Critical thinking and EAP writing: A meta-synthesis of research on teaching approaches to
critical thinking in the EAP writing class

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<u>Abstract</u>

Critical thinking skills are some of the core skills universities wish their students to develop over their degree courses. Increasing numbers of international students are choosing to attend university in English-speaking contexts such as the UK and USA who come from educational backgrounds which do not necessarily foster critical thinking skills as practiced in these academic contexts (Tian & Low, 2007; Bali, 2015). EAP courses should aim to help their students adapt and begin to develop these skills, particularly in the context of academic writing which is the main method of assessment for the majority of students and where being critical in some way is often required (Moore, 2013). However, the definition of critical thinking and the best ways to approach teaching critical thinking and writing are areas which for teachers are often controversial and ambiguous (Kuhn, 1999). This study therefore aims to investigate how EAP students and teachers perceive critical thinking and which instructional practices appear to be effective in teaching critical thinking and writing through conducting a meta-synthesis of previous empirical research. 10 articles are analysed using an operational framework for teaching critical thinking (Thomas & Lok, 2015). The results of the analysis show that many students in the contexts of the studies seem to still hold misconceptions of the meaning of critical thinking and that they may be perceived as lacking the disposition or confidence to think critically because of these misconceptions or cultural differences. The skills of evaluation and synthesis are perceived as being closely connected to critical thinking and are a focus in writing instruction. To teach critical thinking and writing effectively the analysis also indicates that sustained content based courses and collaborative learning may be beneficial. Implications for teaching practice and potential directions for future research are also discussed.

Contents

Chapter 1: Introduction

In higher education generally, the concept of critical thinking and the importance of developing critical thinking skills in students have long been under discussion. In the TESOL field critical thinking has more recently begun to attract attention due to the increasing numbers of foreign students, in particular from countries in Asia, who are attending university in English speaking environments such as the UK, the USA and Australia (Healy, 2008) or are enrolling in English medium programs in other countries (Dearden, 2014). In the UK for example, the biggest market is China, with considerably more Chinese students choosing to come to the UK than from any other country (HESA, 2014). This has raised questions round how to teach critical thinking to second language learners and how to incorporate this into academic English programs. In the UK and other inner circle countries' institutions, critical thinking skills are often cited as desirable graduate attributes to be developed over the course of their degree programs by universities. University X, for example, cites becoming "independent and critical thinkers" as both a key academic skill and one which is transferable to a professional environment (University X website, n.d). Critical thinking as a desirable graduate attribute is closely linked to the increasingly open importance universities place on employability, as critical thinking skills are often considered as key skills by employers (Pithers & Soden, 2000; Hemming, 2000), especially by those in the business sector (Davies & Barnett, 2015). Recognition of the importance of critical thinking has lead many universities to incorporate the development of critical thinking into their curriculum and assessment procedures, with assessment criteria often citing critical analysis as a key element of high level student production (Le Ha, 2009; Wingate, 2012).

My interest in this topic has primarily stemmed from my own teaching experience and an increasing awareness of my personal lack of clarity about what critical thinking is, how to foster critical thinking in my students and what this might entail in practice. From my experience as an English language teacher in a university context, both in the UK and abroad, I have found that the general notion of critical thinking is present in both the curriculum and assessment procedures and there is therefore an expectation that teachers will help foster this in their students. However, clear explanations of what is meant by this, how to recognise and assess it, and practical guidance in how to foster critical thinking in the classroom seemed to be lacking. From my perspective as a teacher, my lack of clarity of this seemingly very important concept was a concern. If I as a teacher was unsure about critical thinking and

what it entails, then I felt it was unlikely that I was helping my students in developing their own critical thinking skills, a concern which appears to be reflected among many teachers and academics in other contexts (Hemming, 2000; Moore, 2013). Reflecting on my own classroom practice, I've become aware that due to this confusion, critical thinking was an element of the syllabus I glossed over and certainly never discussed openly with my students. Related to this was the difficulty I experienced in helping my students construct an argument when writing and develop their own critical voice, rather than purely focussing on grammatical forms and structure, and therefore simply reproducing others' ideas without necessarily questioning them or using them effectively to support their own argument. As a relatively new teacher facing this problem, I turned to more experienced colleagues for advice, a step which revealed that many of my colleagues felt equally unsure about, or unable to explain to me, what is meant by critical thinking and also seemed to be unclear on how to guide their students in this, particularly regarding how to help students demonstrate their ability to think critical in their own academic production. This problem appears to be widespread amongst both English language teachers and other educators, particularly at the tertiary level where despite the consensus that critical thinking is important, "teachers have been offered remarkably little in the way of concrete examples of what these skills are-what forms they take, how they will know when they see them, how they might be measured" (Kuhn, 1999:17). Pithers and Soden (2000) suggest this confusion results in teaching approaches which do little to foster generalisable or transferable critical thinking skills or dispositions. To begin to address the confusion and lack of clarity amongst educators there is a clear need for the "bringing together the key approaches so as to begin to form a unified field for study and practical implementation" (Davies & Barnett, 2015:5).

This study therefore firstly aims to investigate what critical thinking means in the context of higher education, what it involves and what factors may influence its development for EAP learners. This will involve investigating how the concept has been defined, breaking down the concept into its core components, looking at different approaches to teaching critical thinking, and examining the cultural aspects which may affect EAP learners. Critical thinking is a key academic skill which is required across all 4 language skills, though it is most commonly connected with reading and writing. In the written assignments set to students and in feedback given, being critical in some way is prominent (Moore, 2013). Writing is important for EAP students not just for assessment purposes, but will also be the main method of communication with their academic and future professional discourse

communities (Bruce, 2011). Therefore, given the importance of writing in the academic context and that academic writing is one of the areas of academic English learners find most challenging, the study will also focus on the link between critical thinking and writing by investigating which elements of critical thinking play a central role in the academic writing process. More specifically the study aims to investigate which aspects of critical thinking are taught in relation to writing and which approaches are viewed as effective, in order to better facilitate the teaching of critical thinking in the EAP writing classroom.

Chapter 2: Literature Review

2.1 Unpacking critical thinking

The confusion surrounding critical thinking and exactly what it might involve is reflected in the literature surrounding the topic, where multiple definitions which overlap in places and diverge in others are given. In an attempt to 'unpack' the concept of critical thinking, the different perspectives behind the varying definitions of critical thinking need to be considered. The different facets of this elusive concept also need explored in relation to the context of higher education specifically in the different skills and dispositions involved and the concept's basis in social practices.

2.1.1 Differing perspectives of critical thinking

The first problem which confronts any teacher trying to investigate critical thinking and effective teaching practices which foster the development of critical thinking skills is the multiple definitions that exist in the literature. Almost every piece of research on critical thinking begins by setting out a definition of critical thinking, as understood by the author. Some of these definitions converge and overlap, but others display significant differences (Tian & Low, 2011). Because the topic is a central aspect of higher education, the process of exploring, defining and redefining the nature of critical thinking has been ongoing in education research for a number of years (Stapleton, 2001; Tian & Low, 2011). However, despite or perhaps because of the huge body of work that surrounds the topic, the concept of critical thinking "remains more elusive than ever" (Davies & Barnett, 2015:3).

Various reasons for this multitude of definitions are put forward by different researchers. One potential reason for the variations between definitions relates to the perspective of the individual researcher putting forward the definition. The proponents of any given definition place greater emphasis on the aspects they find most appealing (Hemming, 2000) or on the aspects they wish to play a central role in the discussion (Atkinson, 1997). Understanding critical thinking has been an ongoing process, developing over time and clearly an individual researcher's perspective is likely to be influenced by their context, aims and interests. Paul (2011) divides the development of critical thinking into three distinct, but overlapping waves which "represent, in essence, different research agendas and point to different emphases in application". The first wave, beginning around the 1970s emphasised decontextualised logic, deductive and inductive reasoning and analysis as demonstrated in the early versions of the

Watson–Glaser Critical Thinking Appraisal, a test designed "to measures skills in inference, recognition of assumptions, deduction, interpretation, and the evaluation of arguments" (Florence, 2014:356). This led to the teaching of critical thinking in US universities in separate courses, raising concerns surrounding the transferability of such skills. The transferability and generalisability of critical thinking skills remains a key issue today and will be discussed in greater detail below. The second wave, in the 1980s led to a broadening of the definition and began to link critical thinking with creativity, discipline-specific skills, and political notions through works of researchers such as Ennis (1989) and McPeck (1981). The critical pedagogy movement developed out of this wave, and can be defined as "the use of higher education to overcome and unlearn the social conditions that restrict and limit human freedom" (Davis & Barnett, 2015:18). In an EAP context, critical pedagogy is most closely associated with the work of Benesch (1999, 2009) who describes this movement as focusing on power relations and political inequalities both within and outside the classroom and calls for practitioners to "explore the relationship between academic English(es) and the larger socio-political context" (Benesch, 2009:82). The third wave, which Paul (2011) claims is only just beginning to take hold, involves the integration of the first two waves and an attempt to develop a rigorous theory of critical thinking which also incorporates values and emotions.

Another factor which contributes to the variation in definition could be related to how such definitions are arrived at. Norris (1992, cited in Moore, 2013:508) suggests that "underlying the multiplicity of views, and the resultant blurring of the concept, is the lack of empirical basis in the various attempts at characterizing critical thinking". An evaluation of the literature surrounding critical thinking seems to provide evidence for this view, and though many theoretical studies exist which attempt to reach a definition through reflection, there are far fewer which attempt to collect empirical data in order to establish understanding of the concept in actual practice (Moore, 2013). To further complicate matters, many of the terms commonly associated with critical thinking such as *meta-cognition, higher order thinking skills, rationality* and *reasoning* are often used synonymously, blurring relations between them (Atkinson, 1997). Moore (2013) takes this point further and suggests that the academic community need to recognise that words are by nature polysemous. Therefore "the idea of critical thinking clearly defies reduction" (Moore, 2013:519) and attempts to establish one, over-arching definition need to be reconsidered. From a pedagogical perspective, considering these diverse perspectives is important because these differences in

conceptualisation will influence how educational practitioners attempt to facilitate critical thinking in their classrooms (Hemming, 2000) by influencing which aspects of critical thinking they prioritise in classroom tasks and how they choose to assess these skills.

2.1.2 Critical thinking as skills and dispositions

Although it may not be possible to establish a clear and unanimously agreed on definition of critical thinking, for higher education practitioners the investigation of exactly what critical thinking might involve in an academic context is perhaps of greater concern. Two main threads emerge from the literature, which describe critical thinking not only as a set of cognitive skills students are expected to develop, but also as the dispositions to use such skills (Davies & Barnett, 2015).

A common starting point for describing the skills required to think critically is the upper levels of Bloom's taxonomy of learning objectives (Ennis, 1993). The three levels classified as "higher order thinking skills" are analysis, synthesis and evaluation. The UK Quality Assurance Agency for Higher Education cites critical thinking as a skill all students should develop and sets out the following explanation of what they believe critical thinking involves and which seems to have a foundation in Bloom's taxonomy. According to QAA, for a business Masters student critical thinking involves the ability to:

> "manage the creative process in self and others; organise thoughts, analyse, synthesise and critically appraise. This includes the capability to identify assumptions, evaluate statements in terms of evidence, detect false logic or reasoning, identify implicit values, define terms adequately and generalise appropriately" (QAA, 2007:6)

Within this definition are many key skills which repeatedly occur in the literature as being central to the ability to think critically. The close relationship between critical thinking and academic reading can also be inferred from such explanations. In critical reading, evaluating the sources read involves identifying potential writer bias and assumptions (Stapleton, 2001), analysing and judging the quality and/or truthfulness of a writer's arguments (Ennis, 1993; Moore, 2013), identifying potential flaws in the arguments presented (Davis & Barnett, 2015) and examining plausible alternatives (Hamby, 2015). However, critical thinking in an academic context does not simply require students to analyse and report on knowledge they have read; rather students are expected to transform this knowledge (Cavdar & Doe, 2012), a process which requires skills relating to the synthesis of knowledge from multiple sources in order to take a stance and construct arguments (Alexander *et al*, 2008; Ennis, 1993). Other

skills often connected to critical thinking include identifying problems and analysing/proposing solutions (Pithers & Soden, 2000) and making connections both between topics within a field or between theory and practice (Alexander *et al*, 2008). These are difficult skills to acquire, particularly for L2 students and can only develop through extensive independent study, reading and reflection (Andrews, 2015). Many of these skills are closely connected with skills involved in academic writing which, being the focus point of this study, will be analysed in greater detail in section 2.

Critical thinking does not simply consist of a set of skills students should have in their arsenal, but involves having the right dispositions or attitudes required to implement these skills (Stapleton, 2001; Davies and Barnett, 2015; Pithers & Soden, 2000). The term *critical spirit* is used in association with this concept and is defined as the "the inclination, or disposition, to think critically on a regular basis in a wide range of circumstances" (Hemming, 2000:175). So in order to be a critical thinker, a "willingness to inquire" (Hamby, 2015:77) is required. In an academic context, this is the motivation which ensures students employ their skills consistently so that arguments are interpreted appropriately. This means taking an ethical, self-reflexive stance (Moore, 2013) in order to interpret and synthesize arguments accurately and with an open mind (Hamby, 2015). Becoming a critical thinker therefore involves not only understanding others' bias but also recognising your own and ensuring this does not lead to unfair or inaccurate evaluations of arguments. In attempting to teach critical thinking to students, in addition to introducing key skills required, an attempt to foster this critical spirit also appears necessary.

2.1.3 Critical thinking as a social practice

Another aspect to critical thinking which should be considered is the social nature of critical thinking. Atkinson presents the view that critical thinking is not simply a set of teachable skills, but a social practice, which he defines as "behaviour in which an individual is automatically immersed by virtue of being raised in a particular cultural milieu" (1997:73) and is therefore learned subconsciously. The difficulty many academics have in clearly defining critical thinking while still being able to recognize and discuss it is presented as evidence of the concept being a tacit social practice. He goes on to claim that this social practice can be seen embedded in early years language and literary socialization, particularly in the US, referencing a study by Heath (1986, cited in Atkinson, 1997) which explores differences between mainstream and nonmainstream students' abilities to interpret and give

meaning to pictures, events and behaviours. The underlying implication of this research is that critical thinking is a Western phenomenon which is embedded in the way children are raised and educated in Western societies. While critical thinking, like all educational practices is clearly linked to social practices (Gieve, 1998), it is important to note that this view of critical thinking as a Western construct is widely debated. The extent to which critical thinking may be a social and culturally embedded practice has significant implications for EAP classrooms in cross-cultural contexts and therefore will be explored in greater detail in section 4.

An emerging concept which could be considered as a term aiming to bring together these multiple definitions and aspects of critical thinking is criticality (Barnett, 1997). Criticality is considered to be a broader term than critical thinking and encompasses elements of critical thinking skills such as argument, judgement and reflection but also places greater emphasis on action through having the dispositions required to employ these skills consistently. The social aspect of critical thinking is incorporated under this term which also emphasises the importance of an individual's identity and focuses on action in the form of participation in the wider community (Davies & Barnett, 2015).

2.2 Critical thinking and writing

As it has been noted above, being a critical thinker not only involves having a set of skills and the dispositions or motivation to employ these skills, but also requires action. For students in an academic context that means not just reading and evaluating the information read but doing something with it. At university, the most common method of assessment through which students are expected to demonstrate critical analysis is writing. Assessment rubrics and criteria often include references to criticality or critical analysis as indicators of strong student performance (Woodward-Kron, 2002) and tutor comments in feedback stating students lack criticality or critical analysis (Le Ha, 2009; Wingate, 2012) show the importance of this link. The terms critical writing and analytical writing are sometimes used interchangeably in this context. This section will therefore explore the link between critical thinking and academic writing and the ways in which it is approached in student guides and textbooks.

2.2.1 Breaking down critical/analytical writing

 Although the research on the link between critical thinking and writing is somewhat limited (Goodwin, 2014), some key concepts and skills repeatedly occur in connection with critical thinking and academic writing. These related and potentially overlapping concepts include argument, making supported claims (through evaluating and synthesizing sources), developing a voice/stance, and the role of description versus analysis.

One of the expectations of students in essay writing is to demonstrate the ability to develop an argument (Wingate, 2012). Like the concept of critical thinking, the definitions of the term argument can also be vague and is in fact sometimes used synonymously with critical analysis and critique (Wingate, 2012). A good academic writer should be able to present "evidence and arguments that he can then defend and from which he can draw conclusions" (Alagozlu, 2007:119). To build an argument therefore a writer needs to take a position and support it.   Stapleton defines arguments as "claims supported by reasons" (2001:516), and suggests ways in which these claims can be supported such as referring to personal experience, statistics, research, and by pointing out potential consequences. Students are most commonly expected to support their arguments through referring to and synthesizing academic sources, an area which seems to be particularly challenging for both native and non-native speaker students (Alagozlu, 2007; Cavdar & Doe, 2012). These difficulties are reflected in two common criticisms of student papers, that they lack criticality due to poor reasoning (Goodwin, 2014) and that students make unsupported claims (Alagozlu, 2007), often relating to the poor or ineffective use of sources (Wingate, 2012). However, especially when discussing L2 students, it is important to bear in mind that the task of synthesizing sources effectively in reading-based writing is an extremely complex one, and requires students to bring together many skills including reading comprehension, summarising and paraphrasing skills.   The linguistic demands made on learners when asked to write like this may be an equally important factor in a students' ability to demonstrate critical thinking/analytical skills in writing (Mehta & Al-Mahrooqi, 2015).

There is also a strong link between critical thinking and developing a stance and individual voice in writing. The terms stance and voice are often discussed together and are closely linked, though they have slightly different definitions. Together they play a role in the interaction between the reader and the writer in negotiating meanings and challenging conventions of the writer's discourse community (Bruce, 2011). A writer's stance is closely

linked to evaluation and involves "authorial presence and opinion on propositional information" (Hyland & Sancho-Guinda, 2012:4). For a student this means evaluating both their own research and experience and others' writing and research, then using this to take a position on the topic. The importance of taking a stance is related to the nature and purpose of academic discourse, which generally aims to persuade the reader to agree with the writer's views or believe in their research findings (Biber & Gray, 2012). Developing an authorial voice is another key stage in the development of academic writing (Bruce, 2011). Tardy (2012) identifies 3 aspects of voice; the individual aspect which relates to the writer's unique style or manner of writing, the social aspect which is linked to the discipline and how a writer represents themselves within their discourse community, and the dialogic aspect. This reflects how issues such as power and interpersonal relations affect the reader-writer interaction. The development of both stance and voice is clearly linked to the disciplinary context and would potentially be best developed within that context as students learn to evaluate and construct arguments in their own way, but also in an appropriate manner which will mark them as part of a specific discourse community (Bruce, 2011).

The final aspect linked to critical thinking and writing discussed in the literature relates to the role of description and critical analysis in students' writing. In describing qualities of good student writing, writing which is predominantly descriptive rather than analytical may be perceived as being less successful (Woodward-Kron, 2002). However, there are strong arguments for both description and analysis as having a role in student production as "successful persuasive and critical writing depends upon the accumulation of knowledge presented through description and developed through analysis" (Humphrey & Economou, 2015:38). Before students can develop an argument and analysis, they need to understand the concepts of their field, and this understanding is, in part, demonstrated through description. In examining high rated student essays Woodward-Kron (2002) found that description plays an important role in students' writing as it performs the function of clarifying concepts for the student and acts as a springboard from which a deeper evaluation or analysis could be developed. This seemingly important step for students reflects the underlying purpose of writing for students, as a way not only to demonstrate but deepen their understanding of their field and as a key part of the learning process.

2.2.2 Critical thinking in writing textbooks

Despite being a concept central to higher education and expected of students at all levels, when starting university students are often given little explanation in their handbooks of how criticality, analysis and argument are related or demonstrated (Wingate, 2012). One source available to students to guide them in this is study skills and writing textbooks, many of which discuss critical thinking in relation to both reading and writing. In these textbooks the concepts of voice/stance, argument, evaluation and synthesis discussed above are prominent as seen in the following description of critical writing, taken from Wallace and Wray:

> "the skill of critical writing lies in convincing your readers to accept your claims. You achieve this through the effective communication of adequate reasons and evidence for these claims" (2011:7)

There is clear focus here on encouraging the students to consider the needs of their readers and helping students to develop a sense of their audience, by emphasising the persuasive nature of academic discourse. In her textbook on critical thinking skills Cottrell describes critical, analytical writing as "a process of selection and forming judgements about the evidence, produced with its eventual readers in mind" (2011:167). Cottrell also places emphasis on self-evaluation through editing and drafting and critical reflection. This self-regulative aspect of critical thinking is important for EAP students to develop, as they will be expected to become more autonomous as they progress through their studies (Alexander *et al*, 2008).

In their investigation into textbooks for teaching writing and critical thinking skills, Ramanthan and Kaplan (1996) identified three key elements textbooks generally focus on which they view as being problematic for L2 learners. These three aspects are improving students' reasoning skills through a focus on informal logic, developing problem solving skills and the ability to understand hidden fallacies or bias in arguments. They conclude that these textbooks seem to present a simplified approach to reasoning and problem solving which ignores the complexities of real-life situations and advocate teaching critical thinking skills in discipline-free contexts, which the researchers regard as particularly problematic. Whether critical thinking skills can be generalised in this way and the extent to which a student's discipline will affect how they are expected to understand and demonstrate critical thinking will be explored in the next section.

2.3 Context- and discipline-specificity of critical thinking skills

One of the most controversial aspects relating to the teaching of critical thinking, ongoing for many years, is the extent to which critical thinking skills are generalisable and transferable to other contexts (Ennis, 1989; Hemming, 2000) and what role subject-specific knowledge plays in the development of these abilities. For all university students, but in particular international students studying on wide-angled EAP courses before going on to their specific courses, whether critical thinking skills learnt in one context can transfer to another, and the extent to which definitions and practices of critical thinking vary across specific disciplines are key issues.

2.3.1 Generalisability of critical thinking skills

Ennis (1989) describes four potential approaches to teaching critical thinking in relation to the specificity debate; the general, infusion, immersion and mixed approaches. The general approach teaches critical thinking skills and dispositions in isolation from presenting specific content (though some form of content is still required to apply the theoretical principles, it is often related to general social/political issues or previously learnt content). This is the approach to teaching critical thinking which is still evident in many undergraduate critical thinking courses at US and Australian universities (Davies, 2006). Infusion and immersion approaches embed critical thinking instruction into the teaching of subject-specific content. The difference between the two is that under an infusion approach, instruction in critical thinking skills and dispositions is made explicit, whereas in the immersion approach it is assumed critical thinking skills will develop sub-consciously as a result of students engaging with disciplinary-specific content. A mixed approach advocates a combination of the general with either infusion or immersion approaches. Which of these approaches is implemented in practice will depend on where individual researchers and education practitioners place themselves in the generalisability debate.

In its strongest form, the argument against teaching critical thinking in general contexts claims that the knowledge and skills employed in any activity will be different to another (McPeck, 1990; cited in Stapleton, 2001). From this perspective, because of differences in epistemological beliefs what constitutes a well supported or well reasoned argument in one context, may be considered inadequate or poorly reasoned in another. Barrow (1991) argues that it is impossible to separate thinking from the subject matter (because you have to think about something) and therefore an individual's ability to display these kinds of abilities is

dependent on their understanding of the context. In this approach background knowledge of the subject is considered essential for critical thinking in that specific area (Ennis, 1989). Researchers in the TESOL field who seem to support this view to some extent cite the lack of empirical evidence in the transferability of thinking skills as, at the least, a good reason to approach the teaching of general critical thinking skills to ESL students with care (Ramanthan & Kaplan, 1996; Atkinson, 1997).

Other researchers take a more moderate stance regarding the generalisability and transferability of critical thinking skills. They argue that some aspects may be more generalisable than others (Hemming, 2000; Stapleton, 2001) and that there is a place for critical thinking in more general courses as not all skills need learnt from scratch in every new context (Pithers & Soden, 2000). Certainly aspects related to critical thinking dispositions such as being open-minded and inquiry-driven or capabilities linked to self-regulation would seem likely to transfer across different contexts. This "infusion approach" (Davies, 2006) views critical thinking as a general skill which can be combined with elements relevant to specific contexts rather than considering the general-specific approaches as two polar opposites. In describing a developmental approach to teaching critical thinking, Ikuenobe (2001) suggests beginning with general principles such as understanding arguments and concepts such as truth, validity and fallacy, and integrating these principles with discipline-specific content only at the final, highest level with the input of the discipline specialist teachers. As further support for this argument Davies (2006) claims there is little evidence that teaching critical thinking through a full immersion approach has greater benefits than in separate critical thinking classes. Rather than assuming thinking skills are inherently non-transferable and that one approach is more effective than the other, and given there seems to be a general consensus that students may not develop these skills as they should in the course of academic study, poor or ineffective teaching practices generally may be to blame (Pithers & Soden, 2000). Teaching practices should therefore be re-examined in order to find a place for a more balanced approach (Davies, 2006).

Whatever position is taken regarding the role of context specificity and the transferability of critical thinking skills, there is an undeniable link between content knowledge and critical thinking. Various studies have demonstrated the link between content familiarity and improved ability to demonstrate criticality (Stapleton, 2001; Hemming, 2000). For example, in a study of Japanese students' writing Stapleton (2001) found that familiarity with the content of the writing topics seemed to improve students ability to demonstrate criticality in

their writing and that content familiarity "powerfully shapes both the range and depth of argumentation"(2001:530). The problem with choosing content for a mixed disciplinary group, as found in a general critical thinking course or many EAP classrooms is that the content has to be simplified to be made more accessible to the wider audience and students have little need to refer to background knowledge or reflect on their previous experiences related to the topic (Hemming, 2000). General content chosen for teaching of critical thinking is often linked to current controversies or political issues (Ennis, 1989); however, this has implications for EAP students who may not consider such issues as particularly important or controversial depending on their own background and culture. Critical thinking takes different forms depending on the structure and epistemological beliefs of individual academic disciplines. Using these kinds of general social topics may also be presenting students predominantly with the aspects of critical thinking prioritised within the social sciences and not on forms more commonly associated with hard sciences. These disciplinary differences will be discussed in the next section.

2.3.2 Disciplinary differences

When teaching critical thinking skills to university students it is important to explore how the concept of critical thinking might differ between academic disciplines. In an in-depth study investigating disciplinary practices and critical thinking Carmichael *et al* (1995) interviewed and examined student work across six different faculties of an Australian university; commerce, education, humanities, nursing and health science, science and technology and the faculty of visual and performing arts to try to discover commonalities and differences in the way critical thinking was conceptualised. Some aspects which were generally agreed on include making links beyond the immediate topic, taking and justifying a position and examining both explicit and implicit issues central to the subject. However, the different disciplines gave greater emphasis to different elements. Knowledge and understanding of key concepts was a prominent feature of critical thinking in commerce and seen as the beginning point of being critical by one lecturer in the humanities. Applied disciplines such as education and nursing, as well as the performing arts put strong emphasis on linking theory and practice and saw reflection (of their own and others' practice/performance) as central to their understanding of critical thinking. The professors in the science and technology faculty regarded discovering/examining problems and proposing solutions as a key part of critical analysis. Although this research seems to show broad similarities across faculties, different disciplines within those faculties are also likely to view critical thinking slightly differently.

In investigating professors' opinions of critical thinking within the arts faculty, while common themes emerged at a general level, Moore (2011) found that academics in the disciplines of history, philosophy and literature interpreted these themes differently. For example, though making judgements was considered important across all three, there was disagreement on the nature of this judgement with philosophy placing emphasis on 'evaluative judgements' which involves being sceptical of knowledge and breaking down ideas whereas history and literary studies place less importance on explicit evaluation and critique and more on using arguments of others to construct one's own argument (in history) or interpretation (in literary studies). These differences are reflected in the nature of what students are expected to make judgments on; while a philosophy student might evaluate primary texts such as the argument of a particular philosopher, a history student may be reading texts but is more commonly being asked to judge and analyse a real-world event or phenomena rather than the text itself.

There are strong arguments for taking a discipline-specific approach when teaching critical thinking, and more especially when teaching critical thinking and writing. There are clear disciplinary differences when it comes to writing and argumentation and each discipline will have specific conventions for appropriate and effective writing (Andrews, 2015; Ramanthan & Kaplan, 1996; Hyland, 2002). Argumentation in engineering for example might take the form of presentation and justification of a model/design aimed at meeting a specific problem, but in the hard sciences may be less prominent (Andrews, 2015). Hyland (2004) views writing in the disciplines on a cline; from hard sciences at one end to soft humanities at the other. These disciplines set different task types and have different ways of presenting and building an argument. Though the aim of academic writing across all disciplines is to transmit knowledge persuasively, how this is done can vary widely (Silver, 2012). In his corpus-based investigation of research articles from eight disciplines Hyland (2008) found differences between the hard sciences and humanities which demonstrate how students in these disciplines may be expected to write and display criticality. Analysing and synthesizing multiple sources is more common in humanities where sources are used to support tentative, personal claims through use of first person pronouns and hedging. In the hard sciences however, describing procedures and planning solutions are key and text-based writing places greater emphasis on summarising and organising sources rather than critically analysing them (Casanave & Hubbard, 1992). Furthermore, in the hard sciences an argument is presented to

give the impression results would be the same no matter who conducted the experiment so less citations are used and passive or dummy it structures are more common (Hyland, 2008).

To think critically in a discipline therefore involves not only having knowledge of the subject and its key theories and concepts, but also knowledge of the models of argumentation (Andrews, 2015) and how to communicate in their own voice by knowing the way to "control their rhetorical personality" (Hyland, 2002:391) in their academic discourse community. This involves understanding the discourse community they are part of and presenting their arguments in a way acceptable to others in the community to build relationships and communicate effectively.

2.4 Cultural factors

In addition to the debate surrounding the generalisability and transferability of critical thinking skills, the other hotly debated issue which is particularly important to consider when teaching EAP students is the extent to which critical thinking can be considered a 'Western construct' (Atkinson, 1997) and how great an impact cultural factors have on a student's ability to demonstrate critical thinking in an academic context. The long-held perceptions of students from non-Western backgrounds, most often labelled Asian students (though exactly what a prototypical "Asian" student is, or where the East-West dividing line can be found, is not generally made explicit) being unable to think critically due to their cultural background, are being challenged in more recent research (Floyd, 2011). Instead, more weight is being given to factors such as language proficiency and educational experience in affecting students' ability to demonstrate critical thinking.

2.4.1 The perception that "Asian" students can't think critically

If critical thinking is believed to be a purely social practice and embedded in the culture of a specific country, international students coming to study in a new environment are likely to struggle to adapt. For proponents of the notion of critical thinking as a culturally-based social practice, groups of learners from other cultures are perceived to be "deficient in critical thinking abilities because they have been raised under social practices where group harmony and conformity are stressed" (Stapleton, 2001:509). Cultures influenced by or rooted in Confucianism such as China or Japan, are often perceived as placing great importance on showing respect for authority and conforming to group ideas rather than standing out as an individual (Tian & Low, 2011; McKinley, 2013). Questions have also been raised about the

impact of culture and students' critical thinking capabilities in Islamic-based societies such as Turkey and Egypt (Alagozlu, 2007; Bali 2015). In these cultures, it is argued that the notion of the individual is different and this, given that individual voice and stance is a key component of critical thinking affects the ways in which students express themselves and their ideas (Atkinson, 1997). In a classroom setting this translates as students who have neither been taught the skills required to demonstrate critical thinking nor possess the disposition and willingness to question the teacher's authority or to disagree with ideas of their peers, a clear reflection of the stereotype of Asian learners as passive and unquestioning students. This type of classroom behaviour may then lead to students simply reporting what they've read in written assignments, rather than questioning and challenging the ideas they have come across (Alagozlu & Suzer, 2010).

2.4.2. Challenging the "West versus East" stereotype

In response to the attitudes regarding certain international students' abilities and dispositions towards critical thinking, much recent research has attempted to contradict the arguments which seem to support this position and offer other potential reasons for students appearing to lack these abilities. First of all, criticism has been levelled at the idea that cultures based on principles of Confucianism or Islam do not foster critical thinking because it is not reflected in the ideology the culture is rooted in. However, looking at the writings and mottos of Confucius, Tian & Low (2011) claim that Confucius actually emphasised the importance of critical thinking, in the form of reflective thinking and inquiry. They also question the assumption that Confucius regarded students as passive and less knowledgeable than the teacher. With regards to the principles of Islam, Bali claims critical thinking is "ingrained in Islamic scholarship" (2015:318) and that primary sources of Islamic texts, similar to the writings of Confucius, emphasise reflective thinking and actually invite inquiry and exploration. Bali (2015) goes on to suggest that it is possible that while this interpretation of the primary sources is valid and exists in informal parts of the culture, it has not been encouraged in many Islamic societies or fostered in the education system due to the oppressive political regimes of these countries.

Differences in education systems and curricula are other common factors cited as potentially being more influential in the debate on international students' critical thinking than general cultural differences. Students coming to educational institutions in English speaking countries from places such as China encounter a very different teaching and learning context

compared to their home countries and won't necessarily have been given the opportunity to develop the skills involved in critical thinking that their native English speaking peers have (McKinley, 2013, Alagozlu & Suzer, 2010). It has long been recognised that some education systems do not focus on fostering critical thinking or encourage their students to develop a critical voice. Though this may be influenced by the culture, issues such as a lack of resources and large class sizes will also affect the extent to which critical thinking can be fostered. This can be seen in the Chinese education system where the average secondary school class contains over 50 students (OECD, 2012) and so traditionally relies on rote memorisation and takes a more teacher-centred, lecture-based approach (Tian & Low, 2011). Critical thinking and voice is not emphasised in the Turkish education system either, with students often entering university education without the capacity to self-reflect, plan or evaluate research (Alagozlu, 2007). Students coming from these types of education systems are likely to find it harder to adapt and may lack confidence to move away from a position presented by the teacher (Bali, 2015). However, it is important to consider that both society and education systems are constantly changing, as China for example moves towards a more communicative approach to teaching and is also introducing content-based English instruction (Hu, 2002). These changes will impact the experiences and beliefs of the students and mean that past stereotypes will need reconsidered (Stapleton, 2002).

Despite seeming a rather obvious consideration when discussing L2 learners, in much critique of "Eastern" learners' lack of critical thinking abilities, little focus was given to the additional challenges posed by having to perform in a second language. It seems clear that "to be able to write critically in one's non-native language is a much more complex ability" (Bali, 2015:327), yet despite this there has been a lack of research and therefore a lack of understanding surrounding how much of an additional challenge this actually poses for students (Floyd, 2011). Several studies investigating critical thinking in L2 students suggest that language proficiency is a factor in critical thinking (Tian & Low, 2011; Floyd, 2011, Manalo *et al*, 2015). In an attempt to establish a link between critical thinking abilities and language proficiency Floyd (2011) tested a group of Chinese students and found taking the test in Chinese significantly improved students' critical thinking performance. However, it should be noted that other studies have indicated that Chinese students appear to lack the dispositions associated with critical thinking (Tian & Low, 2011) and in comparing L1 and L2 writing samples of Turkish EFL students, Alagozlu and Suzer (2010) found little difference in criticality levels, indicating language proficiency may not be a contributing

factor. Although the research is conflicting, and more investigation is clearly needed before any conclusions can be drawn between the link between critical thinking and language proficiency, the additional challenges of performing any academic task in an L2 are indisputable. The extra cognitive challenge, demands on working memory and issues linked to comprehension will clearly impact all aspects of a student's performance, including the ability to demonstrate criticality, particularly when that student is placed under stress, such as in a classroom or exam situation.

Apart from low proficiency in English another language related factor which may have considerable influence on critical thinking and critical writing in particular is linked to the differences in rhetoric between a student's L1 and English. Contrastive rhetoric investigates how writing differs across cultures and relates to how L1 language and culture influence L2 writing (Connor, 2003). Languages are classed as either reader-responsible or writer-responsible depending on who carries the greater burden for effective communication (Hinds, 1987). English in particular places the responsibility of creating coherence firmly on the writer by constructing well organised discourse (Hinds, 1987), and one way in which this can be achieved is through use of metadiscourse to signal to the reader what the writer intends (Hyland, 2003). In summarising results from research into contrastive rhetoric Hyland (2003) lists various differences between L1 and L2 writing which are clearly linked to the aspects of critical thinking involved in writing. These include: different ways of presenting arguments, incorporating sources and in objectivity (giving opinions and making generalisations). In Japanese for example, the structure of the language and the L1 writing process, which uses non-linear logic will affect student's ability to write clearly and critically in English (McKinley, 2013). Other languages which tend towards reader-responsible rhetoric which contrasts with the writer-responsible conventions of English include Chinese, Korean, German and Spanish (Hinds, 1987; Hyland, 2003). Students coming from these language backgrounds may have to learn a whole new set of writing conventions, as the frames they have for constructing arguments in their L1 may not be appropriate for writing in academic English (Grabe, 2001). This is a difficult and complex process which will impact how effectively they can display critical analysis in their writing, using these new conventions.

A further element which may have contributed to the perception that some international students lack critical thinking skills relates to misunderstandings between students and teachers regarding what is expected. Given that the concept of critical thinking is so hard to

define for researchers in the literature, it is not surprising that a lack of clarity among students could exist. International students may be unclear about the appropriate conventions regarding critique (Tian & Low, 2011) or may have different ideas about when and what is appropriate (Floyd, 2011). Furthermore, differences in background knowledge or a lack of shared assumptions between international students and local teachers may lead students to have very different ideas about what may be worth critically analysing (Stapleton, 2001; McKinley, 2013).

A final point to be considered in the East versus West debate on critical thinking is the fallacy of generalising such a wide group of learners with such diverse backgrounds (Bali, 2015). It is clear that critical thinking is a highly complex topic, and students' ability to demonstrate criticality is affected by a wide range of factors, not only their cultural background. To be able to demonstrate critical thinking effectively students need to develop a range of skills, have the dispositions required to employ these skills and enough knowledge and experience to succeed in an appropriate way. These difficulties are also not limited to international students alone. Simply because critical thinking is given more emphasis in the curricula of schools in inner circle contexts, doesn't mean students from these backgrounds enter university as fully developed critical thinkers either. The lack of clarity and understanding of what critical thinking is and the ability to demonstrate it in writing seems equally problematic for local students (Pithers & Soden, 2000). To help overcome this barrier, all students need clearer instruction and guidance (Tian & Low, 2011) and instructors need greater understanding of how experience, background knowledge and culture may influence their students' interpretation of the concept of "being critical".

This review suggests that despite its central place in higher education in desirable graduate attributes, assessment criteria and student textbooks there is still considerable ambiguity surrounding the concept of critical thinking. There continues to be debate, not only on the definition of the concept but on how best to approach teaching critical thinking to students and the extent to which the cultural background of the students may influence their ability to demonstrate these skills. Therefore, further investigation into what critical thinking means for the students and teachers in the academy is clearly needed, to fully understand how it relates to or differs from the theory. To help students develop these skills and to foster critical thinking in EAP classes effective teaching practices are clearly required, which take into account the challenges that international students face given their diverse backgrounds, language proficiency and previous experiences. A focus on practices in teaching writing was

chosen, not only because writing is the most common method of assessment at university and a skill students struggle to master, but also because less focus seems to have been given to research into instructional writing practices (Wette, 2014; Wingate, 2012). In order to explore these key areas in more depth, this study will aim to answer two research questions:

1. What skills, dispositions and knowledge do EAP students and teachers believe constitute key aspects of critical thinking in an academic context?
2. What approaches are being taken with regard to developing students critical thinking skills in academic writing tasks?

Chapter 3: Methodology

3.1 Choice of methodology

To carry out this study into perceptions of critical thinking and teaching practices which foster critical thinking abilities in students' writing production a qualitative synthesis of previous research, referred to as a meta-synthesis was chosen. Norris and Ortega define research synthesis as "the systematic secondary review of accumulated primary research studies" (2006:6). Large scale meta-analyses are the most common and focus on synthesising quantitative research, though an increasing number of studies are synthesising qualitative research, which is referred to as meta-synthesis, the method chosen for this study. Meta-synthesis uses qualitative methods with the aim of "bringing together and breaking down of findings, examining them, discovering essential features, and, in some way, combining phenomena into a transformed whole" (Schreiber *et al* 1997, cited in Finfgeld, 2003:894).

Several factors contributed towards the choice of method for this study. Noblit and Hare (1988) suggest that "the goal of a qualitative and interpretive research synthesis is less about generalizing about what constitutes effective practices across contexts than informing readers of the contexts themselves" (cited in Tellez & Waxman, 2006:10). Given that the broad topic chosen for investigation, critical thinking, is still a highly controversial area with many different definitions and aspects being cited in the literature, and that the choice of topic arose from my increasing awareness of teachers' confusion about this, finding an approach which could potentially bring together some common themes and help teachers be better informed about how to approach critical thinking in a practical way seemed appropriate. One of the main advantages of meta-synthesis as an approach in an area such as TESOL, in which an increasingly large number of qualitative studies are being published, is the potential to bring together similar studies and to allow space for reflection in terms of where a research area is and how it might develop (Bondas & Hall, 2007). In an area such as critical thinking in EAP contexts which is still relatively new and highly complex, a process which allows links and patterns to potentially emerge or areas which require more research to be identified is clearly valuable. Another factor influencing the choice of approach is linked to the potential this method offers for considering practices across different countries and different institutions, in an attempt to discover where the commonalities may lie. Further considerations in choosing the method related to the limited scope and time available for the study which ruled out larger scale quantitative approaches as a completely exhaustive review was not possible given the

timeframe. In addition, as the focus of this study is to investigate teaching practices, relevant studies are likely to be qualitative in nature. For these reasons a small scale approach which focuses on the synthesis of qualitative research seemed most appropriate. In choosing this approach it is important to recognise and acknowledge that the result will not be comprehensive, but "situated, partial and perspectival" (Lather, 1999:3).

3.2 Literature and database search

In order to search for suitable sources in a way that was both systematic and as exhaustive as possible given the limitations of time, one database, the Educational Resources Information Centre (ERIC) was selected. This database was chosen as it is one of the most comprehensive educational databases available and is likely to be accessible to the English language teachers who would be interested in this study. It is also relatively easy to use and search through. The search was conducted using combinations of key terms and limited to articles concerning higher education as the focus of the study is university level students. In order to find studies which explore students' beliefs about critical thinking and which report on pedagogical approaches to supporting the development of critical thinking in students' writing, the following search terms derived from the literature review were used in various combinations: critical thinking, criticality, analytic, EAP/ESL/EFL learners, writing, argument, synthesis, voice/stance, perceptions/attitudes.

To narrow down the number of articles to a manageable number and ensure the study has a clear focus, a set of parameters which would determine whether studies were to be included or excluded from the synthesis was required. First of all studies needed to have a focus closely linked to the research questions and so investigate opinions of critical thinking or teaching practices in writing classes. Studies which focused solely on examining the linguistic or rhetorical features associated with critical thinking were therefore excluded. The studies also needed to focus on L2 university students in inner circle contexts which Kachru (1982) defines as countries where English is spoken as a first language such as the USA, Australia, the UK and Canada. This therefore excluded a number of studies which were conducted in English medium universities in other countries such as Japan and the Middle East. The context was narrowed in this way as although different inner circle countries are clearly not a homogeneous context, these are countries where critical thinking is held up as an ideal in the education system and where large numbers of international students, whose background and views of critical thinking may be very different, choose to study. A final

criterion for inclusion relates to the quality of the studies selected for analysis. It is important that the research in the primary studies was carried out ethically and reported accurately. Because judging the quality of studies is subjective, a decision was made to only include studies from peer reviewed journals to set a threshold level of quality. This therefore excluded sources such as unpublished thesis or journal reports which were not reviewed before publication. Once the search had been carried out, a secondary search to attempt to find relevant studies not discovered in the database search was done using what is referred to as the "pearl-growing technique" where the reference lists of key studies the author has already found or is aware of are checked for additional studies (Barnett-Page &Thomas, 2009).

Through these methods of searching, and by applying the criteria for inclusion/exclusion a final list of ten studies was produced. There were not many studies which included some focus on in-class practice and teaching of writing, so in addition to the five studies found which include some in-class writing focus, two more studies connected to the teaching of writing that have been included deal with discussion tasks and group work done in class in preparation for writing at home rather than the writing process itself. Given that planning and reflection have been identified as components of critical thinking and other studies included dealt with both pre and while writing tasks, these studies were felt to be appropriate and worth including. The studies by Kasper & Weiss (2005) and McDonough & Neumann (2014) fall into this category. Another issue encountered when finalising the list of studies for analysis relates to how explicitly critical thinking is discussed in the studies. This varied across all the studies, and a decision was made to include studies found through the database search which, although not explicitly referring to the term "critical thinking" were clearly dealing with aspects of critical thinking identified from the literature. The studies dealing with synthesis by Wette (2010) and Zhang (2013) are examples of this.

3.3 Approach to data analysis

In order to analyse the data from the studies effectively and to connect this research with other research being done in the field, a framework for data analysis was required. An appropriate framework for teaching critical thinking skills to L2 students was not readily available so other more general critical thinking frameworks and taxonomies were investigated. The problem with this approach was, given the disputed nature of the concept, although most researchers provide extensive explanations of what critical thinking entails for

them personally, each of these are slightly different, making it difficult to justify the selection of one over the others. Many of these taxonomies are also extremely complex and detailed, and not particularly accessible for the purposes of this study. The framework eventually chosen was designed by Thomas and Lok (2015), and was compiled through an extensive review and thematic analysis of literature surrounding critical thinking. This means that the framework brings together the key aspects of critical thinking from a wide body of literature. It therefore incorporates the key concepts and aspects of critical thinking that been discussed above, including critical thinking skills and dispositions, as well as the role of students' previous experience and disciplinary knowledge.

In an attempt to bring "conceptual clarity" (Thomas & Lok, 2015:93) to the complex issues surrounding critical thinking, the framework conceptualizes critical thinking as three sets of attributes which are closely connected:
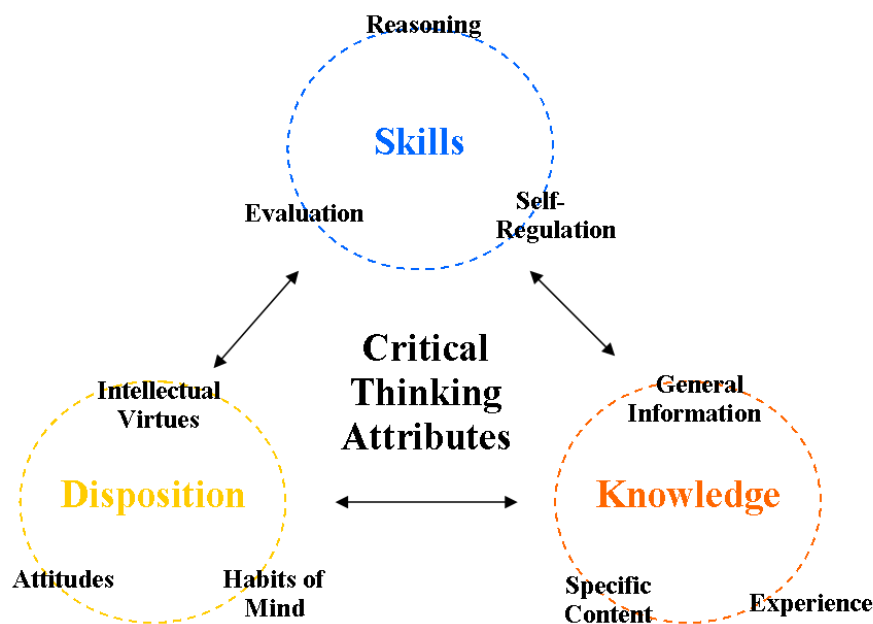
*Framework taken from: Thomas and Loki (2015:98)

The framework presents critical thinking as a "composite of certain skills, dispositions and knowledge" (Thomas & Lok, 2015:96). The subthemes are illustrative and by no means comprehensive or exclusive, but open to adaption and supplementation depending on the teaching and learning context in which the framework will be applied (See Appendix 1 for a more detailed list). The link between knowledge and critical thinking emerges as an important theme in the literature and comprises many aspects of knowledge, as the framework shows. For this study, specific content knowledge can be interpreted as

disciplinary knowledge and the addition of cultural knowledge could potentially be important too when considering L2 speakers. There also appears to be a considerable amount of crossover regarding the aspects of self-regulation and reflection, classed here as a skill, but which also appears connected to dispositions in Moore's (2013) description of taking a self-reflexive stance and to knowledge through Barnett's (1997) emphasis on reflective awareness. A willingness to engage in critical thinking underlies the category of disposition, including willingness to inquire (Hamby, 2015), accept new ideas and look at alternatives. Although not designed with L2 students specifically in mind or to specifically teach critical thinking in writing, it provided an accessible and comprehensive basis for the data analysis which could be adapted to include aspects relevant for L2 students as the analysis progressed.

As a first step in the analysis, the texts were read and a short annotated bibliography with summaries of the content of each study was written (App.2). Then a chart was designed based on the framework (App.3). Each article was coded depending on which research question it answered (Melles (2009) answered both and was coded accordingly). The articles were then read closely and points relating to the framework were noted down. Other points which were felt to be interesting and relevant but not easily categorised based on the framework, at the initial stage of the analysis process at least, were also noted. Some of these points were related specifically to L2 speakers or general teaching practices, which the framework was not designed for and provided the basis for adapting the framework to suit the research questions of this particular study better. The comments noted were then colour coded in order to identify common themes.

Chapter 4: Findings and Discussion

4.1 What skills, dispositions and knowledge do EAP students and teachers believe constitute key aspects of critical thinking in an academic context?

Four of the ten studies included in the meta-synthesis were identified as being relevant to the first research question. They either involved interviews with students (**Melles, 2009; Durkin, 2008; O'Sullivan & Guo, 2010**) or discussed the reflections of EAP teachers (**Kiely, 2004; O'Sullivan & Guo, 2010**) to find out what their perceptions of critical thinking were. The main themes which emerged from the analysis of these studies relate to the misconceptions of critical thinking, students' willingness to engage in critical thinking, the skills of evaluation and synthesis, and finally the impact of the disciplines on critical thinking.

4.1.1 Misconceptions of critical thinking

One of the first themes to emerge from the studies which discussed teachers' and students' perceptions of critical thinking was the misunderstanding of the concept, particularly with respect to students from very different cultural backgrounds who don't have the experience of critical thinking as it is defined in inner circle academic contexts. Given the confusion and multiple definitions given in the literature (Tian & Low, 2011; Atkinson, 1997), it is hardly surprising that both students and teachers note that this is a problem for them. Three of the four studies which investigated student and teacher beliefs raised misconceptions of the "critical" aspect of critical thinking as a common issue among students coming to study in these inner circle contexts. **Durkin (2008)**[1] found that students entering Masters programs in the UK conceptualise critical evaluation in negative terms and link it to finding flaws or faults in what they are asked to read, illustrated in this comment by one of the interviewees:

> "An author gives a theory and I say that according to my experience there is something wrong with his theory or definition" (**Durkin, 2008:21**)

The perception that critical thinking is something negative and related to fault finding is also discussed by **O'Sullivan & Guo (2010)** based on comments from his interviews of Chinese students in an ISP program in Canada. He found that students often connected the term critical thinking with terms such as *negative* and *problem*, as this student explains critical thinking to her means "finding negative aspects so we can make changes and improve"

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[1] Studies included in the meta-synthesis are highlighted in **bold** in text and marked with an asterisk in the references

(O'Sullivan & Guo, 2010:62). Although this student goes further than the student in Durkin's study and recognises that critical thinking involves action in the form of instigating change, part of what Davies & Barnett (2015) describe as essential in criticality, there is still an emphasis on finding something wrong. For L1 Chinese students linking critical thinking with fault finding may be linked to the translation of the term into Chinese, which is often translated as "looking for fault in others" **(O'Sullivan and Guo, 2010:56)**. This initial misunderstanding of what critical thinking means was recognised by some Chinese engineering students interviewed by **Melles**, as this student's comment shows:

> "At beginning, I misunderstand what it is. I thought critical review requires us to identify some errors or inaccurate words in the original article. So I wrote it in the wrong way. After I took this course, I understood what it was." (2009:167)

For this student, explicit instruction and discussion of what was meant by critical analysis was necessary to help him recognise the differences in the concept in English academic contexts from what he understood from his previous experience and translation from his L1. These issues regarding the translation of the concept highlight the polysemous nature of the term *critical*, which **Melles (2009:166)** describes as "culturally specific linguistic baggage" students may bring with them, as the concept of critique may carry connotations of negativity in their first language. However, in English too, the term *critical* can be used in a negative sense, and is used in the sense of criticizing and fault finding. Students who first meet with the English term in this kind of context e.g. film or book critiques are likely to apply this negative connotation to the concept in academic contexts as well. However, in an academic context the critical aspect of critical thinking is more commonly used in the sense of evaluation and less in terms of finding faults (Alexander *et al*, 2008). This implies that drawing students' attention to the different meanings of the term *critical* would seem to be an important first step in teaching critical thinking.

4.1.2 Dispositions: willingness to critique and question

The misconceptions students may have of the concept and the extent to which they feel that it is culturally appropriate will impact their attitudes towards embracing critical thinking and therefore their perceived willingness to critique, identified as a key part of the disposition required to become a critical thinker (Hamby, 2015). The concepts most frequently discussed in the studies related to critical thinking dispositions was this willingness (or lack of it) required to engage in critical thinking and the importance of the habits of mind connected to questioning.

Using one's critical thinking abilities is described in the Thomas & Lok (2015) framework as one disposition required and seems to encapsulate this idea that students need to be willing to use their skills. In the study conducted by **O'Sullivan & Guo (2010)**, willingness to engage in critical analysis seems to be linked to culture and the students' lack of exposure to critical thinking in their education system. The teacher identifies reluctance on the part of his Chinese students to view China in terms they consider negative and suggests that while some students were pre-disposed to take a critical perspective others were not and remained unwilling to do this. The teacher here seems to be approaching critical thinking from a position in the critical pedagogy movement and through his choice of content appears to be looking for students to critically analyse some of the social and political issues in China. This demonstrates how a teacher's view of critical thinking may influence teaching practice (Hemming, 2000) as it appears to affect how he assesses the presence of these skills in his students. However, this is only one perspective of critical thinking and students unwilling to critically analyse social and political situations may still be willing to engage in a different aspect of critical thinking. **Melles** also found students raising cultural differences as a factor in their hesitation to engage in critical analysis:

> "Although I understand the meaning of critical writing and thinking, I still feel uneasy to criticize other people ideas, especially when they are more senior than me, for example my supervisor" (2009:167)

This student appears to still view critical thinking as something negative and refers to taboos in Japanese culture regarding questioning older people which makes her reluctant to challenge authority. This may clash with the expectations of their supervisor who may expect or view challenges as a sign of engagement and criticality.

Another factor connected to cultural taboos in critiquing authority and experience which emerged in the studies by **Durkin (2008)** and **Melles (2009)**, and may account for students' reluctance to engage in critical analysis is linked to their lack of confidence, both in what is appropriate and in their own skills. Therefore students may be unwilling to take risks in order to save face and be reluctant to challenge others in case they cause offence. This doesn't necessarily mean students are unwilling to engage in critical thinking though, as the following quote from a student illustrates:

> "I will do some self-criticism before I express my ideas. I have to check myself first, whether my ideas are too naive. It might be that freedom of speech results in ignorance" (**Durkin, 2008:21**)

The student is clearly concerned about expressing her own ideas and so her teachers may perceive that she is lacking in critical thinking skills. While the researcher here uses this student's comment to support the point that students are unwilling to take risks due to a lack of confidence, it seems that the student is also demonstrating an awareness of a key aspect of critical thinking; the importance of self-reflection and critical analysis of your own ideas, which is incorporated in the Thomas and Lok (2015) framework as the skill of self-regulation. Before going on to critically engage with the ideas of others, this student seems to require time to reflect on her own thoughts.

The second element associated with critical thinking dispositions that emerged as important from the studies was the desire to question, which seems linked to the intellectual virtues of curiosity and inquisitiveness described by Thomas and Lok (2015). For the EAP teacher who is the focus of **Kiely's** study, encouraging questioning in her students is one of the aims of her feedback on their performance, which she explains in the interview:

> "in comments that I made in their written work, I attempt to put questioning in the margins, and to indicate where they have been very flat in what they said, you know, because again, that's one of the skills we are trying to practice" **(Kiely, 2004:219)**

From this teacher's perspective being critical means developing an approach which questions and assesses the problems involved in the issues, and so she attempts to foster this approach by demonstrating this questioning in her own feedback to students. Having the right disposition to question and inquire is also raised as an issue by the teacher in **O'Sullivan & Guo (2010)**. The differing educational practices in the more teacher-centred education systems, also noted in the wider literature (Tian & Low,2011; Alagozlu, 2007; Bali,2015), are cited as being a factor in students' lacking this questioning disposition and consequently the ability to demonstrate critical thinking. **O'Sullivan** feels his Chinese students are coming from an education system which focuses on developing in their students the habits of mind required for successful memorisation and rote-learning, and so "employs a discourse and practice that actively discourages such inquiry" (2010:60).

For the students in **Melles'** study, questioning also emerged as an important part of critical appraisal, linked by the students to the questioning and evaluation of sources as a part of analytical reading, shown through this student's comment;

> "also, rather than accept only when reading or listening to others' ideas, I should question about their validity, applying prerequisite, unrevealed facts and do deeper evaluation and development" (2009:165)

The student is demonstrating an awareness of how critical/analytical reading affects the writing process, as the student recognises the importance of questioning sources to be able to produce a more in depth evaluation in their own production. Questioning the validity of sources is an important element of critical thinking identified in the literature and may involve identifying a writer's bias (Stapleton, 2001) or potential flaws in an argument (Davis & Barnett, 2015). For this student at least, there seems to be a clear link between having the willingness or disposition to take a questioning approach and the skills involved in evaluation, which is one of the key skills which emerged from this analysis as playing an important role for students in defining and demonstrating critical thinking. Although dispositions are arguably not something which can be directly taught, these findings suggest EAP teachers should not simply assume students lack the dispositions required to think critically, but should be aware of the potential cultural differences and help students build the confidence required to engage in critical thought.

4.1.3 Skills: Evaluation and synthesis

In terms of the skills involved in critical thinking the most commonly mentioned was evaluation, relating to the evaluation of arguments and sources. The close link between critical reading and writing is therefore exemplified through this aspect. As they become more competent in developing critical and analytical skills, **Durkin** finds students begin evaluating what they have read through comparing and contrasting views which enables them to "critically analyse the various viewpoints and weigh up conflicting evidence and arguments to reach a reasoned opinion or conclusion" (2008:22). Her students identify the importance of evaluating and analysing the opinions of others as a step that should be taken before reaching their own opinions. Comparing and contrasting as a central aspect of critical appraisal also emerged as important for **Melles'** engineering students. These students also recognise that critical writing involves reading and then evaluating based on criteria, as this student explains:

> "the goals for critical thinking and writing are understand the main points on an article, analyze the finds or argument of the article, decide the appropriate criteria by which to evaluate the article, and provide a critical evaluation of the article based on the criteria selected" (2009:165)

The recognition that evaluation requires first setting out the criteria against which a text will be evaluated is an important point raised by this student which doesn't emerge from the other studies.

The skills involved in synthesizing sources underlie the students' comments on evaluation and appear to be skills students find difficult (**Melles, 2009; Durkin, 2008**). Copying instead of paraphrasing was raised as a difficulty in practicing critical appraisal in writing **(Melles, 2009)** and the role of synthesis and personal opinion in critical writing also emerged as challenging for students. **Melles** found that the requirement to take a stance was a new and challenging experience for some his students who are beginning to recognise the importance of using sources to present supported arguments, as one student comments, "it is harder than simply giving my opinion, what I am writing is more trusty and precise than before"(2009:166). One of **Durkin's** students commented on their struggle to balance the requirement to refer to and synthesise sources with giving their own opinions and finding their own voice:

> "I don't see why we always have to write so much about what other people have written. Often I have a lot of individual thoughts, but I don't find them in journals or books. What about these?" (2008:22)

This comment illustrates the difficulty students have when beginning to write using sources, as they don't yet have the skills required for creative synthesis in order to build up their own argument. The role of voice and giving personal opinions as an element of critical thinking was identified by **Kiely (2004)** as an important element for the EAP teacher in his study. Basing critical learning on personal experience is important for this teacher, and from that "the way to be critical is also linked to individual voices and issues emerging" **(Kiely, 2004:220)**. This may imply that introducing critical thinking through topics students have personal experience of may help them begin to develop the required skills.

4.1.4 Knowledge: Disciplinary differences

Only one study focuses on students from a specific discipline and explores students' perceptions of how critical thinking skills relate to disciplinary practices. In interviews with engineering students **Melles (2009)** found that these students link critical appraisal skills in an engineering context with identifying problems and evaluating or analyzing the advantages and disadvantages of potential solutions to these problems:

> "So the engineer have to think critically when he search for his own solution from others solution so he have to understand and analyze other's solution to know what suits his problem and what does not" (student comment, **Melles, 2009:165**)

The problem-solution dimension to critical thinking that this student discusses and the ability to justify a choice of solution to a given problem is typical of the engineering discipline but

far less likely to be required in hard sciences or humanities (Andrews, 2015), which implies a more disciplinary specific approach to teaching critical thinking could be beneficial.

4.2 What approaches are being taken with regard to developing students critical thinking skills in academic writing tasks?

To find out how the teaching of critical thinking in academic writing is being approached with EAP students seven studies have been included in the analysis of teaching approaches which focus on various stages of the writing process from pre-writing tasks (**Kasper & Weiss, 2005; McDonough & Neumann, 2014**) and one-off workshops (**Thompson, 2002**) to extended periods of instruction (**Melles, 2009; Pally, 2001; Zhang, 2013; Wette, 2010**). Many of the issues discussed above are reflected in the approaches taken in these studies. Three broad themes emerged from the analysis, from each of the three categories in the Thomas and Lok (2015) framework; the role of content knowledge, the teaching of evaluation and synthesis skills and the role of collaboration in fostering the dispositions to engage in critical thinking.

4.2.1 The role of content and background knowledge

The important role of content knowledge in critical thinking is demonstrated by the fact that several of the studies in this meta-synthesis take a sustained content-based approach in courses designed to teach critical thinking skills. The studies by **Melles (2009)**, **Pally (2001)**, and **Kasper and Weiss (2005)** all approach teaching critical thinking through the lens of content-based instruction (CBI). Furthermore **Thompson (2002)** and **Zhang (2013)**, while not explicitly implementing CBI, also value a thematic approach to instruction, with **Thompson (2002)** noting that students with more background knowledge and personal experience of the issues seemed better able to produce a piece of critical writing. **Pally (2001)** also found that content-based instruction seemed to result in higher quality, more critical writing even from low level students and gives the following rationale for taking a CBI approach in an academic context:

> "because students accrue knowledge in a discipline, they both acquire the background knowledge from which they can question texts and gain more confidence in doing so" (2001:290)

From this perspective, taking a CBI approach in EAP teaching would seem to best replicate how students learn in their academic disciplines.

Two main benefits of taking this approach in the teaching of critical thinking skills emerge from these studies which are illustrated in the above quote. Firstly, in order to question sources and build up an effective argument on a topic, students must first accumulate enough background knowledge to be able to do this. Without background knowledge the task of recognising poorly supported arguments or bias in source texts becomes much harder. In critical writing, taking a position and developing voice has been identified as important (Bruce, 2001; Hyland & Sancho-Guinda, 2012), but again, without allowing them to gain sufficient knowledge of a topic, asking students to develop a position on it again seems unfair. Despite this many EAP programs seem to require students in writing to give personal opinions on topics, unsupported by extensive reading of texts (Leki & Carson, 1997) which could leave students unprepared for the challenges of academic writing in their degree courses where they often struggle with discipline conventions and synthesising multiple sources (Evans & Morrison, 2010). **Melles (2009)** also takes a sustained-content approach over a course, asking students to write multiple texts on one, discipline specific topic. A belief in the important role of critical writing in the learning process seems to underlie this approach as students were advised to keep the same research topic "so that writing builds cumulatively towards an extended understanding of a particular issue" **(Melles, 2009:163)**. The purpose of writing and critical analysis at university becomes relevant here as it is not purely a method of assessment but aimed at deepening students' understanding of the key topics in their respective fields. This purpose should ideally be reflected in EAP course tasks as well.

The second benefit of CBI which emerges from **Pally's (2001)** comment above is linked to confidence which develops from the scaffolding that a CBI approach provides. For EAP students coming from cultures which do not promote critical thinking in their education system, building up their confidence through scaffolding as they adapt and learn new skills would clearly be beneficial. In her approach **Pally (2001)** suggests using a question-outline worksheet to provide scaffolding for the students which will help build their confidence. This outline requires students to take notes on their objections to an argument they have read and prompts them to give reasons why a support may be inadequate and to back up their reasons with support from other sources or personal experience. **Kasper & Weiss (2005)** also recognise that challenging and critically analysing sources requires confidence and claim taking a CBI approach where students read extensively on one topic provides the required scaffolding to enable them to meet the challenges involved in critiquing and synthesizing

multiple sources. The role of knowledge in developing a stance and critical analysis as conceptualised in the Thomas & Lok (2015) framework as comprising experience, background knowledge and specific content knowledge is summed up by **Pally** in her call for a sustained content approach to teaching critical thinking;

> " developing a position of one's own is considerably eased by reading extensively on a subject, as the differing opinions add to one's own experience and to the base of information from which one can distil a claim" (2001:295)

A final, interesting point to emerge from the studies regarding content and background knowledge is the extent to which the studies support taking a disciplinary-specific approach over more general academic content. All the studies discuss, to varying degrees, the importance of content knowledge in developing critical thinking skills and the studies by **Melles (2009), Thompson (2002), Pally (2001), Kasper & Weiss (2005)** all conclude that building this knowledge aids the teaching of critical thinking and affects the extent to which students succeed in producing a piece of critical/analytical writing. However, despite recognising the importance of students' having background knowledge, little weight is given to developing these skills in disciplinary specific content. Only one study, **Melles (2009)**, has taken a disciplinary-specific approach in teaching critical thinking and writing to a group of engineering students. According to **Melles (2009:162)** "there is clear evidence of the advantage of embedding language and writing instruction, including the teaching of critical appraisal, in the content of the disciplines", and in the student interviews conducted at the end of the course, disciplinary-specific aspects of critical thinking in engineering emerge as this student is able to recognise the role of knowledge building within his discipline;

> "yes as we know, in the engineering field, any solutions presented for solving existing problems is a long-term process. Critical thinking and writing gives the chance to perfect other people's ideas by adding their own ideas, which develops the development of engineering" (**Melles, 2009:165**)

This problem-solution form of argumentation is recognised as being relevant to engineering, but is less likely to be required in other fields such as the hard sciences (Andrews, 2015). Only by encouraging students to engage in their disciplines will awareness of such differences develop. Both **Thompson (2002)** and **Pally (2001)** suggest that while discipline-specific topics could be chosen where possible, general academic topics could be used effectively instead. These authors seem to be recognising that many EAP classes consist of students coming from a range of disciplines and so may be adapting their teaching suggestions to suit the context the majority of EAP teachers work in.

In the majority of studies included in the meta-synthesis there seems therefore to be an underlying belief that critical thinking skills, to an extent at least, are generalisable and transferable, and that taking the approach of using sustained general academic content is an effective way to introduce EAP students to critical thinking. However, the findings of the literature review do seem to suggest that there are some significant disciplinary differences when it comes to critical thinking and academic writing, such as the ways in which arguments are presented and sources used (Andrews, 2015; Hyland, 2008). One way to begin to address this gap is suggested in the study by **Wette (2010)**. While teaching synthesis skills to a group of mixed-discipline students, she suggests a three strand approach, where the first two strands focus on general skills but the last focuses on what she terms "social practice components", which includes discussing disciplinary differences relating to the use of sources.

4.2.2 Instruction focussing on evaluation and synthesis skills

The links between critical thinking, reading and writing are clear from the above discussion on the role of background knowledge, much of which EAP students will gain through extensive reading. Consequently, another approach which emerged as being central to the teaching of critical thinking skills is the focus on the reading to writing cycle and the teaching of the associated skills of evaluation and synthesis. In an academic context, students are required to do more than read passively to gain knowledge. They are expected to evaluate what they have read and then transform this knowledge in their own production. The importance given to teaching the associated skills of evaluation and synthesis by the studies in the meta-synthesis reflect this situation.

For **Thompson** the term evaluation does not simply mean evaluation of sources but is linked to self-regulation and reflection as it involves a personal aspect. Her workshop in critical thinking aims to "encourage students to evaluate their own cultural beliefs and assumptions" (2002:16). To teach critical thinking, students should be exposed to texts written from a variety of perspectives and compare those with their personal experiences and beliefs. Encouraging reflection and evaluation of their own or each others' writing as a way to foster critical reflection is encouraged by **Thompson (2002), McDonough & Neumann (2014), Melles (2009)** and **Kasper & Weiss (2005)**. They suggest various ways in which this can be achieved, including through drafting (**Pally, 2001; Melles, 2009**) or group discussion (**Kasper & Weiss, 2005; Thompson, 2002; McDonough & Neumann, 2014**).

In order to demonstrate criticality in writing, synthesizing information from multiple texts is often required and the skills involved are explicitly taught in several of the studies. A scaffolded approach emerges in the studies by **Pally (2001), Wette (2010) and Zhang (2013)** which advocate first concentrating on reading skills which students need to master before being able to draw on sources because "if students cannot grasp the claims and proofs of reading, they cannot synthesize sources, question or evaluate them or perform other analytical and critical thinking skills" (**Pally, 2001:284**). **Zhang (2013)** suggests it is important for students to be able to identify the text structure (main ideas/supporting details) before selecting relevant information and being encouraged to make connections between texts through class discussion. The ability to make connections is a skill associated with critical thinking (Alexander *et al*, 2008) and emphasised particularly in applied disciplines where students are required to make connections not only between texts but between theory and practice (Carmichael *et al*, 1995).

The next stage in assisting students with the process of knowledge transformation is helping them to develop paraphrasing and summarising skills. These skills are viewed by students as particularly difficult to master (**Melles, 2009; Wette, 2010**) and therefore explicit instruction and practice are important (**Zhang, 2013; Wette, 2010**). Students may be wary of attempting paraphrasing out of the concern that in using their own words they may omit key details or change the meaning of the original (**Wette, 2010**). Their ability to master such skills may be affected by their proficiency level (**Zhang, 2013; Wette, 2010**) as well as their inexperience of writing using sources due to their educational and cultural background which leads to examples of plagiarism (**Wette, 2010**). To teach summary and paraphrasing skills **Wette (2010)** suggests beginning with recognition level tasks, asking students to match the best summary/paraphrase to the original and found before asking students to write their own summary or paraphrase, an "in-between" stage where students gave an oral or graphic summary, from which a written version was then produced helped reduce students dependence on the original source text. The value of oral discussion and summaries of texts is also mentioned by **Kasper & Weiss**, who felt by asking students to read different texts then summarise them orally, "created a context in which students were encouraged to view both themselves and their peers as valid resources for knowledge" (2005:295). The importance of discussion and collaborative learning in developing critical thinking skills is another theme to emerge from the meta-synthesis and will be discussed in greater detail in the following section.

4.2.3 Role of Collaboration in fostering critical thinking

One approach which several studies in the meta-synthesis take to foster critical thinking which was not expected as it did not emerge from the literature review is the effectiveness of collaborative activities and group discussion in promoting critical thinking skills. Although not explicitly listed as a sub-category in the Thomas and Lok (2015) framework, the place of discussion to explore evidence is mentioned as playing a role in the skill of reasoning. Students' willingness to question and their attitudes towards reflection through peer discussion and feedback are discussed in the studies by **Kasper & Weiss (2005)** and **McDonough & Neumann (2014)** which focus on collaborative pre-writing tasks. **Kasper & Weiss (2005)** investigated the effects of inter-class collaboration in building academic literacy, including the development of critical thinking skills. They place importance on collaborative learning because it allows students to share and broaden their knowledge as well as providing "a peer forum to discuss and clarify readings and an audience to evaluate and critique writing" (**Kasper & Weiss, 2005:284**). Their results indicate that encouraging students to work together and more independently from the teacher builds confidence and creates an atmosphere where students are willing to present a critical stance. In the discussion task which preceded students producing a written assignment they found that "students did not hesitate to argue a point with other students, supporting the argument with evidence gleaned from their research" (**Kasper & Weiss, 2005:291**). A potential reason for this is linked to the greater autonomy students have, as they were responsible for sharing knowledge with each other rather than getting it from the teacher and so were more open to analyse and critique that knowledge. Reluctance to critique sources and authorities has been identified as a barrier to developing critical thinking skills, particularly among Asian students (Atkinson, 1997) and emerged in the discussion above as a concern in the investigation into students' attitudes towards critical thinking (**Melles, 2009; Durkin, 2008**). As a first step in this process, perhaps collaborative tasks which encourage students to examine and present opposing views of an issue, such as the task described by **Kasper & Weiss (2005)** could be used in encouraging students to present supported arguments and critique each other, before expecting them to challenge the sources directly.

McDonough & Neumann (2014) also view collaboration as beneficial for knowledge consolidation, though the main aim of their study was to investigate whether particular collaborative pre-writing tasks fostered critical reflection. In particular, they wanted to discover whether students' attitudes towards collaboration increased the reflective content of

their discussions. Their results are inconclusive though it is suggested that the extent to which students' view their peers as valuable sources of knowledge and feedback, and the dynamics of the group will impact the extent to which students engage in critical reflection in pre-writing discussion tasks. The importance of discussion in the pre-writing stage is also noted in **Kiely's (2004)** conclusion to his study investigating how an EAP teacher develops her students' critical thinking skills though he concludes further research is needed into how students transfer criticality developed in classroom discourse into their own academic writing.

Overall, based on the studies in this meta-synthesis in teaching critical thinking skills for writing, there seems to be a focus on the explicit instruction of skills through sustained content. The approaches taken appear to favour either the general or infusion approaches identified by Ennis (1989). To develop critical thinking skills, **Pally (2001), McDonough & Neumann (2014), Zhang (2013)** and **Wette (2010)** all highlight the importance of explicit instruction and practice as these skills do not develop automatically as language develops. However, what may be missing from many of these approaches is a first step which **Thompson (2002)** identifies as important where students discuss and attempt to define the concept of critical thinking themselves before being presented with differing definitions and being made aware there is not one "correct" definition of critical thinking. This is important for several reasons, firstly because starting with the students' opinions will help them link or compare/contrast the concept to their own previous experiences and also to avoid "promoting a predominantly Western approach to the concept" (**Thompson, 2002:16**). Secondly, given the huge variety in definitions and the fact that misconceptions of critical thinking has emerged as a common problem from the studies investigating students' beliefs, taking this simple step may help to address this confusion.

Chapter 5: Conclusion

The aim of this study was to investigate how critical thinking is understood by EAP students and teachers, and to find out which approaches are being taken in the classroom with regard to teaching critical thinking in writing through a meta-synthesis of previous research.

In exploring which skills and knowledge EAP students and teachers believe are important for critical thinking, the study found that there continue to be misconceptions of the term which may lead students to view critical thinking as something negative (Durkin, 2008; O'Sullivan & Guo, 2010; Melles, 2009). The reasons for associating critical thinking with negative thinking may derive from the polysemous nature of the word critical as well as translations and interpretations of the term in the students' first language (O'Sullivan & Guo, 2010). In turn this may give rise to the view by teachers that some students lack the disposition of being willing to inquire and question. The meta-synthesis indicated that these two dispositions are perceived by both EAP teachers and students as being important in critical thinking (Kiely, 2004), but may be difficult for students whose culture or educational background doesn't encourage students to take a questioning approach (Durkin, 2008; Melles, 2009). The strong link between critical reading and writing emerged through the synthesis and evaluation skills students see as being central to critical thinking and which are taught in the classroom. Evaluating sources and then synthesising them effectively into their own writing are elements of critical thinking students find especially challenging when writing as they are also struggling to find and express their own academic voice (Durkin, 2008; Melles, 2009; Wette, 2010; Zhang 2014). The analysis of teaching approaches which aim to foster criticality in students' writing also revealed teachers seem to be placing importance on the use of sustained content and collaborative tasks as ways to encourage students to develop their critical and analytical writing skills (McDonough & Neumann, 2014; Pally, 2001; Thompson, 2000). Taking these approaches may enable students to build up the content knowledge and confidence required to critically analyse texts (Kasper & Weiss, 2005; Pally, 2001).

The study was a small-scale qualitative one, so the conclusions drawn above cannot be widely generalised and it is important to recognise the limitations of the study. The methodology employed and the difficulties of investigating the complex topic of critical thinking in this way have also impacted on the results. Although every attempt was made to conduct a thorough and systematic search of one key database, it is likely that some relevant

studies were missed. Limiting the search to one database was necessary due to the time constraints, however this probably also led to other relevant studies not being included. One of the biggest challenges when conducting the search of the database was deciding on which key words to use in order to find suitable articles to include in the meta-synthesis. The term critical thinking is often used interchangeably with a variety of other terms and because there is still a lack of conceptual clarity surrounding the term, studies which investigate aspects of critical thinking identified in the literature review may not explicitly refer to the term critical thinking throughout. This made conducting the search challenging and decisions had to be made by the researcher on whether studies were dealing with aspects of critical thinking as defined in this study. A further limitation of the meta-synthesis was that because published studies have limited space to describe their research, no access to the raw data gathered in the original empirical studies was possible, though some studies did include extracts from the data. Other themes not considered important by the original researcher may have been present in the raw data. What has been synthesised therefore is the interpretations of the original data which increases the distance between the original participants and the researcher, and consequently the possibilities for misinterpretation.

Despite the limitations of the small-scale study and methodology employed, it has given some interesting insights into a complex topic and some potential implications for classroom practice have emerged. There are clearly still many misconceptions and a lack of clarity surrounding the concept of critical thinking so clarifying expectations and taking time in the classroom to discuss students' interpretations of the concept would help begin to address this. It also seems important not to restrict the definition of critical thinking presented to the students too narrowly. Teachers may prioritise the elements of critical thinking they feel are most important for students, but should also recognise the importance of aspects that are perhaps given less attention in the higher education context such as critical reflection. Given that "critical thought is collaborative in character" (Barnett, 1997:17), fostering a collaborative classroom environment which promotes discussion and giving students time to work together during writing classes also seems important. This could be difficult given the intensive nature of many EAP courses, but would hopefully help build students confidence and give them opportunities to critically analyse each other's writing before being expected to do the same with published research which would likely be a more daunting prospect. The importance of knowledge in critical thinking emerged from this study which indicates that taking a sustained content approach in teaching writing and critical thinking would be

beneficial to enable students to build up content knowledge before critically analysing a topic. However, the extent to which a generalised, discipline-free approach to teaching critical thinking benefits EAP students once they begin their degree courses remains less certain.

For future research more in depth studies of how critical thinking varies across the disciplines would help inform EAP teaching practices so that, even mixed disciplinary groups of EAP students can be made aware of different disciplinary practices. There also seem to be few studies which focus on actual teaching practices of critical thinking and also of L2 writing (Wette, 2014). More empirical research into current teaching practices would perhaps support teachers who are looking for different ways to more effectively incorporate critical thinking into the classroom. Finally more longitudinal research which looks at whether these teaching approaches taken in EAP classroom have long term benefits for students once in their disciplines could provide stronger support for the approaches which have emerged from this study and so hopefully help EAP teachers better prepare their students for the challenges of studying in a second language.

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*Thompson, C. (2002). Teaching critical thinking in EAP courses in Australia. *TESOL journal 11(4), pp.15-20*

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*Wette, R. (2010). Evaluating student learning in a university-level EAP unit on writing using sources. *Journal of Second Language Writing 19(3), pp.158-177*

Wette, R. (2014). Teachers' practices in EAP writing instruction: Use of models and modelling. *System 42, pp.60-69*

Wingate, U. (2012). Argument! Helping students understand what essay writing is about. *Journal of English for Academic Purposes 11(2), pp.145-154*

Woodward-Kron, R. (2002). Critical analysis versus description? Examining the relationship in successful student writing. *Journal of English for Academic Purposes 1(2), pp.121-143*

*Zhang, C. (2013). Effect of instruction on ESL students' synthesis writing. *Journal of Second Language Writing 22(1), pp.51-67*

Appendix 1: Framework for data analysis
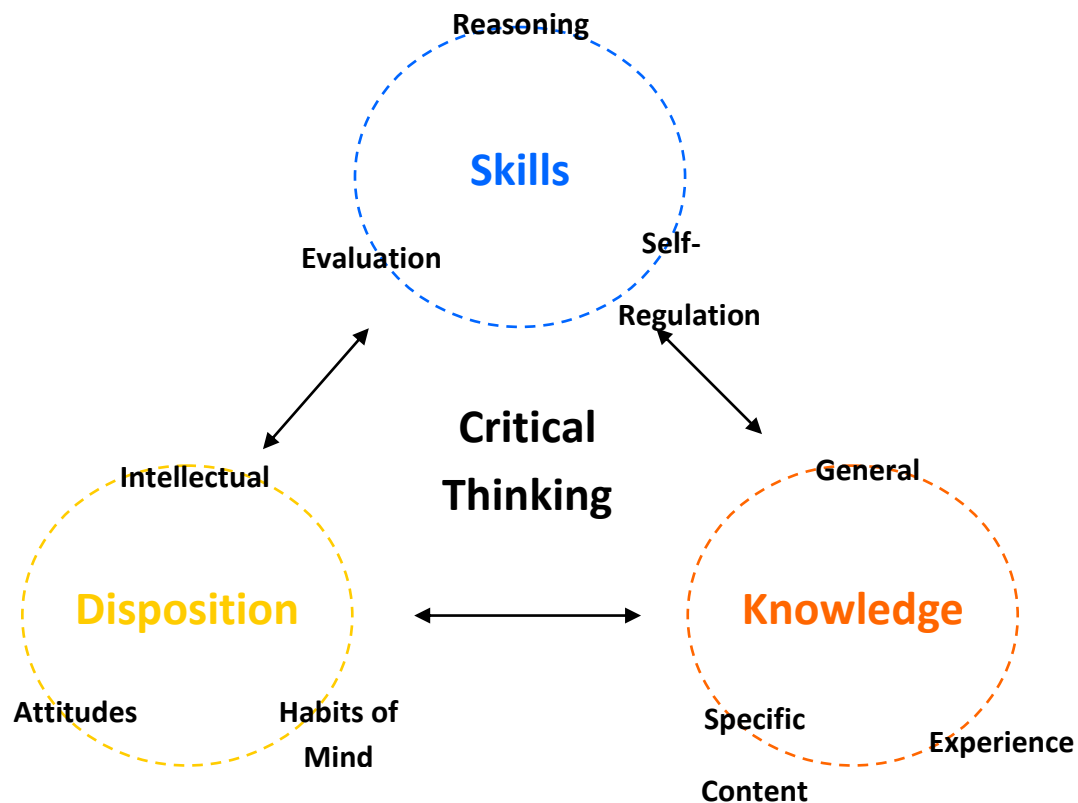
*Framework taken from: Thomas and Loki (2015:98)

Other elements identified through the meta-analysis and classified under their three broad themes:

Cognitive Skills	Dispositions	Knowledge
Interpretation	Being clear and systematic	Background knowledge
Analysis	Being inquisitive	Knowledge of how to
Explanation	Being analytical	communicate effectively
Inference	Looks for alternatives	Cultural knowledge
Explore evidence	Is open-minded and truth	Disciplinary knowledge
Minimize assumptions and	seeking	Intellectual development
bias	Uses one's critical thinking	Political knowledge
	abilities	Reflective awareness
	Is metacognitive	
	Is self-confident	

Appendix 2: Annotated bibliography of articles included in the meta-synthesis

Blue: RQ1 - Student/Teacher attitudes
Green: RQ2 - teaching practices/approaches which develop critical writing skills

ERIC Database search:

Durkin, K. (2008). The adaptation of East Asian masters students to western norms of critical thinking and argumentation in the UK. *Intercultural Education, 19(1) 15-27*

Context: UK, masters students (East Asian = Chinese, Taiwanese, Japanese, Thai, Indonesian), mixed disciplines
Type of research: grounded theory, 59 interviews of students, triangulation with interview of British lecturers and students, analytic coding
Definition of CT: critical evaluation, synthesis and voice
Key points:
UK academic conventions need to be taught/explained to international students, don't acquire them without support
Cultural differences of West/East reflected in rhetoric/discourse patterns: needs recognised both by international students and UK lecturers
Students adaptation depends on 4 factors: Experience, Aptitude, Skills, Enthusiasm
Students in the study choose not to fully embrace western style of critique, a conscious choice

Kasper & Weiss.(2005). Building ESL Students' Linguistic and Academic Literacy through Content-Based Interclass Collaboration. *Teaching English in the Two Year College 32(3) pp.282-297.*

Context: US, focus-discipline research curriculum (not students own disciplines, but general content areas), mixed disciplines
Type of research: report on classroom practice in how collaboration builds literacy, synthesis & CT
Definition of CT: voice, evaluation, synthesis of knowledge
Key points:
Focus is on the collaborative speaking class – writing task is done as a follow-up: the writer's argue that collaborative research helps students write better
Sustained content approach – students read different articles as prep, discuss and present on essay topic in the collaborative class
Writing product – students showed ability to synthesise and present a sophisticated analysis of the topic

Kiely, R. (2004). Learning to critique in EAP**.** *Journal of English for Academic Purposes 3(3), pp.211-227*

Context: UK, EAP class, mixed disciplines
Type of research: interview with an EAP teacher and analysis of her beliefs about critical thinking
Definition of CT: voice, critical pedagogy
Key points:

Speaking lesson not writing, but relevant for teacher attitudes towards CT in general
Critical dimension is both a community feature (being part of a UK university) and a personal one (individual voice) – link between CT and academic identity
Questioning is important, as is personal experience
Being critical is about complexities and "difficult areas" of a problem

McDonough & Neumann (2014). Using Prewriting Tasks in L2 Writing Classes: Insights from Three Experiments. TESL CANADA JOURNAL 31(8), pp.132-143

Context: Canada, EAP writing class, majority undergrads, mixed nationalities and mixed disciplines
Type of research: report on classroom practice - 3 experiments on effectiveness of pre-writing collaborative tasks in promoting critical reflection
Definition of CT: emphasis on critical reflection
Key points:
Experiment 1: unstructured prewriting discussions recorded and analysed for reflective content
Experiment 2: structured prewriting tasks
Experiment 3: structured prewriting tasks comparing students who are more disposed to work collaboratively to see if they critically reflect more than students who are not
Results: asking ss to discuss not v effective in eliciting critical reflection, more structured tasks promote this, inconclusive results regarding whether being pre-disposed to collaboration increases amount of critical reflection

Melles, G. (2009). Teaching and evaluation of critical appraisal skills to postgraduate ESL engineering students. *Innovations in Education and Teaching International. 46(2), pp. 161–170*

Context: Australia, EAP course, engineering students
Type of research: interviews and open-ended questionnaires with students and reflection on a course designed to teach critical appraisal skills in a discipline-specific context
Definition of CT: from Pally, as the appraisal and synthesis of sources in own production
Key points:
Background: research on content-based eap courses as best place to develop critical appraisal/thinking skills
Findings: students' ideas about CT: critical evaluation, questioning ideas, advantages/disadvantages, compare/contrast ideas to evaluate
difficulties for students: new experience for them, ambiguity of term critique (not meaning criticise as they thought), cultural taboos/conflicting practices

Pally, M. (2010). Skills Development in 'Sustained' Content-Based Curricula: Case Studies in Analytical/Critical Thinking and Academic Writing. *Language and Education 15(4), pp. 279-305.*

Context: US, ESL classes, mixed nationalities and mixed disciplines
Type of research: report on teaching practice & analysis of student writing to investigate the effectiveness of CBI in improving students critical thinking and academic writing
Definition of CT: CT involves noting contexts of claims, questioning and evaluating, using understanding and synthesis to present own ideas using appropriate rhetorical conventions

Key points:
Case study of 13 students at NYU, analyses their work to see if CBI improves CT
Importance of integrating skills and content in a reading-writing cycle
Lower level students who experienced CBI were more skilled at synthesis and critical analysis than higher level
Cultural effects – European students didn't do better than Asian students in this
Importance of explicit instruction and modelling

Thompson, C. (2002) Teaching critical thinking in EAP courses in Australia. *TESOL Journal 11 (4), pp.15-20*

Context: Australia, EAP workshop, mixed nationalities and mixed disciplines
Type of research: action research
Definition of CT: considering texts from different perspectives and considering conflicts of interest, evaluating beliefs
Key points:
Need for teaching CT: due to increasing number of international students
Summary of approaches/definitions
Description of a CT workshop she ran: CT in reading & writing which led to conclusion that content knowledge and linguistic proficiency affect CT abilities
Involved reading, discussion and collaborative writing tasks

Wette (2010) Evaluating student learning in a university-level EAP unit on writing using sources. *Journal of Second Language writing 19 (3), pp.158-177*

Context: New Zealand, in-sessional writing course, undergraduates, mixed disciplines
Type of research: action research: report on instructional intervention on source use
Definition of CT: synthesis, evaluation and transformation of source texts into own writing
Key points:
Source use is challenging for students, need introduced to technical as well as social components
Role of knowledge + skills
Need for scaffolding, explicit instruction and lots of practice

Zhang, C. (2013). Effect of instruction on esl students' synthesis writing. *Journal of Second Language Writing 22(1), pp. 51-67*

Context: US context, IEP group, mixed nationality
Type of research: action research – report on synthesis instruction
Definition of CT: discourse synthesis as key part of critical writing skills
Key points:
2 groups – one experimental, one control
Experimental group given extra instruction on discourse synthesis and this results in improved writing, both in problem solution tasks and in an argumentative essay
Sustained content approach
Students seemed to improve in selecting appropriate evidence, organising logically and connecting ideas

Secondary search (through references of studies identified):

O'Sullivan M. & Guo, L. (2010). Critical Thinking and Chinese International Students: An East-West Dialogue. *Journal of Contemporary Issues in Education, 2010, 5(2), pp.53- 73*

Context: Canadian university, Chinese students in an ISP (International student program) **Type of research:** reflection on teaching + student interviews, dialogue between the Canadian teacher and a Chinese colleague **Definition of CT:** Takes a critical pedagogy approach to CT, disposition is important too **Key points:** Teaching Chinese students critical pedagogy is challenging, some students won't engage in critique of Chinese education system, though others will Chinese education system doesn't foster CT skills or prepare students for study in inner circle contexts Understanding of cultural differences are important (both teachers and students need awareness)

Appendix 3: Data Analysis Chart

Legend (common themes):

■: questioning and enquiry   ■: content/disciplinary knowledge   ■: evaluation skills

■: misunderstanding of concept   ■: discussion & collaboration   ■: confidence/willingness to critique

■: synthesis skills   ■: explicit instruction   ■: other relevant points

RQ1: Attitudes/beliefs about CT in higher education				
Article	Skills	Disposition	Knowledge	Other
Title: Learning to critique in EAP **Author:** Kiely, R. **Date:** 2004 **Context:** UK, EAP Teacher	CT means voice, having an opinion and passing judgment, developing argument and critical analysis in academic writing	Questioning Open-minded/open to enquiry (this is writer's view of what students' demonstrated not teacher's opinion)	Critical learning means "meeting the demands of a discourse community" – but for this teacher it is the general university DC rather than specific disciplines (a reflection of the fact she is working with a mixed disciplinary group) Personal experience: can be used as a way to develop critical skills and individual voice, needs to be augmented by a questioning, problematising approach Many of the students didn't see an activity based on personal experience as relevant/valuable in developing their academic skills	For this teacher criticality involves engaging with complexities: "difficult areas of a problem and the complexity of the whole situation" Importance discussion plays and should be emphasised in pre-writing stages to help students develop criticality in their writing (writer's suggestion in his conclusion)

Title: Teaching and evaluation of critical appraisal skills to postgraduate ESL engineering students **Author:** Melles **Date:** 2009 **Context:** Australia, EAP course for engineering postgrads	Question validity and analyzing advantages/disadvantages Evaluating arguments based on a criteria Most students noted that critical appraisal is always accomplished through some form of comparison and contrast p.165 Students cited difficulty in synthesizing and evaluating multiple sources	Lack of confidence/discomfort with critiquing academic sources?(Because of culture)	Adding to knowledge: adding your own ideas to others to improve them In engineering context: strong association with problem-solution and choosing/analyzing solutions Cultural differences and background seem important to the students	Misunderstandings of the word critical and the cultural taboo of critiquing authority One student rejected the idea of a universal definition of CT but recognised importance of adapting to local (Australian) context
Title: The adaption of East Asian masters students to western norms of CT and argumentation in the UK **Author:** Durkin, K. **Date:** 2008 **Context:** UK	In stage 4: Creative synthesis of ideas Self-reflection: "the ability to evaluate one's own thinking " In stage 3: Evaluating alternative viewpoints, (by) comparing and contrasting opinions	In stage 4: "A willingness to challenge and question one's deepest beliefs" In the early stages: Students are afraid to question and risk losing face, not willing to take risks Students choose not to fully embrace Western	Knowledge of cultural conventions: Students need to understand the rationale for emphasis on referencing and may perceive CT as "argumentativeness and culturally inappropriate"	EASE – where students are in developing critical thinking depends on these 4 things: Experience of western methodology/work experience, Aptitude, Skills (English competence, referencing essay structure, reading/writing skills) and Enthusiasm (open-mindedness, motivation, willingness to take risks) Student misconceptions in early stages – see critical evaluation "in

university, postgrads	Difficulty synthesizing and giving own opinions	norms, but a "middle way" which is more conciliatory and mindful of others' feelings/face		purely negative terms and seek to find fault" Nice quote from a student: "thinking in English is like arguing with another person. I am not allowed to confront or to conflict with myself in Chinese"
Title: Critical thinking and Chinese international students: an East-West dialogue **Author:** O'Sullivan, M. & Guo, L. **Date:** 2010 **Context:** Canada, masters program (ISP) (Reflection of the teacher and a Chinese prof) + student interviews	Guo: Logic analysis important in Chinese education but not explicitly called CT: CT terms in Chinese translate as logic, deduction, induction and consistency Guo: "Recognising from what perspectives critiques are made is important in CT"	Resistance and unwillingness of Chinese students to have China referred to in what they consider negative terms (O'Sul) Habits of mind required to question discouraged by Chinese education (O'Sul) Some students seemed disposed to approach the Chinese education from a critical perspective, others were not Guo: Disposition is most important: "critical thinking is not only a skill set; it also reflects the belief system and cognitive orientation of the thinker"	Experience in education: Guo says "the concept of critical thinking is absent from Chinese education discourse at both secondary and post-secondary levels" In first year teacher chose a general text which assumed students had greater knowledge of recent history than they had so was not successful Second year: chose to compare Canadian and Chinese to address this (O'Sul) Personal experience: "The students' ownership of CT becomes pertinent when the critical lens is focused on ideas, values, institutions, and practices that are near and dear to them" (O'Sul.)	Effects of contrastive rhetoric in writing in Chinese and English (Guo) Misunderstandings that critical thinking means negative thinking, maybe connected to the mistranslation of CT in Chinese as "looking for fault in others" (Guo) In interviews students connected CT to terms such as "negative" & "problem", one student: "finding negative aspects so we can make changes and improve" The Canadian and Chinese teachers disagree regarding to what extent Chinese students come with experience of CT: Guo says what they don't experience is the critical pedagogy aspect which is the aspect the Canadian teacher seems to prioritise

	RQ2: Teaching CT in writing			
Article	Skills	Disposition	Knowledge	Other
Title: Teaching critical thinking in EAP courses **Author:** C.Thompson **Date:** 2002 **Context:** Australia, EAP CT workshop	Aim of workshop is to have students evaluate their own cultural beliefs and assumptions Evaluation of sources and looking for writer bias both in source texts and sample/own writing		Suggests activity can be adapted to be either disciplinary specific or more general depending on the group of students Students with more knowledge of the topic and greater language proficiency were better able to produce better argued/supported paragraphs Considering different and rival perspectives seems a key component in this task	Importance of having students define CT and compare/contrast how it might be different from their previous learning contexts Models/analysis of samples Group writing & collaboration
Title: Teaching and evaluation of critical appraisal skills to postgraduate ESL engineering students **Author:** Melles **Date:** 2009 **Context:** Australia	Evaluating sources Drafting as part of the process Paraphrasing/summarising (skills students find challenging) Critical thinking and writing as an integrated process		Sustained content approach: students were recommended to keep the same topic throughout the course (4 assignments, 3 written & 1 oral) so "writing builds cumulatively towards an extended understanding of a particular issue" p.163	
Title: Building ESL students' linguistic and academic	Collaboration provides opportunity for peer discussion and audience to evaluate and critique	Disposition of students i.e. willingness to disagree: "students	Building content knowledge is important but topics are still general, not discipline specific	Collaboration is main focus: claims that interclass (as opposed to in-class) collaboration

literacy through content-based interclass collaboration **Author:** Kasper, L. & Weiss, S. **Date: 2005** **Context:** US, ESL college course	writing Knowledge transformation: focus is on reading/writing/research Focus on synthesis – reading multiple texts individually, then group discussion of prompt which was also writing assignment Goal is to teach students to contextualise a topic, to argue and support a point of view, consider varying perspectives	did not hesitate to argue a point with other students, supporting the argument with evidence gleaned from their research" The collaboration gave students confidence to present a critical stance	"because they had engaged in in-depth, focused study of the range of issues related to global warming in preparation for the collaborative event, our students were ready to take on this challenge"	benefits CT skills Problem-solution approach – discuss problems to global warming and offer solutions Link to autonomy: students took more responsibility and learnt from each other, sharing knowledge rather than getting it from teacher so were more open to analyse and critique
Title: Skills development in 'sustained' content-based curricula: Case studies in critical/analytical thinking and academic writing **Author:** Pally, M. **Date:** 2001 **Context:** US university, mixed ESL	Focus on skills instruction – modelling, explaining and students practicing Supporting claims and choosing appropriate proofs (so evaluation of source texts?) Synthesis is important: Link between reading and writing – students first need to understand in sample materials before applying and trying out in own	Questioning and challenging sources – students find difficult: exercise to encourage this using a question-outline worksheet	Reading-writing cycle to build knowledge and develop own position Language level/knowledge not necessarily a central factor as lower level students who'd had CBI performed better than advanced students Contextualising texts is important 2 students from different backgrounds, with v different educational experiences and L1s, but the lower level Asian student performed better despite greater differences in rhetoric	Student unsure what was required so explicit instruction is needed + content (Ennis' infusion rather than immersion)

| classes | writing: "if students cannot grasp the claims and proofs of reading, they cannot synthesise sources, question or evaluate them or perform other analytical and CT skills"

Her study suggests that these skills don't develop automatically as language develops so explicit instruction is required

Categorisation and note-taking skills are important to build an argument and draw on multiple sources – activity using a research chart | | CBI hypothesis: "because students accrue knowledge in a discipline, they both acquire the background from which they can question texts and gain more confidence in doing so" (need sufficient knowledge to question texts, recognise insufficient supports) | |
| **Title:** Using pre-writing tasks in L2 writing classes: Insights from 3 experiments
Author: McDonough, K & Neumann, H.
Date: 2014
Context: Canada, | Focus on critical reflection (self-regulation)

Evaluation of content through discussion

Justifying choices and ideas | Disposition – students not seeing peers as valuable sources of feedback affects their attitude and performance

Does a positive attitude towards collaboration increase amount of | Consolidating knowledge through task interaction and collaboration | Collaborative learning important here though collaborative writing tasks not commonly used in their EAP context due to time constraints

Results suggest students only critically engage with some of the ideas during discussions |

EAP classes		critical reflection? (inconclusive results for this RQ)		Suggests group dynamics also play a role More explicit guidance and structure increased reflective episodes
Title: Effect of instruction on ESL students' synthesis writing **Author:** Zhang, C. **Date:** 2013 **Context:** US, intensive EAP program (IEP)	Discourse synthesis defined by writer: requires reading, writing and CT skills Skills focused on in instruction: Text structure (main/support), selecting relevant information from texts Organising logically In pre-test students didn't use much info from source texts or relied on one only, incorrect citations, can't make connections between source texts Connecting ideas is the focus Paraphrasing/citation skills		Thematic approach - students received extra instruction using texts which were linked thematically to their course book, no discussion of the role b.g knowledge plays or how students integrate this with info from source texts	Explicit instruction was beneficial and improved students writing skills Students need explicit instruction + practice Importance of scaffolding: through drafting, peer feedback, reading guides, breaking tasks down into steps

Title: Evaluating student learning in a university-level EAP unit on writing using sources **Author:** Wette, R. **Date:** 2010 **Context:** New Zealand, In-sessional writing course for undergrads	Students viewed biggest challenge as paraphrasing/transforming (linguistic focus) rather than on using to build own argument Evaluation and reflection play a key role		Cultural knowledge/experience: Students' linguistic and cultural backgrounds affect their ability to write using sources (intro) Discussions of potential disciplinary differences in the final strand of teaching	3 strands: technical, discourse and social: technical conventions for quoting and paraphrasing; understanding of source texts and transformation of that knowledge; discussions on social components - purposes, influential factors, discipline differences