argument Paragraph level argument Citation conventions
Mind	Cognitive skills	Intellectual/Rhetorical process/product	Analysing, evaluating, synthesising; drafting, re-drafting
Context	Disciplinary features	Social /Genre	Reflective essay writing  Problem solving reports
History	Epistemological development	Dispositional and developmental	Understanding and engagement with subject knowledge

Critical thinking as logical argumentation was linked to the teaching of academic writing as a *product*, CT as cognitive skills was linked to the teaching of academic writing as a product and a *process*, and a specific understanding of CT was linked to the teaching of academic writing as a *genre*. In addition, it was also acknowledged that students could *develop* in their understanding of subject knowledge while studying in higher education, and this epistemological development was connected to CT.

The use of these two frameworks indicates that this research was predominantly *confirmatory* in orientation (Onwuegbuzie & Leech, 2005), through use of a structured questionnaire and a semi-structured interview protocol; the aim being to compare previous research and views of CT with the opinions of students and tutors. However, there were also *exploratory* elements of the interview, which allowed for more open-ended answers, and these answers provided new insights into how students and tutors conceptualised CT in the practice of academic writing at a postgraduate master's level.

### **9.2.2 Critical engagement in reading and methods**

While much of my research findings above are in the confirmatory research tradition, there were two themes that emerged from a more exploratory approach (Onwuegbuzie & Leech, 2005) based on open-ended questions with the tutors and some students.

#### ***Critical reading and a three-phase model of critical academic writing***

The first was the importance of critical engagement in reading. This highlighted the importance of subject knowledge (Anderson et al., 2014; McPeck, 1981), the nurturing of a critical disposition (Ennis, 2015; Perkins et al., 1993), identification of the main purpose of a research article through deep and evaluative engagement (Biggs & Tang, 2011; Facione, 2015; Marton et al., 1997), and reading strategically (Entwistle, 1997) in order to write more critically. Moreover, critical reading was conceptualised as the 'first' phase in a process of critical academic writing.

The second phase was an in-between *(re)construction* phase where students engaged cognitively and meta-cognitively with the texts they have read in

order to produce an academic piece of writing. This may be a phase that involves struggle and failure and elements of cognitive dissonance (Brookfield, 1987), but it is an important phase where learning occurs (English, 2013; Säljö, 1997). Ideally, it is also where students make connections across different concepts and perspectives, and between theory, evidence and practice. I would view it as an important phase in the development of the critical *thinker*.

The third phase is the *critical writing* phase which relates back to Kaufer and Geisler's (1991) written argumentation model. It includes clear argumentation, voice and position, and the making of informed decisions and judgements. The three phases were not conceptualised as necessarily following a set sequence, but rather as *iterative* in that students might move back and forth between them in the process of producing a critical piece of writing (Figure 8.1).

The three phase model can be used to guide students to write critically. Describing, explaining and modelling different skills involved in the different phases can help students improve the effectiveness and efficiency of their critical writing. Students can also be made aware of and taught about the importance of reflective practice in its various forms, not just as a specific set of skills and practices designed to be used in specific disciplines (Schön, 1987), but also in a more meta-cognitive, generic and transferable sense beyond a discipline (Lipman, 2003). The key aspects of problem-solving skills from a more procedural sense (Newell & Simon, 1972) to an approach based more on Gestalt psychology (Wertheimer, 1959) can also be taught to students.

### ***Critical engagement in research methods***

The second emergent theme related to critical engagement in relation to research methods. Knowledge of methods of research has a role to play in the critical evaluation of research based academic literature. Valid and credible claims within research literature should be based on sound research evidence, which should be based on the appropriate and correct application of research methods. In many ways, the critical evaluation of research methods is key to evaluating the validity and credibility of the claims presented by research papers.

Based on Toulmin's (2003) argument terminology, critical engagement in methodological approaches first requires knowledge of the different approaches and

methods of research. Secondly, knowledge of research methods allows the reader to critically evaluate how the evidence (presented as 'data') has been 'generated,' and how it supports (through warrants and backing) the claims of specific researchers. In addition, a critical understanding of methods is of specific relevance to specific genres of academic writing. One example is through the critical review essay, and another is through a master's dissertation.

### 9.2.3 Teaching CT at a master's level

The importance of research methods is also relevant in the teaching of CT. In answer to the third research question, students and tutors were also asked to compare four different approaches to teaching CT at a master's level. The first was to teach separate CT courses and was known as the *general* approach (Ennis, 1989). Although most participants were either not supportive of this approach in its purest form (i.e. a course in CT), or ambivalent towards it, some students and tutors did support variations of it. Separate CT courses were conceptualised in a number of ways, as part of pre-sessional and in-sessional EAP courses, as voluntary study support lectures or seminars provided by individual Schools or departments, or generic academic writing support provided by separate departments in the university (i.e. the ELE or IAD).

Another approach was through generic research methods courses provided by specific Institutes or departments within the Schools. This is also where there is a link between the CT embedded *within* research methods and the teaching of CT *through* research method courses. These three different general approaches work at three different levels based on Barrie's (2006) generic skills typology. The first two 'language support' courses are generic and remedial in nature and are *complementary* to the content courses, while the CT skills learned in the research methods course can be *translated* to different contexts.

The second major approach to teaching CT at a master's level was by *infusion* through content courses (Davies, 2006; Ennis, 1989), where students are taught explicitly about how to be critical while studying a subject. This reduces the need for transfer, as the generic and discipline specific CT skills are embedded in the subject. This is considered to be a very effective way of teaching CT within a discipline (Bailin & Battersby, 2015). Through this approach, the generic aspects of

CT learned in this disciplinary context can also be transferred or 'transformed' to other contexts (Barrie, 2006).

A combination of one or more of the separate approaches and/or an infusion approach was also recommended by students and tutors. This seemed to corroborate with previous research on effective teaching of CT (Abrami et al., 2008). In addition to this, students stressed the importance of systematic *feedback* so that they could learn and improve from one written assignment to another.

#### **9.2.4 CT dispositions and the development of attitudes**

There was a perception among interviewees that some students had more of a *disposition* to be critical than others and that *educational background* was an important influence on how critical students were. Other factors highlighted by some tutors was the role of *attitude* and *motivation* towards learning. According to some tutors, some students were more keen to do the best that they could, while others were content enough to complete their masters successfully.

The methodological approach and aims of this research were not designed to measure whether students had developed in their CT skills over a one-year masters, or whether they had developed in their epistemological relationship to knowledge (in a particular discipline), in comparison to previous research (Baxter Magolda, 1994, Greene et al., 2008; Perry, 1970). However, the majority of students self-reported that they had improved in developing their CT skills and in the way in which they engaged with the knowledge of their discipline.

### **9.3 Limitations of the research**

There are a few limitations of this research in terms of breadth and depth of coverage, in the methods employed, and in the inferences that can be made from the findings. These limitations, and the resultant implications of these limitations, are outlined below.

#### **9.3.1 Breadth and depth of research**

As noted in the first Literature Review in chapter 2, how CT is conceptualised in higher education incorporates a great variety of approaches (Davies & Barnett,

2015), including the criticality (Barnett, 1997), critical pedagogical (Burbles & Berk, 1999; Giroux, 1988) and postmodern approaches (Atkinson, 1997; Durkin, 2008) to CT. However, the decision was made to focus on features of the Critical Thinking Movement based on the concepts of logical argumentation, cognitive thinking skills, and dispositions (Andrews, 2015; Davies & Barnett, 2015; Thomas & Lok, 2015). This focus on the Critical Thinking Movement tradition has meant that some of the insights from these other traditions have not been fully explored. At the same time, I believe that the conceptualisation of CT by the Critical Thinking Movement and its conceptualisation by the other approaches are quite different, and the other approaches have their own separate niche or sphere (Davies & Barnett, 2015).

On the other hand, despite this need to focus, the sheer breadth of concepts within the CTM and within the EAP literature can make it difficult to focus on any specific detail. I would also argue that CT is less of a 'vague' concept (Moore, 2013; Vangermensbrugge, 2004), but rather is more 'multi-faceted' (Davies, 2015; Halpern, 2014). Because it is so multi-faceted, this has meant that there have been so many aspects of CT that have required investigation. Yet within the limited framework of this thesis, it is difficult to examine any single feature in great depth. There is a sense that I have touched on a lot of features of CT, but have not gone into great depth into any single one of them.

As a consequence, the framework for understanding CT in higher education (Tables 3.2 and 9.1) is quite broad in reach. It covers 16 essential areas, but it goes into more detail in some areas (A and B) than others (C and D). For example, the contextual features (D1) incorporate a large amount of insights from a great range of perspectives. This ranges from specific views of CT (McPeck, 1981; Moore, 2004), critical pedagogies (Freire, 1973; Giroux, 1988), content based learning, disciplinary differences (Wesche, 2010; Kreber, 2009; Jones, 2015) and genre approaches (Swales, 1990; Hyland, 2003), to Academic Literacies (Lea & Street, 1998; 2006, Lillis & Scott, 2007). In many ways, I was only touching on the surface of these traditions, yet still felt it was important to acknowledge them.

### **9.3.2 Methodological limitations**

The second set of limitations relate to the methodological approaches employed to answer the question. A mixed methods approach can be difficult in resolving differences in ontological and epistemological assumptions. This was

covered and 'resolved' in chapter 4 through a pragmatic approach. Essentially, I believe the potential benefits of triangulation outweigh the difficulties of mixed methods research. It could be argued that it is difficult to compare the results of the questionnaire with the interviews because they involved different types of questions. However, similar questions were asked relating to issues of argumentation, reflection and problem solving, and the cognitive skills embedded in the argumentation constructs in the questionnaire emerged from the answers to open-ended questions in the interviews. The findings from the questionnaire and the interviews seem to corroborate in highlighting the importance of *understanding* content knowledge, and *comparing* and *evaluating* research literature.

On the other hand, there were difficulties with some of the statements used in the questionnaire, which could have affected their validity (Cohen et al, 2000). These were not immediately apparent after the completion of the questionnaire, but I did try to filter these out during the analysis stage. Having a clearer initial grounding in previous cognitive skills research by Anderson et al. (2014) could have made this part of the research more embedded in the cognitive skills tradition.

Was the interpretation of the themes in the analysis of the interview transcripts too top-down? Were they informed too much by previous conceptualisations? Were they informed too much by the patterns which emerged from the questionnaire analysis? A second opinion could have helped improve the reliability of the themes (Onwuegbuzie & Leech, 2007). At the same time, a checklist and samples of the main themes are provided in the Appendix X and Y which can be checked for reliability and credibility (Bryman et al., 2008).

A relatively low number of participants was required for a theme to be labelled a 'major theme' (five out of a total of 14), 'sub-theme' or 'minor theme' (three out of a total of 14 each). This number may have appeared to have been a low proportion of the total respondents. However, these low ratios were only apparent in the more open questions. A certain amount of data reduction was necessary otherwise I could have been left with an inordinate amount of different individual opinions.

This thematic grouping together of data into broader themes appears to indicate that the students and tutors - as a collective - had quite a sound idea of what CT consisted of. However, for some individuals this may not necessarily have been the case. Moreover, the interview sample for the students was based on a

purposive self-selecting group of students who were keen to express their views on CT. This group of students also appeared to have progressed in their understanding of CT during their one-year masters. At the same time, the interviews did not attempt to be representative of all the master's students, many of whom would not have completed their PGT degrees with as clear an understanding of CT as some of those I interviewed.

I did not interview enough students and tutors within each discipline to come to any clear conclusions about the effect of the discipline on the conceptualisation of CT. Most views seemed to merge across disciplines, but this may have been the result of a relatively low sample of interviewees, with such a variety of responses making it necessary to combine all the views in order to come out with more reliable themes. In this research, there was also an underlying focus and assumption about the *generic* nature of CT skills.

I would also have liked to have been more consistent in asking each interviewee the more structured questions. Sometimes as few as eight out of a possible 14 students were asked. However, the closed questions, which were more confirmatory in nature, did seem to yield clearer results, and these results could also be compared to those on a similar theme in the questionnaire.

## **9.4 Contribution to knowledge**

This thesis aimed to contribute to knowledge on the subject of CT in academic writing in three main areas: conceptually, empirically, and pedagogical. This contribution should be placed within the context of the high influx of international postgraduate master's students that has been occurring into UK HEIs over the last decade. There is never absolute certainty that this trend will continue into the future, but the assumption in this thesis is that the proportions will at least remain at the current proportionally high levels in UK Russell Groups institutions.

### **9.4.1 Conceptual contributions**

Paul (2011) states that there was a need for greater theoretical depth in the second wave of CT which included the cognitive skills approaches. At the same time, there was already a strong conceptual grounding in the first wave of CT based

around informal logic and argumentation studies. What my research has tried to do is combine concepts in argument structure (e.g. Harrell & Wetzel, 2015; Toulmin, 2003; Kaufer & Geisler, 1991) with a cognitive skills approach to CT using Facione's (1990; 2015) and Anderson et al.'s (2014) taxonomy. However, rather than being completely separate entities, I would suggest that the *cognitive skills* involved in producing a clear *argument* (with sound claims and supporting data, backing and warrants) are *interwoven* together in a critical piece of academic writing (Table 8.1).

This interwovenness is not a new idea and is hinted at in previous research (e.g. Davies & Barnett, 2015; Halpern, 2014). However, my frameworks (Tables 3.2 and 9.1) also attempt to go a step further in trying to incorporate approaches from developmental psychology relating to epistemological development (Greene et al., 2008) as well as show awareness of a genre approach to academic writing (Hyland, 2003; Swales, 1990; 2004).

#### **9.4.2 Empirical contributions**

The research in this thesis was novel in its methodological approach to studying CT. Previous research into CT has used a variety of methods depending on the purpose of the research. Analysing peoples' conceptualisation of CT has tended to be based on qualitative interviews with tutors, students or experts in the domain of CT (e.g. Durkin, 2008; Facione, 1990; Jones, 2007; Moore, 2013). Assessments of CT tends to be based on psychometric questionnaires (e.g. Ennis, et al, 1985; Facione & Facione, 1994; Watson & Glaser, 1994). Progress in and testing of CT skills has tended to use quasi-experimental methods (Abrami et al., 2008; Twardy, 2004; Davies, 2009), while the evaluations of critical writing have used a combination of quasi-experimental methods and subjective assessment (e.g. Stapleton, 2002; Andrews 2007). This research combined qualitative interviews with a quantitative questionnaire in order to corroborate findings through methodological and data triangulation (Denzin, 1989), and this is an approach which could be used more in future.

This research can also make a contribution to discussions around the issues relating to the internationalisation of higher education in the UK and elsewhere. First, it has focused on the need to give more voice and agency to the international postgraduate students (Durkin, 2008; Fakunle et al., 2016; Shaheen, 2012), the

types of students who form a very large proportion of the PGT (master's) body in the UK (HESA, 2018c).

Secondly, the results of the questionnaire indicate that the master's students in this research had quite a clear grounding in the essential components of 'good (critical) academic writing'. For example, they placed a high value on critical writing skills such as the need to justify and illustrate claims and compare and evaluate different perspectives, rather than repeating the opinions of others. This stands in contrast to some other research on international students and critical writing (e.g. Brown, 2008; Shaheen, 2016). The importance of these essential critical writing skills was further enhanced by similar responses in the interviews.

However, one area of critical academic writing where there was a lot more ambiguity was in the importance of the writer's voice, stance and position. In both the questionnaire and the interviews with students there were differing opinions, or ambiguity, as to whether these were essential features of critical academic writing at this level. This stood in contrast to the tutors who highlighted the importance of the writer's voice, stance and position. The ambiguity around the student writer's voice in academic writing is reflected in the findings of previous research with international students at a master's level (e.g. Brown, 2008; Shaheen, 2012), and is certainly something that could be encouraged and taught more explicitly and systematically (Street, 2009; Greene et al., 2008).

#### **9.4.3 Pedagogical contributions**

There are also some potential pedagogical contributions that emerge from this research. These relate to the numerous ways in which CT may be taught in academic writing at a master's level. To begin with, it has already been highlighted that there is potential to benchmark the language of EAP to concepts of argumentation and cognitive skills (Table 8.1), and subsequently benchmark these skills to national qualification framework criteria, classroom assessment criteria, and learning outcomes (Table 8.2).

The focus of this section, however, is on how a *three-phase model* of critical academic writing (Figure 8.1) could be integrated into the study and language support provision of the student master's experience in the institution where this research was conducted. There were two broad types of tutor-to-student face-to-face provision:

those that were targeted specifically at international students (Table 9.3), and those that were open to all students (Table 9.4).

Table 9.3

*Where a three-phase model could be used to teach CT in academic writing to international students*

<i>Department</i>	<i>Type of course</i>	<i>Entry criteria</i>
ELE	Pre-sessional master's English for academic purposes	Students who failed to gain English proficiency entry grades for their course of study. (Fee paying course that students require to pass to entry their course of study).
ELE	In-sessional academic writing and master's dissertation courses	Referred by tutor or self-referred. (Free, non-credit, limited spaces).
ELE	General writing centre: One-to-one feedback to individual students	Open to all international postgraduate students (Pre-booked, limited spaces)

For international students, there were two types of courses. These involve pre-sessional and in-sessional courses that included academic writing skills (Table 9.3). The pre-sessional courses were mainly for students who did not have the English language proficiency grades required to enter directly into their master's programmes. These courses were between four and ten weeks long and were in the summer prior to beginning the masters. Students doing these courses paid additional fees, and these types of courses are very common in the UK (Thorpe, Snell, Davey-Evans & Talman, 2017).

The second set of courses for non-UK domicile students were non-credit in-sessional courses conducted during the semester and based either on referrals from personal tutors or on a self-referral basis. Although students did not have to pay more to study on these courses, spaces were often limited. While the pre-sessional courses were university wide the in-sessional course were only available in the

School of Education. Both of these courses were administered by the ELE – the specialist EAP teaching department at this university.

Finally, the ELE also provided an additional service known as the ‘general writing centre’ which involved one-to-one feedback to postgraduate students on a sample of their academic writing. These were pre-booked and there were limited spaces. The demand for additional in-session courses and academic writing support indicates that language support is often still required and necessary for many students, as pre-session courses for students with lower entry grades do not always prove to be effective in improving academic achievement (Thorpe et al. 2017).

Table 9.4

*Where a three-phase model could be used to teach CT in academic writing to all students*

<i>Department</i>	<i>Type of course</i>	<i>Entry criteria</i>
Specific departments	Study support sessions	Optional/voluntary
Specific departments	Research methods courses	Compulsory credit-bearing
All departments	Content courses	Compulsory credit-bearing
IAD	Study and academic writing skills support	All university students: pre-booked with limited spaces

The second broad set of courses were open to all students (UK domicile and non-domicile) studying their masters (Table 9.4). This could be divided into three main types. The first were the study support courses available within specific programmes. The Business School and School of Education had slightly different approaches to this. In both cases though these were in the form of lectures where students did not have to register and could turn up on a voluntary basis. The second type of course were credit bearing research methods courses available in both

Schools, and the third set of courses were university wide non-credit study and academic writing support courses administered by the IAD.

In the ELE and School of Education I was involved in all their courses and services in Table 9.3 and 9.4 at different times, either as a student or tutor. At the time of writing all of them did run, and there are certainly opportunities to apply a three-phase model of reading-to-writing in them. In fact, some of the courses did already have a reading-to-writing orientation (specifically the pre-sessional and research methods courses).

Another type of course through which a three-phase model could be applied is through the credit-bearing content courses. It has already been highlighted in this and previous research (e.g. Abrami et al., 2008) how important it is to explicitly teach what it means to be critical within a discipline. In many ways, it is in the *content* courses where it is most important for tutors to explain to students how to think and writing critically within their discipline because high-level critical writing is based on sound content knowledge (Jones, 2015).

Finally, a key feature of the three-phase model the second 'in-between' phase, and it is at that phase where tutor 'intervention' is crucial. Usually that intervention occurs in the form of *feedback*. Dawson et al. (2019) highlight that students appreciate feedback that provides them with clear 'usable' guidelines on 'knowledge' and 'skills' required to successfully complete their written tasks (p. 32). It is suggested here that giving feedback within a clear framework (and the meta-language associated with that framework) can provide students with usable guidelines to help them improve their critical writing skills. It is further suggested that the use of my adaptations of Anderson et al.'s (2014) and Bloom et al.'s (1956) taxonomies and Toulmin's (2003) and Kaufer & Geisler's (1991) argument structures can provide such frameworks (Tables 8.1 and 8.2) to help students to write more critically.

## **9.5 Implications of research**

There are also some research implications, which to a certain extent mirror some of the limitations and contributions of this research. These have been labelled as: conceptual and methodological implications. They all relate to the types of

further research that could be conducted to build on the concepts developed, methods used and findings that have emerged from this thesis.

### **9.5.1 Conceptual implications**

Three concepts have been developed at different stages of this research. This first was the use of the framework for understanding CT in higher education (Tables 3.2 and 9.1). The research in this thesis focused in on sections A (Argumentation and voice) and B (Cognitive and meta-cognitive skills) and the interwoven relationship between these two areas (Table 8.1), as well as D3 (Different approaches to teaching). Further research could add to this list and/or develop the inter-relationship between different elements on the list (e.g. attitude to learning and cognitive and meta-cognitive skills).

Secondly, further research could be done on the connections between academic writing and conceptualisations of CT. Tables 3.1 and 9.2 are an over simplification of the relationship between cognitive skills and academic writing as a product/process. Table 8.1 is a small step further, and highlights the interwoven nature of argument, voice and cognitive skills within academic writing. Analysis of the types of argument structures (Harrell & Wetzel, 2015; Toulmin, 2003; Kaufer & Geisler, 1991) and cognitive skills (Anderson et al., 2014) used at different levels of actual postgraduate academic writing can also help us better understand the differences between different levels of academic writing, and build on the work already done by Andrews (2007, 2009) for example.

Thirdly, the synthesis of the major themes emerging from this research led to a three-phase model of academic writing and CT (Figure 8.1). More specific qualitative research on the process of academic writing can be done to evaluate how appropriate and accurate this description of the process of academic writing is. Tracking the different stages involved in the process of creating an essay by students through multi-media technology and methods (e.g. reflective blogs, audio and video recording) can bring more insight into the academic writing process and products (drafts, (re)constructed drafts etc.).

### **9.5.2 Methodological implications**

There are at least three methodological implications for future research. The first is that in future quantitative research the constructs used can be benchmarked closer to specific concepts, such as those found in Anderson et al.'s (2014) taxonomy or learning outcomes highlighted in policy documents (e.g. QAA, Scotland, 2014; QCF, 2008; SCQF, 2012). Secondly, future mixed methods research on this subject could be integrated more coherently. For example, a quantitative analysis of the types of (argumentation and cognitive) CT features found in postgraduate student essays can be compared to students accounts of the processes involved in writing those essays (see the tracking example above).

Thirdly, more research is still needed on how CT varies across disciplines (Jones, 2007; 2015; Moore, 2013), and how that manifests itself in academic writing in those disciplines. The preference of different disciplines towards specific methodological approaches in general and specific methods of research would certainly be a line of enquiry that the key results of this research have initiated. For example, CT was only one aspect of Jones's research above. Covering the conceptualisation of CT in different disciplines not covered by my research might add to the debate over the extent to which CT varies by discipline.

There is also the need for further investigation into the role of pre-sessional EAP courses, in-sessional study skills support courses and research methods courses in teaching and developing CT skills among postgraduates. Tracking student progress from pre-sessional to in-sessional support and final written assignments over a one-year masters might also provide an indication of progress, or comparing pre-sessional and non pre-sessional student work over a year might be another way of evaluating the impact of support material on developing critical writing skills.

### **9.6 Final conclusions**

Critical thinking is a concept that is sedimented within institutions of higher education in the UK through policy and practice. I would argue that it is less of a vague concept, but more of a multi-faceted one. In order to navigate the various conceptualisations of CT that are apparent from a review of the literature (Davies & Barnett, 2015), and to a limited extent from the results of this research, it is necessary

for disciplines and departments within universities to make it clear to students how they conceptualise CT (Jones, 2015) and teach these to (postgraduate) students explicitly as part of their courses.

However, there is also an overall assumption behind this research, and I think also evident in the results, that there are also generic features of CT which cut across disciplines and which manifest themselves in academic writing (Anderson et al., 2014; Andrews, 2007). There is therefore also a role for pre-sessional and in-sessional study support courses in teaching CT. Research methods courses also have a role in teaching and developing students' critical engagement with the evidence generated from research. This can have a positive knock-on effect on independent research that students conduct in their postgraduate dissertations (Andrews, 2007), and the way they approach and reflect on the problems they may encounter beyond the academy (Facione, 2015).

Some of the generic CT skills that students learn can also be benchmarked to assessment criteria and frameworks (QCF, 2008; QAA Scotland, 2014), while others may require practise through an iterative process of (re)constructive writing that involves the application of those skills. This is a process through which students can learn to become better critical thinkers and writers. However, I do not think we should leave the learning of generic attributes like CT to chance. Hence, the reason why frameworks of analysis (Tables 3.2 and 9.1) have been proposed in order to map out ways of identifying key features and processes involved in writing critically.

One defining feature of (postgraduate) higher education in the Anglo-American tradition is the prerogative to help students from all backgrounds and educational cultures to become better critical thinkers. How universities do this varies from institution to institution, but hopefully this thesis can be used to inform institutions and tutors on how they can more effectively help students develop their CT skills during their time studying within those institutions, and beyond, so that students can become better critical thinkers.





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## Appendices

Appendix A. Full-time PGT students in UK universities 2015-16 by domicile (excl. PGCE)

<i>Students in UK universities (FT)</i>	<i>PGT (excl. PGCE) 2015/16</i>	<i>Percentage</i>	<i>UK vs All int. sts</i>
UK	89615	40.7%	<b>40.7%</b>
Other EU	22740	10.3%	
Non-EU	108065	49.%	<b>59.3%</b>
Total	220,420	100%	

<i>Students in Scottish universities (FT&amp;PT)</i>	<i>PGT (excl. PGDE) 2015/16</i>	<i>Percentage</i>	<i>UK vs All int. sts</i>
UK	9,175	38%	<b>38%</b>
Other EU	3,630	15%	
Non-EU	11,615	47%	<b>62%</b>
Total	24,420	100%	

<i>Students in the University</i>	<i>PGT/PGR FT 2015/16</i>	<i>Percentage</i>	<i>UK vs All int. sts</i>
UK	2,510	35%	<b>35%</b>
Other EU	1,300	18%	
Non-EU	3,445	47%	<b>65%</b>
Total	7,260	100%	

<i>Students in UK universities</i>	<i>UG 2015/16</i>	<i>Percentage</i>	<i>UK vs All int. sts</i>
UK	1,342,770	86%	<b>86%</b>
Other EU	77,825	5%	
Non-EU	143,300	9%	<b>14%</b>
Total	1,563,900	100%	

<i>Students in UK universities</i>	<i>All 2015/16</i>	<i>Percentage</i>	<i>UK vs All int. sts</i>
UK	1,842,315	80.8	<b>81%</b>
Other EU	127,440	5.6	
Non-EU	310,575	13.6	<b>19%</b>
Unknown	505		
Total	2,280,830	100%	

Sources: [hesa.ac.uk](http://hesa.ac.uk)

Appendix B. Research framework and research methods

Category	Quest. (Q#)	StFG(Q#)	StiO	StiN	TuiBu	TuiEd
<b>N</b>	<b>234</b>	<b>11</b>	<b>4</b>	<b>10</b>	<b>6</b>	<b>8 (5+3)</b>
<b>A - Argument and voice</b>		(2, 3)	(1a)	(1a)	(2)	(2)
A1 Logical argument	2,6, 10, 15	3		1b	(2)	(2)
A2 Writer's position	4, 18, 27, 29, 30	C8 (A1)	3	2a	2	2
<b>B – Cognitive &amp; meta-cognitive skills</b>		(2, 4)	(1a)	(1b)	(2)	(2)
B1 Understanding	1, 7, 22, 28	(1)	6a(1a)	6a(1b)	7(2)	8(2)
B2 Analysis	13, (25)	A1	(1a)	(1b)	(2)	(2)
B3 Evaluation	11, 14	A1	(1a)	(1b)	4	4
B4 Creative synthesis	(20)	C6 (A1)	(1a)	2c	4	4
B5 Reflectivity	12, 23, 26	(A1)	4	2b	4	4
B6 Problem solving	8, 16, 17, 19 (25)	(A1)	5	2d	4	4
<b>C - Disposition and attitudinal development</b>						
C1 CT dispositions		B		5	(8)	(6)
C2 Attitude to learning		(C9)	(1)	(3a)	(6)	(7)
C3 Epistemological development		(C9)	(1)	(3a)	(6)	(7)
<b>D – CT Pedagogy</b>			1a)			
D1 Transferability			(7)	(3, 4)	(7,9)	(8,9)
D2 Context			2	4	(1), (2), 3, (5)	1, (2), 3, (5)
D3 Teaching approaches			6b	6b	7	7
<b>E – Knowledge and application</b>						
E1 Knowledge		C7	6a	6a	7(3)	8(3)
E2 Practical application			(1a)	(1a)	(2)	(2)

StFG = Student focus group

StiO = students interview (old)

StiN= students interview (new)

TuiBu=Tutor interview (business)

TuiEd=Tutor interview (education)

*Appendix C. Student questionnaire*

**Masters writing questionnaire**

As part of my PhD in Education at X University I would like to find out which of the following features of Master's level writing you think are important at university in your area of study. This information can be used to improve the support students receive in the future. I would be grateful if you can complete this questionnaire and return it to me. All data will be kept confidential.

Andrew Drybrough

**Voluntary Consent**

I have read and understood the information giving details of the study. My decision to consent is entirely voluntary and I understand that I am free to withdrawal without giving reason. I understand that my name will not be used in any report, publication or presentation, and that every effort will be made to protect my confidentiality.

Signed: \_\_\_\_\_

**Part A – Masters writing**

**How important do you think the following features are in successful Master's level writing at university?**

**Please circle a number for each question where 1 = Not important, and 10 = Extremely important**

**1 – DESCRIBING DIFFERENT CONCEPTS in your area of study**

1    2    3    4    5    6    7    8    9    10

**2 – Giving REASONS to explain ideas**

1    2    3    4    5    6    7    8    9    10

**3 – Writing in a SUBJECTIVE way in your academic writing**

1    2    3    4    5    6    7    8    9    10

**4 - EXPRESSING your FEELINGS and EMOTIONS in your academic writing**

1    2    3    4    5    6    7    8    9    10

**5 – DESCRIBING CRITERIA you use to make decisions. (e.g. the methods you use in research)**

1    2    3    4    5    6    7    8    9    10

**6 – EXPLAINING CONCEPTS you have learnt about in your area of study**

1    2    3    4    5    6    7    8    9    10

**7 – DESCRIBING the VIEWPOINTS of DIFFERENT WRITERS in your area of study**

1    2    3    4    5    6    7    8    9    10

**8 – DESCRIBING PRACTICAL PROBLEMS in your area of study**

1    2    3    4    5    6    7    8    9    10

**9 – CRITICISING opinions you disagree with**

1 2 3 4 5 6 7 8 9 10

**10 - Giving EXAMPLES to illustrate ideas**

1 2 3 4 5 6 7 8 9 10

**11 – DESCRIBING the STRENGTHS of different concepts in your area of study**

1 2 3 4 5 6 7 8 9 10

**12 – REFLECTING on what you have learnt from your studies.**

1 2 3 4 5 6 7 8 9 10

**13 – COMPARING DIFFERENT concepts in your area of study**

1 2 3 4 5 6 7 8 9 10

**14 – DESCRIBING the WEAKNESSES of concepts in your area of study**

1 2 3 4 5 6 7 8 9 10

**15 – EXPLAINING the DECISIONS you have made (e.g. research you have decided to do)**

1 2 3 4 5 6 7 8 9 10

**16 – CRITICISING different SOLUTIONS to PROBLEMS in your area of study**

1 2 3 4 5 6 7 8 9 10

**17 – WRITING SOLUTIONS to a PROBLEM in your area of study**

1 2 3 4 5 6 7 8 9 10

**18 – WRITING about what is important to you**

1 2 3 4 5 6 7 8 9 10

**19 – DESCRIBING the STRENGTHS of SOLUTIONS TO PROBLEMS in your area of study.**

1 2 3 4 5 6 7 8 9 10

**20 – Doing INDEPENDENT RESEARCH as part of your studies (e.g. part of a dissertation).**

1 2 3 4 5 6 7 8 9 10

**21 – DESCRIBING the WEAKNESSES of SOLUTIONS TO PROBLEMS in your area of study.**

1 2 3 4 5 6 7 8 9 10

**22 –SUMMARISING CONCEPTS in your area of study.**

1 2 3 4 5 6 7 8 9 10

**23 – REFLECTING on practice in your area of study**

1 2 3 4 5 6 7 8 9 10

**24 – Writing in an OBJECTIVE style in your academic writing.**

1 2 3 4 5 6 7 8 9 10

**25 – COMPARING DIFFERENT SOLUTIONS in your area of study.**

1 2 3 4 5 6 7 8 9 10

**26 - REFLECTING on theories you have learnt about in your area of study**

1 2 3 4 5 6 7 8 9 10

**27 – EXPRESSING your PERSONAL OPINION.**

1 2 3 4 5 6 7 8 9 10

**28 – SUMMARISING your writing.**

1 2 3 4 5 6 7 8 9 10

**29 – WRITING about what you believe to be true**

1 2 3 4 5 6 7 8 9 10

**30 – WRITING about the ASSUMPTIONS behind your beliefs and what is important to you.**

1 2 3 4 5 6 7 8 9 10

**Part B - IELTS or TOEFL essays**

**1 - PLEASE TICK ( ✓ ) A . Did you do an IELTS or TOEFL exam before entering Edinburgh University?**

**IELTS:** YES  NO

**TOEFL:** YES  NO

**If NO for IELTS or TOEFL, please go to Part C.**

If YES, what was your most recent WRITING grade in IELTS or TOEFL?

\_\_\_\_\_

**If you took an IELTS/TOEFL preparation course answer questions 2 and 3. If not, go to Part C.**

**2 – My MAIN EXPERIENCE of essay writing in ENGLISH before studying in Edinburgh was when preparing for the IELTS or TOEFL exam**

Strongly disagree  Disagree  Agree  Strongly agree   
Unsure

**3 - Studying for IELTS/TOEFL was USEFUL in helping me write in academic English.**

Strongly disagree  Disagree  Agree  Strongly agree   
 Unsure

**C – Personal information**

1 – Year of birth \_\_\_\_\_

2 – Gender (PLEASE TICK ( ✓ ) A BOX) Female  Male

3 – Nationality \_\_\_\_\_

4 – Previous education (Please TICK ( ✓ ) a box)

Undergraduate:  Name of subject / major:  
 \_\_\_\_\_

Postgraduate:  Name of subject / major:  
 \_\_\_\_\_

Other qualifications (e.g. CELTA, DELTA, PGCE):  
 \_\_\_\_\_

5 – I wrote MORE THAN 5 long academic essays in English (of 1500 words or more) in my previous studies (e.g. undergraduate degree)

YES  NO  Unsure

**Thank you for answering the questions**

---

*Appendix D. Linguistic interpretation of a ten-point semantic differentiation scale*

<i>Number on scale</i>	<i>Actual or suggested linguistic definition</i>
1	<b>Not important</b>
2	Extremely low level of importance
3	Very low level of importance
4	Low level of importance
5	Low to medium level of importance
6	Medium level of importance
7	Medium to high level of importance
8	High level of importance
9	Very high level of Importance
10	<b>Extremely important</b>

Appendix E. The 24 individual statements in each pre-conceived construct group

Group	Statement
<i>ExI</i>	<b>Explaining and illustrating</b> Giving reasons to explain ideas. Explaining concepts you have learnt about in your area of study. Giving examples to illustrate ideas. Explaining the decisions you have made.
<i>VoSt</i>	<b>Voice and stance</b> Writing about what is important to you. Expressing your personal opinion. Writing about what you believe to be true. Writing about the assumptions behind your beliefs (and what is important to you).
<i>DeSu</i>	<b>Describing and summarising</b> Describing different concepts in your area of study. Describing the viewpoints of different writers in your area of study. Summarising concepts in your area of study. Summarising your writing.
<i>CoEv</i>	<b>Comparing and evaluating</b> Comparing different concepts in your area of study. Comparing different solutions in your area of study. Describing the strengths of different concepts in your area of study. Describing the weaknesses of concepts in your area of study. Describing criteria you use to make decisions.
<i>Re</i>	<b>Reflection</b> Reflecting on what you have learnt from your studies. Reflecting on theories you have learnt about in your area of study. Reflecting on practice in your area of study.
<i>PrSo</i>	<b>Problem solving</b> Describing practical problems in your area of study. Writing solutions to a problem in your area of study. Describing the strengths of solutions to problems in your area of study. Describing the weaknesses of solutions to problems in your area of study.

### *Appendix F. Filtering out unreliable statement constructs*

Following the re-interpretation of the statements some were moved from one group to another. These were of two types. The main casualty of this re-interpretation was the Reflection group. Originally, the statements 18, 29 and 30 were included in this group based on Ecclestone (1996) article on the key features of reflection. However, the face validity of these statements did not fit into a 'Reflection' group as they did not include the word 'Reflecting' in the statements. However, rather than making these statement redundant I felt that they were more appropriate to the 'Voice and stance' group. This meant, however, that the Reflection group ended up with only three statements, rather than the original six.

Another statement that was moved was statement 25, 'Comparing different solutions in your area of study'. This was originally in the Problem Solution group. However, it was felt that the 'Comparing' was a stronger element to this statement than 'solutions' and it was included in the Comparing and Evaluation group. The word 'Evaluate' was not used in the statements, but was rather divided into separate statement describing 'strengths' and 'weaknesses'.

There is also one possible critique of the Problem Solving statements which often involve two part (e.g. 'Describing strengths of ' + 'solutions to problems'). In this case it involves an aspect of evaluating solutions. However, this was meant to reflect the more and complexed nature of problem solving.

There statements which were not used in the PCA. In terms of redundancy, statement 4 and 9 stand out. Statement 9, 'Criticising opinions you disagree' and statement 16, 'Criticising different solutions to problems in your area of study' imply shallow form of critique with the use of the word 'Criticising' based on (Williams, 1976) and is not a good example of CT, but could have been misinterpreted, as this was rated quite highly, so they were excluded. At the other end of the spectrum, statement 4, 'Expressing your feelings and emotions in your academic writing' was originally included in the 'Voice and stance' group, but later it was taken out, possibly because it was too extreme an example of 'voice' or could be misinterpretation as it was lowly rated ( $M=4.03$ ).

Statements 3 and 24 also served a special, but different purpose. These statements were designed as 'opposites' to assess whether students had the tendency to circle the central statements as well as to check for reliability. They seemed to work as the 'subjective' writing statement (3) had the second lowest mean ( $M=5.73$ ) and the 'objective' writing statement (24) had the third highest mean ( $M=8.37$ ).

## Appendix G. Procedures used in principle component analysis

There were a number of stages in the PCA process.

**Correlation matrix:** After transcribing the data from the written questionnaires onto Microsoft Excel and into SPSS the first stage is to produce a *correlation matrix* using Pearson  $r$ . This correlates each of the different variables that have been rated with each other. It can also provide an overview of variables whose  $r$  is not high enough or too high. In this research, to be included in further analysis variables must have at least three correlations with another variable where  $r > .3$  based on Field (2009, p. 648). We would expect some correlation as they are meant to be measuring the same construct. However, often within a questionnaire it is also valid to include detractors, to check that the respondents are actually reading the questions (Cohen, Manion, & Morrison, 2000). These often have statistically significantly lower ratings and correlations than the rest of the variables.

**Factor rotation and structure matrix:** The variables that are left after this first stage are then inputted into SPSS to calculate the principle components. This produces a *structure matrix* which displays factors (or principle components) and the loadings that connect them. However, what tends to happen is that most variables tend to have high loadings on one factor which can make interpretation difficult. This is where factor rotation is advisable. This helps discriminate between factors (Field, 2009, p. 642), and take the load off just one factor. There are two basic types of rotation. *Orthogonal rotation*, which rotates the factors while keeping them unrelated, while *oblique rotation* allows factors to correlate.

**Sample size and reliability:** There are differing opinions over how small a sample can be for the PCA to be reliable. Stevens (2002 in Stevens, 2009) suggests a minimum of five respondents per variable (e.g.  $5 \times 30 = 150$ ). Others see sample size as less important, but rather the combinations the strength of the loading in the structure matrix and the sample size are more important.

There are also differing opinions regarding the strength of the loadings and sample size. The higher the loading and the larger the sample size the more reliable the factor analysis is and *visa versa*. Stevens (2002) suggested that a sample of 50 required a loading of .722+, 100 a loading of .512+ and a sample of 200 a loading of .364+. Guadagnoli and Velicer (1988) (as cited in Stevens, 2002) suggested four or more loadings above .60 are reliable, regardless of sample size. Stevens (2009) noted that three loadings with .80 or over should be reliable and that an average loadings on four variables greater than .60 and three variables greater .80 are reliable. This study will use Steven's (2009) criteria.

Another method to evaluate the reliability of a sample is to use the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) (Kaiser, 1970, as cited in Field, 2009). The KMO statistic varies between 0 and 1. His should be above 0.5 (Child, 2006, p.55), and values between 0.7 and 0.8 are considered good, 0.8 to 0.9 are great and 0.9 and above superb (Hutcheson and Sofroniou, 1999 as cited in Field, 2009)

**How many factors should be extracted?** The two most common measurements used to decide on how many factors should be extracted are the *Eigenvalue greater than one* and the *Scree test* (Child, 2006, p. 58). The Eigenvalue of one is considered to be most reliable when the variables are between 20 and 50 (Childs, 2006, p.59). In this research it is between 24 and 30. The Scree Test elaborated by Cattell (1978) in Childs, 2006 is a standard method of deciding which factors to include for further analysis and which ones not to. These are the default settings in the SPSS. The

naming of the factors involves a subjective judgement based on interpretation of the data from the PCA. It is hoped that this will be relatively clear based on the PCA, but there is always the risk that nothing clear cut will emerge.

**Alternative measurement of reliability:** In order to further test for the reliability of the variables that make up the principle components that have been extracted this study also uses the Cronbach Alpha ( $\alpha$ ) measurement of reliability. This measures how reliable a measurement is of a construct and is rated between 0 and 1. Anything above .7 is considered to have a good level of reliability, while .8 and above is very good (Field, 2009). It is also possible to measure the reliability of each pre-conceived construct group as well as all 25 statements using the Cronbach Alpha score.

*Appendix H. Informed consent form for the focus groups*

**Informed Consent Form**

Please READ the information below, TICK the boxes and SIGN on the line before beginning the interview/focus group.

In this focus group my aim is to gather information in order to find out about your understanding of the various aspects of critical thinking, and how you believe critical thinking is expressed in academic writing at master's level in university. The data from this research may be used to help improve students' understanding of critical thinking and its use in academic writing in future.

Audio recordings will be made of the focus group. The data from the recordings will only be used for this research and will be stored safely. If you would like to have access to the summary of the results of this focus group, please leave your email details below.

**I have read and understood the information giving details of the study**

**My decision to consent is entirely voluntary and I understand that I am free to withdrawal without giving reason**

**I understand that my name will not be used in any report, publication or presentation, and that every effort will be made to protect my confidentiality**

Name: \_\_\_\_\_

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Email: \_\_\_\_\_ (optional)

*Appendix I. Focus group protocol*

PRE-RECORDING

Thank them for coming.

Offer snacks

Complete Informed consent form

Get them to write their names I would like to call them on the paper pyramids.

When everyone is ready:

- - - - -

PRESS RECORD ON BOTH MACHINES

Thank you very much for coming to our focus group here today on ... to discuss our 'understanding of CT in academic writing at a master's level'.

This focus groups will be recorded for research purposes only, but pseudonyms will be used in the transcriptions in order to protect confidentiality.

(As you know) My name is Andrew Drybrough. Can you just introduce yourself before we begin by giving your name and the name of the master's course that you are studying on here at X University.

A - TASK 1

I would like to begin with a task for you to do as a group. It has 2 parts.

a) – In the first part your task is to read the five conclusions (A – E) to a written assignment and rank them from the one that you think demonstrates the highest level of CT (number 1), to the one that demonstrates the lowest level (number 5). I plan to give you about 5 minutes to do this.

b) – In the second part, you will discuss your choices and try to come to an agreement on the order as a group. There is not necessarily any right or wrong answer. Do you understand?

[After about 10-15 minutes (but be flexible and monitor)]

B -1 – Let's finish there.

- a) Now can you tell me why you thought this one demonstrated the highest level of CT?
- b) Why does this one demonstrate a low level of CT?
- c) What about the ones in the middle?

2 – How do you think a student can demonstrate CT in their academic writing in your subject?

3 – Do you think the clarity of an ARGUMENT is important in expressing a critical view point in academic writing?

4 – Apart from argumentation ability, what other writing SKILLS do you think are important to be able to demonstrate CT?

## C - TASK 2

D – CREATIVITY, SUBJECT KNOWLEDGE, VOICE, AND DEVELOPMENT OF CT IN THE MASTERS

6 – Do you think being CREATIVE is linked to CT? [If so, in what way?]

7 - How important do you think having SUBJECT KNOWLEDGE is for developing good CT skills?

8 – Do you think it's important for a writer to express their OWN opinion?

9 – Do you think your master's has helped DEVELOP your CT? [How? Why?]

10 – Any other comments about CT?

## SUMMARY?

I do intend doing one more focus group / follow-up interview in the summer and you are all most welcome to participate in it.

Thank you very much for participating in this focus group.

## *Appendix J. Focus group Task 1*

This task is designed to stimulate discussion at the beginning of the focus group. There will be about 5 minutes to read over this again at the beginning of the focus group. There is not necessarily a 'right' or 'wrong' answer.

Please could you put in order, from first to last, which of the following 'conclusions' (A-E) from an essay you think shows the highest level of critical thinking

PROMPT: Evaluate the effectiveness of three methods of assessing students on a humanities and social science master's degree: written assignments, oral presentations and multiple choice exams.

## **CONCLUSION A**

This paper evaluated three methods of assessment in a master's level course: namely written assignments, oral presentations and multiple choice tests. Written assignments usually consist of one or more academically written paper of around 4,000 words in length; oral presentations usually involve an individual or collaborative power point presentation, and the multiple choice exams usually occurs at the end of a course. A combination of written assignments and spoken presentations was considered to be the most effective method of student assessment.

Although the multiple choice test was considered to be potentially easier to administer and grade, it was weakest in demonstrating the students' actual knowledge of the topic. As there is a significant element of guessing involved in multiple choice tests, this was viewed as a poor example of testing what students actually know. However, it is acknowledged that for some courses multiple choice examinations are common, and further research may still be required to further evaluate the use of multiple choice testing.

## **CONCLUSION B**

This paper evaluated three methods of assessment in a master's level course: namely written assignments, oral presentations and multiple choice examinations. Written assignments usually consist of one or more academically written paper of around 4,000 words in length; oral presentations usually involve an individual or collaborative power point presentation, and the multiple choice exams usually occur at the end of a course of study.

Despite having individual weaknesses, all three types of assessment were considered to be of use in different ways. Written assignments were useful in demonstrating what students know in writing, oral presentations showed evidence of good summarising skills and collaborative learning ability, and multiple choice tests were considered to be easier to administer and grade. Some types of assessment may be more suitable to some subjects than others, but ultimately it is the responsibility of that department to choose the best combination. However, further research may still be required to further evaluate the use of these different methods.

## **CONCLUSION C**

This paper evaluated three methods of assessment in a master's level course. Three broad criteria were used to evaluate the effectiveness of these methods: validity, reliability and practicality. Although other criteria were considered, these three were viewed to be the most important. A combination of written assignments and spoken presentations was considered to be the most effective method of student assessment as these methods demonstrated the highest level of test validity. This conclusion is further supported by my own extensive experience as a test examiner.

Although the multiple choice test was considered to be potentially more reliable and practical, it was weakest in the key area of test validity. As test validity was viewed as the most important criteria, multiple choice tests were deemed to be the least appropriate method for master's assessment. However, it is acknowledged that for some courses multiple choice examinations are considered appropriate, and further research may still be required to further evaluate the validity of multiple choice testing.

## **CONCLUSION D**

This paper compared and evaluated three methods of assessment in a master's level course: namely written assignments, oral presentations and multiple choice tests. Three broad criteria were used to evaluate the effectiveness of these methods: namely validity, reliability and practicality. Although other criteria were considered, these three were viewed to be the most important. A combination of written assignments and spoken presentations was considered to be the most effective

method of student assessment as these methods demonstrated the highest level of test validity.

Although the multiple choice test was considered to be potentially more reliable and practical, it was weakest in the key area of test validity. As test validity was viewed as the most important criteria, multiple choice tests were deemed to be the least appropriate method for master's assessment. However, it is acknowledged that for some courses multiple choice examinations are considered appropriate, and further research may still be required to further evaluate the validity of multiple choice testing.

## **CONCLUSION E**

This paper evaluated three methods of assessment in a master's level course: namely written assignments, oral presentations and multiple choice examinations. Written assignments usually consist of one or more academically written paper of around 4,000 words in length; oral presentations usually involve power point presentations, and the multiple choice exams usually occur at the end of a course of study.

Written assignments are probably the most common type of assessment on humanities and social science master's programmes. Oral presentations are also common and can either be done individually or collaboratively with other students. Finally, multiple choice tests are also used in many courses, but are probably the least common of the three and are more common in science programmes. Some types of assessment may be more suitable to some subjects than others, but ultimately it is the responsibility of that department to choose the best combination. However, further research may still be required to further evaluate the use of these different methods.

### *Appendix K. Rationale for my own ranking from highest to lowest*

#### **1<sup>st</sup> - CONCLUSION C**

This paper evaluated three methods of assessment in a master's level course. Three broad criteria were used to evaluate the effectiveness of these methods: validity, reliability and practicality. Although other criteria were considered, these three were viewed to be the most important. A combination of written assignments and spoken presentations was considered to be the most effective method of student assessment as these methods demonstrated the highest level of test validity. This conclusion is further supported by my own extensive experience as a test examiner.

Although the multiple choice test was considered to be potentially more reliable and practical, it was weakest in the key area of test validity. As test validity was viewed as the most important criteria, multiple choice tests were deemed to be the least appropriate method for master's assessment. However, it is acknowledged that for some courses multiple choice examinations are considered valid, and further research may still be required to further evaluate the validity of multiple choice testing.

[163 words]

1 – Summary, refer to the question.

[1A - View a, b and c are briefly, clearly and accurately summarised]

2 – View a, b and c are evaluated using a specific criteria of evaluation

3 – The strengths and limitations of that criterion/method of evaluation are noted

- 4 - An original dialectic position is clearly put forward, involving a combination of two viewpoints
- 5 - The other is seen as less relevant in the context of the question and is more explicitly critiqued
- 6 - This position is tempered by the pedagogical context in which this position may be held
- 7 – This position is tempered by the need for further specific research
- 8 – The personal position/experience of the author is clear
- [9 - The voice of the author is subtle, but clear]

THE MAIN DIFFERENCE BETWEEN C & D IS THAT THE 'VOICE' OF THE WRITER IS 'HIDDEN' IN B

## **2<sup>nd</sup> - CONCLUSION D**

This paper compared and evaluated three methods of assessment in a master's level course: namely written assignments, oral presentations and multiple choice tests. Three broad criteria were used to evaluate the effectiveness of these methods: namely validity, reliability and practicality. Although other criteria were considered, these three were viewed to be the most important. A combination of written assignments and spoken presentations was considered to be the most effective method of student assessment as these methods demonstrated the highest level of test validity.

Although the multiple choice test was considered to be potentially more reliable and practical, it was weakest in the key area of test validity. As test validity was viewed as the most important criteria, multiple choice tests were deemed to be the least appropriate method for master's assessment. However, it is acknowledged that for some courses multiple choice examinations are considered valid, and further research may still be required to further evaluate the validity of multiple choice testing.

[161 words]

- 1 –Summary, refer to the question.
- [1A - View a, b and c are briefly, clearly and accurately summarised]
- 2 – View a, b and c are evaluated using a specific criteria of evaluation
- 3 – The strengths and limitations of that criterion/method of evaluation are noted
- 4 - An original dialectic position is clearly put forward, involving a combination of two viewpoints
- 5 - The other is seen as less relevant in the context of the question and is more explicitly critiqued
- 6 - This position is tempered by the pedagogical context in which this position may be held
- 7 – This position is tempered by the need for further specific research

THE MAIN DIFFERENCE BETWEEN A & D IS THAT THERE IS NO REFERENCE TO THE CRITERIA OF ASSESSEMENT

### **3<sup>rd</sup> - CONCLUSION A**

This paper evaluated three methods of assessment in a master's level course: namely written assignments, oral presentations and multiple choice tests. Written assignments usually consist of one or more academically written paper of around 4,000 words in length; oral presentations usually involve an individual or collaborative power point presentation, and the multiple choice exams usually occurs at the end of a course. A combination of written assignments and spoken presentations was considered to be the most effective method of student assessment.

Although the multiple choice test was considered to be potentially easier to administer and grade, it was weakest in demonstrating the students' actual knowledge of the topic. As there is a significant element of guessing involved in multiple choice tests, this was viewed as a poor example of testing what students actually know. However, it is acknowledged that for some courses multiple choice examinations are common, and further research may still be required to further evaluate the use of multiple choice testing.

[163 words]

1 –Summary, refer to the question.

1A - View a, b and c are briefly, clearly and accurately summarised

2 – View a, b and c are evaluated using a specific criteria of evaluation

4 - An original dialectic position is clearly put forward, involving a combination of two viewpoints

5 - The other is seen as less relevant in the context of the question and is more explicitly critiqued

6 - This position is tempered by the pedagogical context in which this position may be held

7 – This position is tempered by the need for further specific research

THE MAIN DIFFERENCE BETWEEN B & A IS THAT THERE IS NO REFERENCE TO AN 'ALTERNATIVE DIALECTIC OPTION' OR TO THE IMPORTANCE OF CONTEXT IN CRITIQUING OPTION A

### **4<sup>th</sup> - CONCLUSION B**

This paper evaluated three methods of assessment in a master's level course: namely written assignments, oral presentations and multiple choice examinations. Written assignments usually consist of one or more academically written paper of around 4,000 words in length; oral presentations usually involve an individual or collaborative power point presentation, and the multiple choice exams usually occur at the end of a course of study.

Despite having individual weaknesses, all three types of assessment were considered to be of use in different ways. Written assignments were useful in demonstrating what students know in writing, oral presentations showed evidence of good summarising skills and collaborative learning ability, and multiple choice tests were considered to be easier to administer and grade. Some types of assessment may be more suitable to some subjects than others, but ultimately it is the responsibility of that department to choose the best combination. However, further research may still be required to further evaluate the use of these different methods.

[161 words]

1 – Summary, refer to the question

1A - View a, b and c are briefly, clearly and accurately summarised

2 – View a, b and c are evaluated using a specific criteria of evaluation

6 - This position is tempered by the pedagogical context in which this position may be held

7 – This position is tempered by the need for further specific research

THE MAIN DIFFERENCE BETWEEN E & B IS THAT THERE IS NO CLEAR EVALUATION AND IT IS PURELY DESCRIPTIVE

### **5<sup>th</sup> - CONCLUSION E**

This paper evaluated three methods of assessment in a master's level course: namely written assignments, oral presentations and multiple choice examinations. Written assignments usually consist of one or more academically written paper of around 4,000 words in length; oral presentations usually involve power point presentations, and the multiple choice exams usually occur at the end of a course of study.

Written assignments are probably the most common type of assessment on humanities and social science master's programmes. Oral presentations are also common and can either be done individually or collaboratively with other students. Finally, multiple choice tests are also used in many courses, but are probably the least common of the three and are more common in science programmes. Some types of assessment may be more suitable to some subjects than others, but ultimately it is the responsibility of that department to choose the best combination. However, further research may still be required to further evaluate the use of these different methods.

[162 words]

E – Summary, refer to the question

1 - View a, b and c are briefly, clearly, accurately and extensively summarised

6 - This position is tempered by the pedagogical context in which this position may be held

7 – This position is tempered by the need for further specific research

X - Ontological/epistemological and academic discourse in which it is framed are acknowledged –

### *Appendix L. Focus groups Task 2*

Now I would like to move on to talk about how you develop your CT ability more generally.

I have a list here of different sources of CT or criticality. These may or may not be relevant for you. Read through this for about one minute,.

Discuss which of the following factors helped, or didn't help you develop your CT abilities. You may also ADD other sources.

Parenting

Personal tendency to be critical  
 Undergraduate degree  
 Reading  
 Studying abroad or in another part of your country  
 Working abroad or in another part of your country  
 Travel  
 The pre-sessional EAP  
 Teachers past or current  
 Specific life experience  
 Friendship and acquaintances  
 Education culture in your country  
 Confucius learning culture  
 Debates in university  
 Debates in English classes  
 Is there anything else you think you can add?

*Appendix M. Students who participated in the focus groups and individual interviews*

<i>Pseud./Code</i>	<i>UG study</i>	<i>PG study</i>	<i>Nationality</i>	<i>M/F</i>
Ana / SF1	English Education	TESOL	Indonesian	F
Anika / S2	English Teaching	TESOL	Indonesian	F
Yumi / S3	English	TESOL	Japanese	F
David / S4	English Literature	TESOL	British	M
Wei SF5	TCFL*	Language Education	Chinese	M
Fang S6	ELL**	Education	Chinese	F
Ying S7	HR Management	Education	Chinese	F
Mara / S8	English Literature	Education	German	F
Melissa / S9	Psychology	Performance Psychology	Belgium	F
Marie /S10	Human Science	Performance Psychology	French	F
Nia / S11	Psychology	Performance Psychology	Irish	F
Marco / S12	Sports Science	Strength and Conditioning	Italian	M
Min SF13	Public Admin.	HR Management	Chinese	F
Yichun SF14	Chem. Engineering	Management	Taiwanese	F
Jing F2	CLL***	TESOL	Chinese	F
Li F3	History	Education	Chinese	F
Qiang F4	Tourism & English	Education	Chinese	M
Alex / F7	Criminal Justice	TESOL	American	M
Azeera / F8	ELT****	TESOL	Turkish	F
Cristina / F9	TESOL/Education	TESOL	Chilean	F
Jun F10	Translation	Management	Chinese	F

\* Teaching Chinese as a Foreign Language \*\*English Language and Literature

\*\*\*Chinese Language and Literature

\*\*\*\*English Language Teaching

*Appendix N. Interview informed consent form for students and tutors*

**Informed Consent Form**

Please READ the information below, TICK the boxes and SIGN on the line before beginning the interview.

In this interview my aim is to gather information in order to find out about your understanding of the various aspects of critical thinking, how you believe critical thinking is expressed in academic writing at master's level in university, and how your understanding may have changed over the last year of your masters. The data from this research may be used to help improve students' understanding of CT and its use in academic writing in future.

Audio recordings will be made of the interview. The data from the recordings will only be used for this research and will be stored safely.

**I have read and understood the information giving details of the study**

**My decision to consent is entirely voluntary and I understand that I am free to withdrawal without giving reason**

**I understand that my name will not be used in any report, publication or presentation, and that every effort will be made to protect my confidentiality**

Name: \_\_\_\_\_

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Email: \_\_\_\_\_ (optional)

*Appendix O. Student interview protocol (new)*

NEW sts: PRE-RECORDING

Thank them for coming.

Complete Voluntary consent form

- - - - -

Thank you very much for coming to my interview here today on ... to discuss our 'understanding of CT in academic writing at a master's level' and specifically how our understanding of CT has developed over the masters period.

This interview will be recorded for research purposes only, but pseudonyms will be used in the transcriptions in order to protect confidentiality.

(As you know) My name is Andrew Drybrough. Can you just introduce yourself before we begin by giving your name and the name of the master's course that you are studying on here at X University.

1 – Your UNDERSTANDING of CT

- a) – How do you think a student can demonstrate CT in their academic writing in your subject?
- b) – Do you think the clarity of an ARGUMENT is important in expressing a critical view point in academic writing?
- c) – Apart from argumentation ability, what other writing SKILLS do you think are important to be able to demonstrate CT?

2 – VOICE, REFLECTION, CREATIVITY AND PROBLEM SOLVING

- a) – Do you think it's important for a writer to express their OWN opinion? Do you think the individual VOICE, or position, or opinion of the student/researcher/writer is an important aspect of CT?
- b) – How important do you think being REFLECTIVE in your thinking and writing is an indication of your CT?
- c) - Do you think being CREATIVE is linked to CT?] [If so, in what way?]
- d) - Do you think that developing and showing PROBLEM SOLVING abilities is an indication of high level CT

3 – How their understanding of CT may have changed or DEVELOPED?

- a) - Do you think that during your time studying your Master's you have changed in your view of CT? How? Why?
  - Yes: How? No: Why not?

4 – Do you think the process involved in producing your DISSERTATION has affected your understanding of CT in academic writing?

- a) - Literature review
- b) – Methodology/ research design
- c) – Findings and Discussion ... stages
- d) - Feedback

5 - Now I would like to move on to talk about how you develop your CT ability more generally. I have a list here of different sources of CT or criticality. These may or may not be relevant for you. Read through this for about one minute.

#### 6 – How to ‘TEACH’ CT?

In this task I would like you to put the methods of teaching CT you think would be most effective during a master’s course. They do not have to be one on top of the other. They can be next to each other. There is no right or wrong answer. [Allow students to do this individually, then as a group]

- a) How important do you think having SUBJECT KNOWLEDGE is for developing good CT skills?
- b) How do you think STUDENTS can best learn to develop these CT skills?
  - i) Separate course (in-session compulsory or optional course)
  - ii) Infused (explicitly as part of a course)
  - iii) Immersion (implicitly while studying)
  - iv) Mixture of the above] – a focusing task for second focus group
  - v) Other. Please write a suggestion

#### 7 – Any other comments or questions about CT?

#### THANK YOU VERY MUCH FOR PARTICIPATING IN THIS INTERVIEW

5 - I have a list here of different sources of CT or criticality. These may or may not be relevant for you. Read through this for about one minute.

Which of the following factors helped, or didn’t help you develop your CT abilities before starting your masters. You may also ADD other sources.

- Personal tendency to be critical
- Upbringing
- Education culture in your country
- Undergraduate degree
- Debates in university or in English classes

- Reading
- Studying abroad or in another part of your country
- Working abroad or in another part of your country
- Travel

Other specific life experience

Teachers past or current

Friendship and acquaintances

Is there anything else you think you can add?

6 b) - How do you think STUDENTS can best learn to develop these CT skills?

A SEPARATE COURSE:

in-session compulsory or optional course on CT in academic writing)

B INFUSED

Taught explicitly as part of a course

e.g. Lectures or tutors would tell you that they expect you to be critical and give some examples as part of the lecturer or workshop/seminar

C IMMERSION

Implicitly while studying

e.g. Lectures/tutors expect you to be critical and to learn how to be critical through your course of study. However, they will not explain exactly how to be critical. You may be expected to learn this through your reading and there may be an assumption that being critical is very contextual and variable and hence difficult to teach explicitly.

D Mixture of the above

e.g. After giving you a written assignment tutors provide model essays with examples of different levels of criticality, and the scores they would be expected to get if they produced similar level work.

E OTHER. Please write a suggestion

*Appendix P. Student interview protocol (old)*

OLD STS: PRE-RECORDING

Thank them for coming.

Complete Voluntary consent form

- - - - -

PRESS RECORD ON BOTH MACHINES

Thank you very much for coming to my interview here today on ... to discuss our 'understanding of CT in academic writing at a master's level' and specifically how our understanding of CT has developed over the masters period.

This interview will be recorded for research purposes only, but pseudonyms will be used in the transcriptions in order to protect confidentiality.

(As you know) My name is Andrew Drybrough. Can you just introduce yourself before we begin by giving your name and the name of the master's course that you are studying on here at X University.

1 – REVIEW - TASK 1 – How their understanding of CT may have changed?

a) - I would like to begin with a review task over how we understood CT to mean. Here is a summary of it:

[Summary of their conceptualisation of CT]

b)- The first task to tell me whether you still agree with this view of CT.

c) - Is there anything else you would like to add?

i) How have you learned about this additional aspect of CT?

d) - Do you think that during your time studying your Master's you have changed in your view of CT? How? Why?

- Yes: How? No: Why not?

2 – Do you think the process involved in producing your dissertation has affected your understanding of CT in academic writing?

a) - Literature review

b) – Methodology/ research design

c) – Findings and Discussion ... stages

3 – Do you think the individual VOICE, or position, or opinion of the student/researcher/writer is an important aspect of CT?

4 – How important do you think being REFLECTIVE in your thinking and writing is an indication of your CT?

a) How have you learned about this additional aspect of CT?

b) Do you think the masters has helps you learn to develop your CT skills in academic writing?

c) Yes: How? No: Why not?

5 – Do you think that developing and showing PROBLEM SOLVING abilities is an indication of high level CT?

a) How have you learned about this additional aspect of CT?

b) Do you think the masters has helps you learn to develop your CT skills in academic writing?

c) Yes: How? No: Why not?

(6 – CRITICAL PEDAGOGY)

6 – How to 'teach' CT?

In this task I would like you to put the methods of teaching CT you think would be most effective during a master's course. They do not have to be one on top of the other. They can be next to each other. There is no right or wrong answer. [Allow students to do this individually, then as a group]

How do you think STUDENTS can best learn to develop these CT skills?

- i) Separate course (in-session compulsory or optional course)
- ii) Infused (explicitly as part of a course)
- iii) Immersion (implicitly while studying)
- iv) Mixture of the above] – a focusing task for second focus group
- v) Other. Please write a suggestion

7 – Any other comments or questions about CT?

THANK YOU VERY MUCH FOR PARTICIPATING IN THIS INTERVIEW

6 - How do you think STUDENTS can best learn to develop these CT skills?

A SEPARATE COURSE:

in-session compulsory or optional course on CT in academic writing)

B INFUSED

Taught explicitly as part of a course

e.g. Lectures or tutors would tell you that they expect you to be critical and give some examples as part of the lecturer or workshop/seminar

C IMMERSION

Implicitly while studying

e.g. Lectures/tutors expect you to be critical and to learn how to be critical through your course of study. However, they will not explain exactly how to be critical. You may be expected to learn this through your reading and their may be an assumption that being critical is very contextual and variable and hence difficult to teach explicitly.

D Mixture of the above

e.g. After giving you a written assignment tutors provide model essays with examples of different levels of criticality, and the scores they would be expected to get if they produced similar level work.

E OTHER. Please write a suggestion

Information about my PhD research: Andrew Drybrough (s1265277)

**Comparing the conceptualisation of critical thinking in academic writing at a master's level**

The aim of my PhD research is to compare the conceptualisation of critical thinking in academic writing at a master's level among staff and students in two different Schools at the University of X: the Y School of Education (where I am based), and the Business School.

The research is in four phases. The first is a questionnaire survey. The questionnaire asks respondents to rate, on a scale of 'importance', different features of academic writing. The second and fourth phases of the research involved focus groups and interviews with students covering similar questions to that of the staff.

The third phase involves interviews with academic staff. It is expected that staff can answer the research question much more elaborately through a semi-structured interview. Although, staff will be asked to complete part of the questionnaire after the interview is completed. (This should take about 5 minutes).

The interview will aim to ask staff what they understand to be key features of critical thinking expressed through academic writing at a master's level in their subject area. It will also cover the question of whether staff think that masters students' application of critical thinking in academic writing develops over the course of a one-year masters, whether certain groups of students find this application more difficult than others (e.g. specific nationality groups), and if so why this may be the case. Finally, the question of how critical thinking skills can be best taught to master's students will also be addressed.

One of the potential uses or outcomes of this research would be to help develop strategies to improve critical thinking in academic writing at a master's level within specific Schools.

*Appendix R. Interview protocol with tutors*

This is an interview with ... [NAME OF PARTICIPANT] on [DATE], at [LOCATION] [MHSE]

Thank you for putting aside the time for this interview about CT IN ACADEMIC WRITING AT A MASTER'S LEVEL, specifically in the School of Education.

### 1 - ACADEMIC BACKGROUND

I would first like to begin by asking you a little bit about your academic background, in terms of

- Where you studied your UG and PG?
- In which subject areas you specialised in both your study and now your teaching?

2 - CT IN ACADEMIC WRITING AT A MASTER'S LEVEL in the SCHOOL OF EDUCATION: I would like to ask some questions about CT IN ACADEMIC WRITING AT A MASTER'S LEVEL in the SCHOOL OF EDUCATION.

- How you think students can demonstrate good CT in their academic writing in the MHSE.
- What kinds of FEATURES do you think demonstrate good examples of CT?
- WHAT DISTINGUISHES A 'DISTINCTION' GRADE FROM A STANDARD 'B' GRADE/BARE PASS
- CAN U DESCRIBE THE DIFFERENT TYPES OF WRITING ASSIGNMENTS AT A MASTER'S LEVEL
- DESTINCTION BETWEEN MASTERS AND UG WRITING ASSIGNMENTS
- HOW IMPORTATN IS THE 'VOICE' OF THE STUDENT IN THEIR WRITING?
  - Are there other ways in which students are assessed?

[ARGUMENTATION AND LOGIC]

[EVALUATION: CRITERIA]

[VOICE, ORIGINAL IDEAS]

[LANGUAGE ISSUES DIFFICULTIES, SPECIFIC TYPES OF STUDENTS]

[OTHER FEATURES]

### 3- CT WITHIN YOUR SUBJECT, SCHOOL, UNIVERSITY

- Do you think that some SUBJECTS or DEPARTMENTS in the university have a different understanding of CT?



9 – Do you have any further comments or questions?

6 - I have a list here of different sources of CT or criticality. These may or may not be relevant for you.

Read through this and COMMENT ON THIS LIST. Which ones do you consider to be most important in helping develop CT in general?

Personal tendency to be critical

Upbringing

Education culture in your country

Undergraduate degree

Reading

Studying, working or travelling abroad or in another part of your country

Significant other: important teacher, partner, friend, work colleague

Hobby/leisure time activity/interest

Specific life experience

Is there anything else you think you can add?

*Appendix S. Tutors who participated in individual interviews*

<i>Pseud./Code</i>	<i>School/ Institute</i>	<i>Master's discipline</i>	<i>Nationality</i>	<i>M/F</i>
Yang / Bu1	Business	Organisational Behaviour	Chinese	F
Barbara / Bu2	Business	Marketing	UK	F
Calina / Bu3	Business	Marketing & Business Analysis	Russian	F
Dag / Bu4	Business	MBA	Norwegian	M
Erika / Bu5	Business	Human Resource Management	Slovenian	F
Frank / Bu6	Business	Research Methods in Business	UK	M
Gillian / Ed1	Education	TESOL	Irish	F
Harry / Ed2	Education	TESOL	UK	M
Iain / Ed3	Education	Digital Education	UK	M
John / Ed4	Education	Philosophy of Education	UK	M
Karla / Ed5	Education	Outdoor Education	German	F
Len / Sp1	Sports	Sports, Marketing & Communication	S. Korean	M
Matt / Sp2	Sports	Performance Psychology	UK	M
Neil / Sp3	Sports	Conditioning Physiology	UK	M

#### *Appendix T. NVIVO analysis*

NVIVO was also used on all the interview data, and on each of the eight questions in order to add additional insight based on word frequency word cloud mapping. However, NVIVO was not considered to be the most appropriate singular tool of analysis because of its lack of capacity to identify wider themes based on the great variety of (similar) meanings embedded within different phrases.

An NVIVO word frequency analysis was also performed on the interview transcripts. Filtering out the words 'critical' and 'thinking' (which were the two most frequent words) we are left with the words 'understand/understanding' (9) 'different' (7) and 'literature' (6). For students, understanding and comparing different views of different writers appeared to be a key aspect of critical writing in a masters. Clearly this provides a very broad brush quantitative approach to the language used, and without looking at the context of where and how these words were used it is not possible to make any direct link. However, in light of the qualitative thematic approach above it does appear to help vindicate a broader theme. An NVIVO word frequency analysis was also performed on the interview transcripts. If we exclude the word 'writing' the words 'language' (8) 'difficult' (8) and 'course' (9) emerged as the highest. This also hints at the struggles some students had, as well as the success of support courses.

#### *Appendix U. Part A – Master's writing: revised groupings (2018)*

How important do you think the following features are in successful master's level writing at university?

##### **A1 - Explaining and Illustrating (ExII) [4 items] $\alpha$ . 570 (M=8.265) Rank:1**

2 – Giving reasons to explain ideas. (WARRANTS/BACKING – Toulmin, 2003; UNDERSTAND/Exemplifying - Anderson et al, 2001)

6 – Explaining concepts you have learnt about in your area of study. (BACKING – Toulmin, 2003; UNDERSTAND/Explaining - Anderson et al, 2001)

10 - Giving examples to illustrate ideas. (Illustration/ DATA – Toulmin, 2003)

15 – Explaining the decisions you have made (e.g. research you have decided to do). (UNDERSTAND/Explaining - Anderson et al, 2001; WARRANTS/BACKING – Toulmin, 2003 ) (Stance)

##### **A2 - Voice and stance (VoSt)[5 items] $\alpha$ .754\* (M=6.012) Rank:6**

4 - Expressing your feelings and emotions in your academic writing. (voice)

18 – Writing about what is important to you. (personal values; Fisher, 2003, p.321) (voice)

27 – Expressing your personal opinion (voice)

29 – Writing about what you believe to be true. (personal beliefs/ontology; Fisher, 2003, p.321) (stance)

30 – Writing about the assumptions behind your beliefs and what is important to you. (personal beliefs/assumptions; fisher, 2003, p.321) (stance)

##### **B1 - Describing and summarising (DeSu) [5 items] $\alpha$ .579 (M=7.809) Rank:2**

1 – Describing different concepts in your area of study. (Describing various/alternative views – CT skills) (UNDERSTAND/Interpreting (Anderson et al, 2001)

7 – Describing the viewpoints of different writers in your area of study. (Describing various/alternative views – CT skills) UNDERSTAND/Interpreting - Anderson et al, 2001)

- 22 – Summarising concepts in your area of study. (UNDERSTAND/summarising - Anderson et al, 2001)  
28 – Summarising your writing. (UNDERSTAND/summarising - Anderson et al, 2001)

**B2/B3 - Comparing and evaluating (CoEv) [4 items]  $\alpha$  .745\* (M=7.730) Rank:5**

- 11 – Describing the strengths of different concepts in your area of study. (Evaluation of different view – CT Skills) (EVALUATE - Anderson et al, 2001)  
14 – Describing the weaknesses of concepts in your area of study. (Evaluation of different view – Ct Skills) (EVALUATE - Anderson et al, 2001)  
13 – Comparing different concepts in your area of study. (Describing various/alternative views – CT skills) (UNDERSTAND/Comparing - Anderson et al, 2001)  
25 – Comparing different solutions in your area of study. (Comparing solutions /genre)  
5 – Describing criteria you use to make decisions. (e.g. the methods you use in research)

**B5 - Reflective practice (Re) [3 items]  $\alpha$  .651 (M =7.793) Rank:3**

- 12 – Reflecting on what you have learnt from your studies. (personal reflection/new understanding/genre)  
23 – Reflecting on practice in your area of study. (practical professional reflection/genre/criteria)  
26 - Reflecting on theories you have learnt about in your area of study. (academic professional reflection/genre/criteria)

**B6 - Problems and solutions (PrSo) [4 items]  $\alpha$  .728\* (M=7.699) Rank:4**

- 8 – Describing practical problems in your area of study. (identifying practical problems/genre)  
17 – Writing solutions to a problem in your area of study. (identifying solutions to problems/genre)  
19 – Describing the strengths of solutions to problems in your area of study. (evaluating solutions /genre)  
21 – Describing the weaknesses of solutions to problems in your area of study. (evaluating solutions /genre)

**Misc: style and feelings  $\alpha$  .317 (M=7.567)**

- 3 – Writing in a subjective way in your academic writing. (stance/style/genre)  
24 – Writing in an objective style in your academic writing. (stance/style/genre)  
9 – Criticising opinions you disagree with. (voice)  
20 – Doing independent research as part of your studies (e.g. part of a dissertation). (voice)  
5 – Describing criteria you use to make decisions. (e.g. the methods you use in research) (describing/evaluation criteria for judgement/decision – ct skills)

\* Significant level of reliability

Appendix V. *Oblique (direct oblimin) rotated component matrix*

	Component					
	1	2	3	4	5	6
1 – DESCRIBING DIFFERENT CONCEPTS in your area of study.	.399	-.111	.606	-.160	.160	.075
2 – Giving REASONS to explain ideas.	.414	-.227	.442	.022	.275	.028
5 – DESCRIBING CRITERIA you use to make decisions.	.383	.000	.445	-.036	-.348	-.246
6 – EXPLAINING CONCEPTS you have learnt about in your area of study	.548	-.258	.388	.246	-.176	.152
7 – DESCRIBING the VIEWPOINTS of DIFFERENT WRITERS in your area of study.	.550	-.206	.297	-.024	.116	-.212
8 – DESCRIBING PRACTICAL PROBLEMS in your area of study.	<b>.634</b>	-.012	-.059	.178	-.217	-.398
10 - Giving EXAMPLES to illustrate ideas.	.589	.018	-.076	.157	.471	-.003
11 – DESCRIBING the STRENGTHS of different concepts in your area of study.	<b>.635</b>	-.221	-.107	-.193	.095	-.045
12 – REFLECTING on what you have learnt from your studies.	.510	-.170	-.286	.196	-.250	.325
13 – COMPARING DIFFERENT concepts in your area of study.	<b>.670</b>	-.365	-.147	-.245	-.053	.106
14 – DESCRIBING the WEAKNESSES of concepts in your area of study.	<b>.668</b>	-.182	-.177	-.331	-.068	-.239
15 – EXPLAINING the DECISIONS you have made (e.g. research you have decided to do).	.571	.072	.062	.324	-.277	-.315
17 – WRITING SOLUTIONS to a PROBLEM in your area of study.	.495	.117	-.174	.277	.321	-.181
18 – WRITING about what is important to you.	.348	.496	.044	.449	-.030	-.005
19 – DESCRIBING the STRENGTHS of SOLUTIONS TO PROBLEMS in your area of study.	<b>.736</b>	-.038	-.295	.039	.126	-.175
21 – DESCRIBING the WEAKNESSES of SOLUTIONS TO PROBLEMS in your area of study.	<b>.627</b>	-.088	-.299	-.004	.051	-.160
22 –SUMMARISING CONCEPTS in your area of study.	.527	-.018	.147	.342	-.027	.370
23 – REFLECTING on practice in your area of study.	.588	.139	-.344	.148	-.020	.378
25 – COMPARING DIFFERENT SOLUTIONS in your area of study.	<b>.616</b>	-.096	-.223	-.365	-.032	.051

26 - REFLECTING on theories you have learnt about in your area of study.	<b>.654</b>	-.257	.139	-.144	-.177	.401
27 - EXPRESSING your PERSONAL OPINION.	.347	<b>.679</b>	.045	-.349	-.045	.117
28 - SUMMARISING your writing.	.372	.323	.171	-.088	.485	.052
29 - WRITING about what you believe to be true.	.451	<b>.698</b>	.051	-.080	-.044	.102
30 - WRITING about the ASSUMPTIONS behind your beliefs and what is important to you.	.448	<b>.621</b>	.114	-.253	-.228	-.054

Extraction Method: Principal Component Analysis. a. 6 components extracted.

*Appendix W. Orthogonal (varimax) rotated component matrix*

**Rotated Component Matrix<sup>a</sup>**

	Component					
	1	2	3	4	5	6
14 - DESCRIBING the WEAKNESSES of concepts in your area of study.	<b>.766</b>	.112	.138			.239
13 - COMPARING DIFFERENT concepts in your area of study.	<b>.727</b>		.237	.298		
25 - COMPARING DIFFERENT SOLUTIONS in your area of study.	<b>.702</b>	.209		.163		
11 - DESCRIBING the STRENGTHS of different concepts in your area of study.	<b>.623</b>		.237	.135	.199	
19 - DESCRIBING the STRENGTHS of SOLUTIONS TO PROBLEMS in your area of study.	<b>.589</b>	.103		.182	.458	.278
21 - DESCRIBING the WEAKNESSES of SOLUTIONS TO PROBLEMS in your area of study.	<b>.566</b>			.156	.333	.247
27 - EXPRESSING your PERSONAL OPINION.	.130	<b>.836</b>				
30 - WRITING about the ASSUMPTIONS behind your beliefs and what is important to you.	.161	<b>.792</b>				.248
29 - WRITING about what you believe to be true.		<b>.791</b>		.160	.204	.128
18 - WRITING about what is important to you.	-.223	.389		.290	.383	.373
1 - DESCRIBING DIFFERENT CONCEPTS in your area of study.	.102	.141	<b>.751</b>			
2 - Giving REASONS to explain ideas.	.125		<b>.651</b>		.211	
6 - EXPLAINING CONCEPTS you have learnt about in your area of study	.120		<b>.537</b>	.458		.340
7 - DESCRIBING the VIEWPOINTS of DIFFERENT WRITERS in your area of study.	.324		<b>.516</b>		.195	.286
12 - REFLECTING on what you have learnt from your studies.	.356			<b>.649</b>		.147
22 -SUMMARISING CONCEPTS in your area of study.			.306	<b>.621</b>	.212	.142
23 - REFLECTING on practice in your area of study.	.329	.256	-.107	<b>.612</b>	.297	
26 - REFLECTING on theories you have learnt about in your area of study.	.470	.110	.429	<b>.543</b>	-.118	
10 - Giving EXAMPLES to illustrate ideas.	.287		.238	.172	<b>.652</b>	
17 - WRITING SOLUTIONS to a PROBLEM in your area of study.	.198			.103	<b>.628</b>	.224
28 - SUMMARISING your writing.		.393	.325		.478	-.151
15 - EXPLAINING the DECISIONS you have made (e.g. research you have decided to do).	.175	.122	.106	.198	.181	<b>.698</b>
8 - DESCRIBING PRACTICAL PROBLEMS in your area of study.	.383			.103	.210	<b>.655</b>
5 - DESCRIBING CRITERIA you use to make decisions.	.114	.189	.413		-.205	<b>.516</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. <sup>a</sup> a. Rotation converged in 9 iterations.

Appendix X. Criteria for evaluating qualitative research

<i>Onwuegbuzie &amp; Leech's (2007) criteria</i>	<i>Present</i>	<i>Example of procedure</i>
Prolonged engagement	Yes	12 month + of interviews, full transcriptions and analysis
Persistent observation	Yes	Separation of relevant and irrelevant data
Triangulation	Yes	Methodological and data triangulation
Leaving an audit trail	Yes	Raw data, data reduction and analysis, data reconstruction and synthesis
Member checking/informant feedback	Partial	Second interview with 4 students
Weighting the evidence.	Partial	Foregrounding of interview over focus group data
Checking for representativeness	Partial	School Representativeness is only achieved among tutors, not students
Checking for researcher effects/clarifying researcher bias	Partial	Various procedures including heterogenous sampling
Making contrast/comparisons	Yes	Comparing and contrasting with previous research
Theoretical sampling	Partial	Exploratory approach that follows data and asks following interview questions relating to themes that have emerged in previous interviews
Checking the meaning of outliers	Partial	Creating of 'minor' themes
Using extreme cases	Partial	English tutors who have struggled to adapt to the system but have succeeded in the long run (Yang)
Ruling out spurious relations	Partial	Supervisor feedback
Replicating a finding	Partial	Reference to previous research
Referential adequacy.	Potential	Protocols are available for future use
Following up surprises.	Partial	Follow up on themes from previous interviews
Structural relationships	Partial	Comparison between student and between tutor interviews
Peer debriefing	Partial	Supervision feedback

Rich and thick description.	Partial	Full transcription of interviews and focus groups
The Modus Operandi approach	No	
Assessing rival explanations.	Partial	Three staged analysis cycle
Negative case analysis	No	
Confirmatory data analyses	Partial	Based on previous qualitative research
Effect sizes.	Yes	Frequency count of sub-themes

*Appendix Y. Sample of themes categories from student interviews*

Question 1 – INTERVIEWS: STUDENTS DEFINITIONS OF CT - THEMED

**MAJOR THEME 1. Reading widely, deeply and engaging in literature [6]**

**a) Reading a lot of literature on a topic [3] - KNOWLEDGE BUILDING**

S7 - And the first one is the students need to have a wide perspective of the knowledge of the area they are learning.

S7 - And another one is they need to have a deeper perspective of the area. That means that when we come up with an idea we not only need to know what is it, and we need to know how and why.

S11 - You do understand what you're talking about

S12 - so you really need to be able to, not just reading, not just reading the first point stuff, the second point. After that you really need to be able to understand that,

**b) i) Not taking things at face value [3] DISPOSITIONS**

S4 - but your own CT is ... demonstrating ... that you have the ability to not take anything at face value, to look at potential biases. You know, where is this work coming from? Do they have some agenda?

S8 - or if there is any bias.

S11 - ...I think it's just being, well I think for me anyway, when you get a paper I think it's taking it and actually looking at it properly. Not just accepting that this is totally correct. And I think, you know that's the important thing.

S11 - There are obvious limitations, but there's also a number of other – you know – things that I can critique about the paper. I think it's understanding that just because it's not mentioned, or that it's published, doesn't mean that there's nothing there to be critiqued.

## **b) ii) Engaging in the literature when you read it [3] – ENGAGING IN LITERATURE**

S2 - In academic writing we're usually encouraged to engage with the literature, in a sense not just describe, but to engage to like discuss who the writers are, where they come from, why they have this sort of opinion

S8 - so it's really engaging with that literature, and ... yeah, sort of trying to think what they might not be considering

S10 - so yeah critical reading, or critical understanding,

S11 - Yeah, cos I mean, you know, you can read what the limitations say, but I mean that's presented to you. I mean you're not really doing any thinking there. It's like, oh, they said this, and it's like yeah it's a critique you know but, and I can see that but I'm not really doing any thinking. I'm just reading what's on the page.

## **MAJOR THEMES 2. Considering different viewpoints and perspectives [7]**

### **a) Understanding different perspectives by different writers [5]**

S4 - Well, you need to start/My approach when I write is to start with ... the ... the bigger names, the bigger concepts in the field ... and then try to balance those against criticisms made by other scholars

S7 - For example, they need to know the opposite views of different writers,

S8 - So I think what we were taught in one of the courses ... is that ... when you consider literature for your literature review that it is really important to not just say, 'He's saying this, she's saying that and just get on with the argument, but then it's important to consider how their arguments fit into the wider context of your theme, if there is anything there missing, if there is anything you can argue against,

S9 - I think we can show our CT by exploring different perspectives, so using different theories, so different papers as well, and make the results ... to show that they are different

S10 - it's not balanced and it's not very accurate cos the arguments become a bit simplistic, so what I've learnt throughout is that actually the critique comes from actually starting to consider arguments, and understand them first, and kind of like pre-accept them, to understand what it's trying to say; then evaluate it, so first kind of look at it and then evaluate it ... so yes for me the actual critiquing part where you're looking at gaps and things that might not be the best they are is actually towards the end of the process.

### **b) Comparing and evaluating different viewpoints [3]**

S2 - and to compare and contrast their opinion with the other writers,

S4 - Well, you need to start/My approach when I write is to start with ... the ... the bigger names, the bigger concepts in the field ... and then try to balance those against criticisms made by other

S10 - And being able to look at where the gaps are: or which elements of the argument are perhaps not as strong,

### **MAJOR THEMES 3. Deciding on your own view and making a judgement [5]**

#### **a) Justification, or giving reasons for an opinion you agree with [4]**

S2 - and to put our own opinion

S2 - like I think and I disagree with this person because ... I agree with this person because I think this person's opinion is good because, like that sort of thing.

S9 - and also maybe explaining our own point of view

S11 - As long as you have justification to back it up I think...

#### **b) Making a decision/judgement about what to believe [3]**

F3 - you compare their perspectives in your assignment and the writer like show your own opinions about these different perspectives.

S4 - And looking at strengths and weaknesses and making judgements of that.

S10 - I think, for me it comes down to judgement. And it's about being able to express judgement in a balanced way, as like the first step of CT.

### **MINOR THEME: Being aware and critical of methodological limitations [4]**

S4 - Do they have a pre-conceived hypothesis that they want to 'prove'? Also, looking at the methods; how rigorous the methods were? How well they've been triangulated? And, yeah, I guess looking at it from if you were to do the same research. Would you/do you believe that you would find the same results they did? Would you use the same methods they did? Would you use different ones?

S8 - Some masters students at Moray house are required to do a research methods course, that is a course with, it's actually three courses, with 10 credits, and the first one in particular, just called sources of knowledge, is supposed to teach students here at Moray House how to think critically and how to write academically.

S9 - So, for example you have a range of percentage, for example you are going to show both of them, and then you can crit. ... put criticism about whether or not they are valid, why they would be valid or not,

S12 - It haven't been published, it hasn't been published because it doesn't have any statistical results that says that, stated that that method doesn't work

S12 - because if you are a good student you are aware that like 60% of the research telling you that the method might work, and 40% of the research possibly not even been published yet