Learning to teach critical thinking in Higher Education

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Abstract

This study has explored how educators learn to teach criticality. The impetus for the research came from my own teaching where I noticed that educators lacked access to support in teaching critical thinking. It has investigated what helped their learning, the challenges they faced and what professional development they might need. This study is situated within a relativist ontology and pragmatic social constructivist framework, and is guided by transformative and experiential learning, and threshold concepts theory. A qualitative case study has collected data from 14 educators from a range of disciplines, using semi-structured interviews, peer to peer observations, followed by professional learning conversations and focus groups. Reflexive thematic analysis has been used to identify five key themes: learning through experience; connections and collaborations; pedagogy and common language; resistance and fragility and authentic professional learning.

Findings indicate how educators were developing the skills, knowledge and teaching behaviours to teach critical thinking. Their learning had been helped by critically reflecting on their teaching experiences and using a common language and pedagogy of critical thinking. Educators needed the support of a collaborative teaching culture and a connected curriculum. Their learning was challenged by academic and student resistance and pedagogic fragility. Educators valued authentic professional development, for example co-constructing teaching examples and participating in action learning and communities of practice.

This study offers an enhancement to an existing framework for professional learning called ‘A Framework for Learning to Teach Critical Thinking’. It makes a contribution to transformative learning, experiential learning, and threshold concepts theory. It adds to the methodological literature by providing a unique intersection of data collection instruments. Finally, it recommends that teaching toolkits, action learning sets, professional learning conversations, dialogic teaching and a collaborative teaching environment can support educators to learn to teach critical thinking.
Acknowledgements

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<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>BERA</td>
<td>British Educational Research Association</td>
</tr>
<tr>
<td>COP</td>
<td>Communities of Practice</td>
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<td>CPE</td>
<td>Continuous Professional Education</td>
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<td>ELT</td>
<td>Experiential Learning Theory</td>
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<td>FG</td>
<td>Focus Group</td>
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<td>HE</td>
<td>Higher Education</td>
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<td>INT</td>
<td>Interview</td>
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<td>PLC</td>
<td>Professional Learning Conversation</td>
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<td>RJ</td>
<td>Research Journal</td>
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<td>TA</td>
<td>Thematic Analysis</td>
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<td>TCT</td>
<td>Threshold Concepts Theory</td>
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<td>TL</td>
<td>Transformative Learning</td>
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<td>RTA</td>
<td>Reflexive Thematic Analysis</td>
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Chapter One: Framing the Research

1.1 Introduction

Chapter One situates the study within the HE landscape and outlines the rationale for this research. It identifies the gap it seeks to address and the research questions. It sets the scene for Chapter Two which investigates what is already known and what is not yet known about this topic. It introduces the thesis’s macro argument, which is that teaching critical thinking is challenging and educators need support to learn to do so.

1.2 HE Landscape

Social and policy context

Twenty-five years ago, the Dearing Report set out the vision for UK Higher Education (NCIHE, 1997). The report emphasised the value of a learning and teaching culture which stimulated rigour in thinking. It highlighted the importance of providing continuous professional development for educators. It recommended that the teaching of the skills and knowledge necessary to equip learners for the workplace should be embedded in curricula rather than taught separately (NCIHE, 1997). Dearing also introduced the concept of the ‘marketisation’ of higher education where students were identified as consumers and tuition fees were introduced (NCIHE, 1997). Students paying for their education out of their own funds arguably placed a greater responsibility on institutions to provide a high quality educational service and more clarity over study choices (NCIHE, 1997).

In 2011, further changes to UK education policy, namely the differentiation of fees between institutions, led to debates between scholars, the government and the National Union of Students about the role and purpose of a university (Swain, 2011). The traditional view of the university as purely a place for learning and knowledge creation opposed the marketized view which argued that a university’s role is to equip students with the skills and knowledge to have a successful career (Swain, 2011). Regardless of these positions,
the value of teaching critical thinking is arguably even more important in order to support students with both their academic attainment and their future employment.

Subsequent studies (e.g., Haywood, Jenkins and Molesworth, 2011; Bunce and Bennett, 2021) have argued that students identifying as consumers could undermine their intrinsic motivations to learn. The consumer culture often manifests in a surface approach to learning, a fear of failure, a sense of academic entitlement and a lack of willingness to experiment with new academic challenges (King and Bunce, 2020). Perhaps rather than stimulating rigour in thinking, an unintended consequence of marketisation could be student frailty and resistance to thinking critically and becoming independent learners. Furthermore, there is growing evidence which suggests there could be a symbiotic relationship between students’ motivation to learn and educators’ motivation to teach (King and Bunce, 2020). A growing number of studies (e.g., Jabbar et al, 2018) discuss the negative impact of the lack of engagement from students on educators’ own motivation and teaching styles. This, coupled with workload, lack of time and a culture of performance driven by metrics, could result in educators’ resistance to try out new ways of teaching (Morrish, 2019). This could impact on educators’ motivation to learn to teach critical thinking.

The importance of teaching critical thinking continues to be recognised in policy. A range of government reports (e.g., Success as a Knowledge Economy, 2016) discuss the balance of knowledge and skills in the curriculum (DBIS, 2016). The OECD Future of Education and Skills Report (2030), debates the role of the university to produce graduates who are critical thinkers and contributors to society (OECD, 2018). These perspectives and key debates resonated with my own experience as both a teacher and a teacher educator, as discussed in Section 1.3, and contributed to the impetus for carrying out this study.

**Pedagogy and the Curriculum**

The Dearing report triggered a number of studies which critiqued the purpose of the university curriculum (e.g., Barnett, 2000a; 2000b). Marketisation has arguably eroded the dominant role of educators in determining curriculum design and enabled the external
educational context e.g., the employability agenda, to influence learning and teaching (Barnett, 2000a). As a consequence, increasing importance is placed on the accessibility of knowledge and supporting students to navigate their way through their disciplinary content (Barnett, 2000a; 2007). While learning about knowledge is still important, there has been a shift in emphasis towards the development of students’ dispositions and ways of learning (Bengsten, 2018). The quality agenda, research and teaching metrics, the student voice and a more risk averse learning and teaching model are arguably fracturing the nature of academic identity (Jones, 2007a). Collectively, these pose challenges and potential uncertainties for both pedagogical approaches and the educational role of academics (Barnett, 2012).

Furthermore, the contemporary nature of HE pedagogy is driving a transition from a teaching to a learner-centred paradigm (Oron Semper and Blasco, 2018). Arguably, the most important pedagogic knowledge that educators need is how students experience learning and the influence of context on their engagement with their studies (Brookfield, 2015a). This empowering idea could engage lecturer and student in an ongoing dialogue about their learning, where educators act as ‘critical mediators of knowledge’ (Mason, 2000, p.346). In addition, B3 of the UK Quality Code (2015) expects that HE providers regularly review their programmes and teaching practices in order to ensure that students have the opportunity to develop critical thinking skills and become independent learners (QAA, 2015).

Facilitating the development of critical thinking within disciplinary contexts could enable a shift towards a more facilitative and democratic learning relationship (Freire, 1998). Students’ knowledge, skills, dispositions and qualities to learn could be developed through facilitating the process of learning to think critically within disciplinary knowledge (Barnett, 2009). This approach is based on the principles of critical pedagogy which challenge the ‘banking concept’ of higher education, where students are receivers of ‘prescribed knowledge’ (Freire, 1998, p.4). It provides educators with the licence and freedom to challenge the dominant discourse of teaching in order to transform the way they support students’ learning (Freire, 1970). However, in my experience, this could represent an ideal view of the pedagogical relationship in HE and necessitates support for educators to realise a potential change in their learning and teaching interactions.
A democratic classroom which is inclusive of a range of different perspectives is an important ingredient for the teaching of criticality (Brookfield, 2013). Educators use a variety of teaching methods in a student-centred learning environment which encourages and exposes learners to critique both familiar and unfamiliar material (Brookfield, 2013). Students have identified that the best way to learn to think critically is when educators demonstrate how to think critically themselves, and model this behaviour in the classroom (Brookfield, 2015b).

Furthermore, for a democratic discussion to take place, learners need to be given full and equal access to their disciplinary knowledge (Habermas, 1987). Critical theory and critical pedagogy view criticality as involving the challenging of dominant ideologies, authority, power structures and discourses (Brookfield, 2012a). This perspective of criticality in part resonates with the practice-based, pragmatic focus of this study, which is about supporting educators to find ways of learning to teach critical thinking (Schendel et al, 2020). By teaching students to be critical, educators are supporting them to challenge the status quo where there are inbuilt and stratified layers of inequality and unfairness. Critical pedagogy could provide an example of such a teaching approach, where students develop dialogic skills within an open learning environment which encourages debate (Giroux, 2007). It could support educators to challenge the impact of marketisation on their own motivations and teaching styles and disrupt students’ passive role in the learning process to critically engage in their studies (Giroux, 2007). This could help them build attributes for academic attainment but also for employment and to become valued contributors to society (Teo, 2019).

1.3 My personal perspective

The social and policy context of this research discussed in Section 1.2 reinforced my personal reasons for conducting this study. My passion for how to improve the teaching of critical thinking developed while I was a faculty lecturer and then a teacher educator at the research site. During this time, I noticed that students struggled to demonstrate criticality in their academic work. Furthermore, educators, including me, seemed to lack the knowledge, skills and teaching behaviours to support students to develop criticality.
While empirical studies have shown that critical thinking can be taught, there is insufficient evidence which demonstrates that this is done well and consistently within disciplinary curricula (Ennis, 2018). Educators often believe that they are implicitly teaching critical thinking skills at the same time as they are teaching disciplinary knowledge (Nicolas and Raider-Roth, 2016). However, many students still do not have the required reasoning abilities to enable them to succeed academically (Flores et al, 2012). Teachers often refer to students’ lack of confidence to demonstrate criticality and highlight their own lack of knowledge about the reasons for this (Nicolas and Raider Roth, 2016). Collectively, this could suggest a gap between what educators think they are teaching and students’ perceptions of how criticality is taught (Lloyd and Bahr, 2010).

These findings contributed further to my interest in investigating how to support the teaching of critical thinking in HE. My research context is a post-92 university which is experiencing significant change. I have used the pseudonym ‘University A’ when referring to it. Strategically, the institution places value on criticality. It has developed an institutional framework of critical thinking skills and graduate attributes based on the work of Facione (1990). The language of criticality is embedded in its teaching frameworks and strategies (University A Academic Framework). Students are expected to demonstrate critical thinking in their work. This contributes to an expectation that students can think critically, and educators can support them to do so. However, no specific critical thinking teaching modules for educators exist.

Furthermore, these findings echoed dissatisfaction with my own critical thinking teaching and assessment experiences. To address this, I developed a Critical Thinking Skills Toolkit which outlined what criticality meant and how it could be taught (Wason, 2016). This approach was informed by the *specificist* view of teaching critical thinking, as discussed in Section 2.5, which recommends explicitly teaching criticality in existing disciplinary content (Moore, 2011). The toolkit incorporates Facione’s definition of critical thinking, and embeds the skills of information-seeking, interpretation, analysis, inference, evaluation and explanation within its design (Facione, 1990). Fourteen teaching tools are tailored to learner levels and disciplinary context and assessment. For clarity, I provide a summary of these tools in Table One below. A full example of the business version of the toolkit, including a list of authors which have informed its design, can be found in Appendix 15. It is important to reference these because participants in this study have used a range of these tools to structure their critical thinking teaching activities.
<table>
<thead>
<tr>
<th>Tool</th>
<th>Aim</th>
<th>Critical thinking skill(s) developed</th>
<th>Year of introduction</th>
</tr>
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<tbody>
<tr>
<td>The Source</td>
<td>To develop search terms, find, critique materials whilst considering credibility, reliability and appropriateness.</td>
<td>Information seeking</td>
<td>1</td>
</tr>
<tr>
<td>Critically Listen</td>
<td>To develop active listening skills, interpret key concepts and theories from your lectures, seminars and tutorials.</td>
<td>Interpretation, evaluation</td>
<td>1</td>
</tr>
<tr>
<td>Critically Speak</td>
<td>To develop your academic and professional oracy skills.</td>
<td>Interpretation, analysis, evaluation, inference, explanation</td>
<td>1</td>
</tr>
<tr>
<td>Read Right</td>
<td>To read in a systematic way, understand and make notes.</td>
<td>Interpretation</td>
<td>1</td>
</tr>
<tr>
<td>Practitioner Insights</td>
<td>To interpret, analyse and evaluate practitioner materials.</td>
<td>Interpretation, analysis and evaluation</td>
<td>1</td>
</tr>
<tr>
<td>The Argument</td>
<td>To develop the technique of understanding and creating an argument.</td>
<td>Interpretation, analysis, evaluation, inference and explanation</td>
<td>1</td>
</tr>
<tr>
<td>The Case</td>
<td>To develop the skills needed when approaching a case study.</td>
<td>Interpretation, analysis, evaluation, inference and explanation</td>
<td>1</td>
</tr>
<tr>
<td>The Critique</td>
<td>To identify key themes within academic papers and critique them.</td>
<td>Interpretation, analysis, evaluation and inference</td>
<td>2</td>
</tr>
<tr>
<td>The Thematic Analysis Grid</td>
<td>To record themes within academic papers in order to be able to compare and contrast.</td>
<td>Evaluation and inference</td>
<td>2</td>
</tr>
<tr>
<td>The Argument Map</td>
<td>A visual method of recording themes within a set of academic papers.</td>
<td>Evaluation and inference</td>
<td>3</td>
</tr>
<tr>
<td>The Critically Reflective Discussion</td>
<td>To develop critical reflection in action. To orally reflect on discussions, draw on knowledge in the moment, provide a debrief and recommendations.</td>
<td>Interpretation, analysis, evaluation, inference, explanation</td>
<td>3</td>
</tr>
</tbody>
</table>
The Critical Reflection  
To develop views on academic literature and to record how this view has changed given further reading and debate.  
Evaluation, inference and explanation  
3

Critically Write  
To write a critical review of literature whether it is academic or practitioner.  
Evaluation, inference and explanation  
3

Critically Connect  
To make connections between each of the CT tools and how they are used.  
Information seeking, interpretation, analysis, evaluation, inference, explanation  
3

<table>
<thead>
<tr>
<th>Table One: Critical Thinking Skills Toolkit Summary</th>
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I am both a researcher and a practitioner in this study. I have researched a topic that is close to my role of supporting teachers’ professional development and documented my research thinking in my research journal (see Appendix 13). I started from a place where I had been trying to make sense of my own experiences of teaching critical thinking. As Moore (2005, p.77) noted:

‘By starting with my personal experience, I am ensuring that I am researching from a place that I understand to the best of my ability’.

When this research started, I had recently moved from a faculty teaching role to a teacher educator role. I originally thought that the main focus of this thesis would be an action research study into the transformative potential of the Critical Thinking Skills Toolkit on educators’ teaching (Wason, 2016). However, following feedback on my initial study, I considered again the utility of explicitly investigating the toolkit as a vehicle to influence educators to transform their critical thinking teaching practices. My own transformation led me to assume that the toolkit was both innovative and worthy of adoption. I was aware that although I had changed my own teaching as a result of using the toolkit, this might not be the case for other educators (Moore, 2005). I might run the risk of inhibiting a more
analytical and dispassionate study which could contribute to knowledge about critical
thinking professional learning and practice. I therefore shifted my position from making the
toolkit the centre of my research, to exploring in more detail how educators could learn to
teach critical thinking.

University A faced changes to pedagogical approaches, a changing student population, a
wide range of different curricular frameworks and stringent QA processes (Barnett, 2000a).
As discussed above, most curricula offered by University A required critical thinking to be
taught as well as disciplinary knowledge. This often caused levels of anxiety and
resistance with educators defaulting to familiar teaching strategies in the face of these
cumulative pressures (Canning, 2007). It also often resulted in a lack of willingness to
learn and experiment with new teaching ideas (Kinchin et al, 2016).

Educators play a crucial role in enabling innovative teaching practices to be adopted, as
the curriculum cannot be relied upon to do this in isolation (Vandeyar, 2020). However,
these attempts often fail due to a lack of recognition that educators need to learn to adapt
their practices to do so (Bakkenes, Vermunt and Wubbels, 2009). Furthermore, educators’
knowledge and professional development are key to improving students’ critical thinking
abilities (Moon, 2008). Consequently, the focus of this thesis was adjusted to investigate
how educators can learn to teach critical thinking, what helps, what hinders and what
continuous professional development and resources could support this. I decided not to
overtly investigate whether these experiences were transformative. Instead, I chose to
draw on transformative learning as the main learning theory, combined with threshold
concepts, experiential learning and concepts from continuous professional education to
establish whether they could support educators’ learning.

1.4 Key Terminology

The key terminology and how they have been applied to this study are as follows:

**Active learning** covers the methodologies which participants in this study have been
using to teach critical thinking: case studies; problem and project-based learning;
collaborative and co-operative learning, and learning which is connected to the real world (Bezanilla et al, 2019).

**Constructive alignment** provides an integrated framework for learning, teaching and assessment where student learning outcomes are clearly stated in advance of any learning taking place and pedagogical and assessment methods are designed to align to these learning outcomes (Biggs, 1996). Constructive alignment could provide educators with an organizing structure to plan their critical thinking teaching activities and align these to assessment.

**Communities of practice** are ‘groups of people who share a concern, a set of problems, or a passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis’ (Wenger, McDermott, and Snyder, 2002, p.4). For this study, communities of practice could provide a forum for educators to socially construct knowledge about teaching critical thinking within their own contexts, reflect on and share this learning with peers.

**Critical being**, in the context of this study, is a concept which refers to both students and educators who have developed and integrated the following three domains of critical thought: critical reason, critical self-reflection, and critical action (Barnett, 2015b). By having the space to develop a critical mindset through critical reflection, challenging existing knowledge structures and using this learning to act critically in a range of different contexts, educators and students could become critical beings (Barnett, 2015b).

**Critical thinking** is ‘a defining concept of the modern university’ (Barnett, 1997, p. 2). This thesis proposes that critical thinking is a combination of skills, dispositions and thinking about knowledge (Thomas and Lok, 2015). Facione’s (1990, p.2) definition is used for this study because it is based on the leading APA framework and is also used in University A critical thinking skills framework:
‘purposeful, self-regulatory judgement which results in interpretation, analysis, evaluation, inference and explanation as well as an analytical disposition and the ability to self-regulate and reflect on learning and actions’.

Furthermore, it is based on the *specifist view* where critical thinking is defined as context specific and that subject-related knowledge is necessary for critical thinking abilities to be developed (Moore, 2011). This is explored more fully in Sections 1.5 and 2.5.

**Criticality** integrates the concept of critical thinking to ‘develop the capacities to think critically, to understand oneself critically and to act critically’ (Barnett, 1997, p. 7). For ease of reading, and because the terms ‘critical thinking’ and ‘criticality’ are closely related, I have used them interchangeably in this study.

**Critical pedagogy** is a democratic teaching approach which avoids teaching to only transmit knowledge. Within the context of this study, it extends the framework for defining critical thinking detailed in Figure One. Critical pedagogy counters the objections to the traditional skills based conceptualization of critical thinking as lacking the vigour to empower students to robustly critique what they are learning (Marshall, 2001). It enables students to develop the dispositions to robustly critique, challenge and question what they are learning as well as the dominant structures upon which knowledge is based (Marshall, 2001). This learning takes place in a democratic teaching space where the educator introduces ideas and concepts for discussion with students (Freire, 1974). This approach involves a cooperative rather than interventionist approach where educators work collaboratively with students (Thayer-Bacon, 2000).

**Critical theory** is a prominent tradition in the discourse of critical thinking (Brookfield, 2015b). As in most theories, it is adopted in order to lead to social change, for example in critical race theory (Brookfield, 2012a). In the context of this study, and as discussed in Section 1.2, critical theory can help students to learn to think critically in a social environment where dominant assumptions and prior learning discourses can be challenged and disrupted, which triggers new learning and changes in thinking and behaviour (Brookfield, 2012a). It resonates with how the principles of transformative
learning theory have been used in this study, where participants have challenged their existing perspectives about their practice in order to learn how to teach critical thinking and trigger changes in their skills, knowledge and teaching behaviours (Brookfield, 2012a).

Critical thematic analysis has been used in this study to understand and interpret how educators are learning to teach critical thinking. It has enabled me, as the researcher, to actively investigate patterns in the data and look beyond the explicit meanings and descriptions provided by the participants in order to create themes (Terry et al., 2017).

Experiential learning advocates learning as a process not an outcome, which is grounded in the learner’s experience, and where ‘knowledge is created through the transformation of experience’ (Kolb, 2015, p.49). The cycle behind this learning theory is discussed in Chapter Two and is one of the ingredients of the hybrid theoretical framework which has informed how educators could learn to teach critical thinking.

Marketisation introduced tuition fees and treated students as consumers of academic services (NCIHE, 1997). It aimed to produce higher quality HE provision and learning and teaching resources (Department for Business, Innovation, and Skills, 2016). However, marketisation has impacted on students’ motivations to learn and the way educators teach (King and Bunce, 2020). In the context of this study, marketisation could contribute to the barriers which educators face when learning to teach critical thinking. Students may view their education as a means of getting a job and might adopt lower levels of autonomy and willingness to see the relevance of being taught critical thinking (King and Bunce, 2020). Due to the pressures of the HE environment discussed in Section 1.5, educators could be deterred from trying teaching approaches to embed criticality and instead resort to safe teaching methods (Canning, 2007).

Pedagogy is used in this study as guidance to learn, centered around a dialogue between teaching and learning (Beetham and Sharpe, 2007).

Pedagogic frailty describes the fragility educators might experience due to the stress and fatigue of trying to adapt to teach critical thinking within the context of the four pedagogic
frailty discourses explained below. This can result in the adoption of ‘safe’ pedagogic approaches and the avoidance of change (Canning, 2007). For example, folding in the face of experimenting with a new teaching innovation can be a form of frailty. I use the terms frailty and fragility interchangeably in my thesis.

First, ‘regulative discourse’ is concerned with how course design, content and assessment practice is implemented in different disciplines and the impact of the requirements of external professional bodies.

Second, ‘pedagogic and disciplinary’ discourse marries the dialogue of disciplinary content with the relevant pedagogic approaches for teaching and assessment and the application of theory to practice.

Third, ‘research teaching nexus’ discusses the interrelationships between the status, recognition and rewards related to research led teaching.

Finally, ‘locus of control’ covers academic autonomy, how educators make decisions about their teaching and how this is impacted by quality assurance and regulations (Kinchin et al, 2016).

Pragmatism is an epistemology which is part of the hybrid framework detailed in Figure Two. It relates to the practice-based nature of this study which uses practical inquiry to answer the research questions, using participants’ experiences and reflections of learning to teach critical thinking (Pring, 2015).

Professional capital has been used in this study as a concept which could help educators organize their learning about teaching critical thinking teaching by using the following interrelated elements of professional capital: human capital; social capital; decisional capital (Fullan, 2016). These concepts have been used within a school environment, but I argue that they could have utility for educators in an HE setting who are learning to teach critical thinking. Human capital involves the recruitment and development of teaching talent. Social capital involves the quality of the interrelationship between educators, in this case how they access knowledge and support and how they work together to advance their professionalism with critical thinking teaching. Social capital in an educational context arguably resonates with its broader meaning about the importance of civic engagement and community networks to support the social cohesion, identity and productivity of society (Putnam, 2001). Decisional capital involves how decisions are made about the
advancement of learning and involves looking at how human and social capital can work together to advance this (Fullan, 2016).

**Reflexive thematic analysis (RTA)** is the particular approach to thematic analysis which has been applied in this study (Braun and Clarke, 2019). RTA provides the flexibility to be used with the chosen theoretical framework adopted in a study and theoretical assumptions should be recognised and considered during analysis (Braun and Clarke, 2022). Rather than problematizing the researcher’s subjectivity and potential bias during analysis, RTA recognizes the situated active role the researcher plays in the analysis process (Braun and Clarke, 2019).

Unlike coding reliability approaches (e.g., Boyatzis, 1998) and codebook approaches (e.g. King and Brookes, 2016), which advocate using validity checks and multiple coding for accuracy and validity, RTA accepts that good quality coding takes place through immersion with the data over a time period (Braun and Clarke, 2022). Using reflexive journals and collaborating with critical friends can further enhance understanding and interpretation of the data but not necessarily to reach a consensus about coding (ibid).

**Social constructivism** is an element of the hybrid theoretical framework which underpins this study as discussed in Section 1.6. Participants have actively constructed meaning about how they have learned to teach critical thinking within the multiple realities of their disciplinary teaching contexts (Illeris, 2016).

**Scaffolding** is the support which teachers provide their learners in order to develop a task which they currently find challenging (Davis and Miyake, 2004). In this study, participants have used a range of teaching approaches, often from the Critical Thinking Skills Toolkit (Wason, 2016) to support their students to develop their criticality.

**Situated learning** advocates that learning is dependent on and a product of the social context within which it takes place (Lave and Wenger, 1991). In this study, educators are learning to teach critical thinking within their disciplinary situations, drawing on this experience to make sense of this learning and constructing a knowledge base to support them.

**Spiral curriculum** is a curriculum concept which enables topics to be learned, mastered, consolidated and sometimes revisited progressively throughout the duration of a programme of study (Bruner, 1960). For the purposes of this study, the concept is used to
illustrate how criticality can be embedded and taught progressively within a programme of study.

**Supercomplexity** is a concept which talks about the fragility of educators and institutions to respond to the challenges posed by the external educational context e.g., social and technological change, the regulatory environment, the widening participation agenda and the employability agenda. As discussed in Section 1.2, these factors can impact on academic identity and the ways in which educators and institutions view knowledge and understanding of their disciplinary and teaching practices (Barnett, 2000). In the context of this study, the competing requirements of supercomplexity could inhibit educators’ motivation and willingness to try out new critical thinking teaching practices and learn how to teach it (King and Bunce, 2020).

**Threshold concepts** is a ‘conceptual gateway’ which leads students to a more accessible way of thinking about information and their discipline (Meyer and Land, 2005, p.412). In the context of this study, being taught critical thinking is a ‘conceptual gateway’ which helps students to access and be able to think more clearly about their disciplinary knowledge and apply it to different learning scenarios and problems.

It is also a gateway for HE educators to access the relevant professional development and support to enable them to teach criticality. The terms ‘threshold concepts’ and ‘threshold theory’ are used interchangeably (Foote, 2013).

**Transformative learning** is an adult learning theory where learners critically reflect and interrogate their teaching practice, both individually and collectively in order to make sense of it. In the context of this study, this theory could support educators to confidently and competently learn the skills, knowledge and behaviours needed to make changes to their practice to teach critical thinking (Mezirow, 2000).

Transformative learning typically consists of the following phases (Mezirow, 2000, p. 22):
1. A disorienting dilemma. 2. Self-examination with feelings of fear, anger, guilt, or shame. 3. A critical assessment of assumptions. 4. Recognition that one’s discontent and the process of transformation are shared. 5. Exploration of options for new roles, relationships, and actions. 6. Planning a course of action. 7. Acquiring knowledge and skills for implementing one’s plans. 8. Provisional trying of new roles. 9. Building competence and self-confidence in new roles and relationships. 10. A reintegration into one’s life on the basis of conditions dictated by one’s new perspective. (Mezirow, 2000, p. 22).
Mezirow suggests that all transformative learning begins with a disorienting dilemma (Mezirow, 2000, p. 22). There have been a number of changes and additions to this theory which are critically evaluated in Section 2.3.

Critical thinking and its importance in the curriculum is now discussed to further set the context for this study. Pedagogies for teaching critical thinking will be discussed in Chapter Two.

1.5 Critical thinking: definition and importance

As discussed in Section 1.2, developing students’ critical thinking has important significance for HE learning and teaching policy (Davies, 2013). However, critical thinking is ‘notoriously ill-defined’ (Davies, 2013, p. 536), despite the value educators place on the importance of teaching it (Abrami et al, 2015). It is not the remit of this thesis to fully evaluate this complex territory. Instead, a working definition has been provided in Section 1.4 and a conceptual framework is proposed and explained in Figure One below. This critiques and extends the operational framework advocated by Thomas and Lok (2015). It underpins the discussion about critical thinking pedagogy in Section 2.5. It is important to clarify this because the way in which criticality is defined impacts significantly on how the curriculum and teaching approaches support it (Barnett, 1997).
Critical thinking integrates skills, dispositions and knowledge which are contextualized to specific learning contexts (Thomas and Lok, 2015). Being critical involves interpreting and challenging evidence and taking nothing for granted (Facione, 1990). It helps learners access and deepen their understanding of topics (Halpern, 2003). It uses analytical, deductive and inferential skills to advance perspectives and be aware of bias when interpreting and drawing conclusions (Ennis, 1989).

However, while Thomas and Lok’s framework provides the interconnecting attributes of skills, knowledge and dispositions, it lacks the ‘critical action’ component which involves a willingness to translate thinking into action to generate solutions (Barnett, 1997). As discussed in Section 1.2, critical pedagogy encourages students to use critical thinking to challenge what they are learning (Marshall, 2001). Critical thinking could therefore be the mechanism which helps learners understand, challenge and apply their disciplinary...
content and enable educators to support learners to access this knowledge (Barnett, 2000).

The application of criticality could also enable learners to solve problems and make decisions (Davies, 2013). These activities could take place collaboratively where learners co-construct knowledge and share information (Thayer-Bacon, 2000). Furthermore, this active element of criticality embodies elements of Dewey’s philosophy of pragmatism where knowledge is learned through application and practice in different learning contexts (Dewey, 2007). Learners actively construct knowledge through active participation and dialogue (Hopkins, 2018). This has influenced the theoretical framework for this study and will be discussed further in Section 1.6.

However, there is a third debate about whether critical thinking is a universal or uniquely western concept (Schendel et al, 2020). There is an important relationship between critical thinking and culture which could impact on learners’ perceptions of criticality and how it should be taught (Bali, 2015). While much has been written about this topic, there are only a few small scale empirical studies about how critical thinking is perceived and taught across different cultures (e.g., Bali, 2015; Manalo et al, 2015). These studies suggest that there is little difference in definitions and use of critical thinking and that explicit instruction is needed to support learners’ development regardless of their cultural background (Manalo et al, 2015). On the other hand, the impact of prior critical thinking learning experiences at school, varied confidence levels with using critical thinking across cultures, and linguistic differences could affect how learners perceive and are taught criticality (Bali, 2015). These barriers are relevant to this study because University A attracts a diverse set of learners who may perceive critical thinking differently. This could impact on how educators learn to teach criticality.

In conclusion, critical thinking is difficult to define (Davies, 2013), and challenging to teach (Janssen et al, 2019). This study proposes that teaching critical thinking could be a ‘threshold concept’ which provides the ‘conceptual gateway’ which helps students to access information and apply it to different learning scenarios and problems (Meyer and Land, 2005, p. 412). I now turn to discuss the three learning theories which underpin this study, and how and why these have informed the hybrid theoretical framework discussed in Section 1.6.
1.6 Hybrid Theoretical Framework

Through my early reading, I discovered literature which suggested that professional development programmes are most useful when they are underpinned by a model of learning (Daley and Cervero, 2016). I researched further the adult learning theory literature (see Section 2.4) and drew on my own experiences both as a teacher and a teacher educator, to help me decide which learning theories could support this study. To reiterate, I am not looking to test theories, but to use them as a guide to unpack how educators are learning to teach critical thinking. However, because of the complexity of the research problem, I felt that using one theory might not always satisfy this study’s questions.

In my own teaching practice, I was influenced by Tangney’s interpretation of humanism, where students are active participants in their learning, build on their prior educational experiences and purposively engage in critical reflection and dialogue (Tangney, 2014). An example of my student-centred teaching approach, is when I collaborated with other teachers to design an active learning activity called ‘Marketing Downloads’ (Anderson, Wason and Southall, 2016). Based on Freire’s concept of ‘critical education’, students had to initiate their own research into a real-world business example of their choice and critically evaluate and discuss the theory demonstrated from these examples (Freire, 1970). This empowering initiative enabled learners to develop the confidence to take the vital first steps to become curious, critical thinkers (Anderson, Wason and Southall, 2016).

I have transferred this empowering approach to teaching students to my current role as a teacher educator. I believe in the value of educators’ own experiences and judgements about their teaching practice and how they have used their expertise to develop professional education in critical thinking skills teaching (Dadds, 2014). For example, colleagues share their own teaching examples during professional development workshops.

My commitment to student-centred learning has drawn me to transformative learning, threshold concepts and experiential learning to help me find out how educators can learn to teach critical thinking. There are parallels between the humanist elements of my personal philosophy and the empowering nature of transformative learning which focuses on personal development and growth and helping learners to find their own voices (Tangney, 2014). I therefore felt that transformative learning was at the heart of helping me
to understand how educators could learn to teach critical thinking and feel empowered to do so (Mezirow, 2000). It is also recognised as a dominant learning theory in adult and continuing education (Brookfield, 2012a).

I was also drawn to threshold concept theories because of my own and colleagues’ difficulties in teaching critical thinking and the lack of resource available to support us (Meyer and Land, 2003, p. 1). I felt that threshold concepts might help educators move through their own ‘conceptual gateways’, mediating students’ knowledge via a critical thinking ‘portal’ (Meyer and Land, 2005, p. 373). I felt that critical reflection was central to this process, and could support educators to feel empowered to challenge their dominant pedagogical discourse and move out of their teaching comfort zones (Brookfield, 2012a). This challenge could represent the troublesome nature of the threshold concept of critical thinking and trigger the ‘disorienting dilemma’ which encourages educators to shift their perspectives about how they teach (Mezirow, 2000, p. 22). This is fundamental to a critical thinking pedagogy and could support educators to move from a transmission mode of delivery to a more student-centred approach where educators are actively coaching and facilitating students’ learning.

Finally, the ‘problem centred, real world practice’ focus of this study drew me to experiential learning as a final ingredient of my hybrid theoretical framework (Mackenzie and Knipe, 2006, p.195). I was keen for this study to provide educators with the opportunity to experience learning to teach critical thinking and create their own knowledge base for doing so. Experiential learning is defined as a learning process where knowledge is created through the transformation of experience (Kolb, 2015, p. 49) so there are synergies with transformative learning theory. Constructing and making meaning about teaching critical thinking is strongly influenced by the theoretical basis of disciplinary knowledge and the disciplinary cultures of different academic subjects in HE (Jones, 2007b). Furthermore, it is reliant on the context within which educators find themselves, with knowledge construction happening on an individual basis and through social interaction (Wass, Harland and Mercer, 2010).

Therefore, these theories came together to create the hybrid framework described in Figure Two, with transformative learning taking precedence and threshold concepts and experiential learning as support. This investigation is also rooted in a social constructivist and pragmatic epistemology which is discussed more fully in Section 3.2. Educators have actively constructed meaning about the practice-based problem of teaching critical thinking
within the multiple realities of their disciplinary contexts (Illeris, 2016). It draws on a pragmatic epistemology by using practical inquiry, experience and critical commentary on this experience (Pring, 2015). Therefore, these epistemologies have also been integrated into Figure Two.

**Social Constructivism and Pragmatism**

*Figure Two: Hybrid theoretical framework*

The research problem and questions which this study seeks to address now follow. A justification for these questions is also provided.
1.7 Summary: Research questions

To reiterate, this study has addressed a gap in the literature about the practice-based problem of how to support educators to learn to teach critical thinking. There are barriers, challenges and no single truth about the best way of teaching criticality (Nicholas and Raider-Roth, 2016). This study aims to add to existing evidence about the enablers and barriers for explicitly teaching criticality (Bellaera et al, 2021). Furthermore, it will investigate what professional development and resources could foster the teaching of critical thinking skills. To the best of my knowledge, this is the first study which specifically investigates this problem.

Consequently, the main research question which underpins the study is:

‘How can educators in HE learn to teach critical thinking?’

Subsequent research questions are designed to unpack this overarching question further as follows:

- What are the enablers to support learning to teach critical thinking?
- What are the barriers which hinder learning to teach critical thinking?
- What continuous professional development and resources do educators need to support them to learn to teach critical thinking?

To conclude this chapter, I outline the structure of the rest of the thesis.
1.8 Thesis Structure

There are six chapters in this thesis. Here in this Chapter One - Framing the Research, I have outlined the policy context, the reasons for carrying out this study, the gap which this study seeks to address and the research questions.

Chapter Two – Mapping the Territory reviews the literature to identify what is already known about the research questions and presents the main themes identified. It reviews the research questions used to inform the study design.

Chapter Three – Methodology explains my position within the research and the theoretical framework. It outlines my methodological, data collection and fieldwork decisions and how these relate to my ontology, epistemology and research questions. It explains the analytical framework and offers a case study audit trail of how the data were analysed.

Chapter Four – Findings describes and interprets the data collected across the full data set. Findings are presented according to five overarching themes which answer the research questions: learning through experience; connections and collaborations; pedagogy and common language; resistance and fragility; authentic professional learning.

Chapter Five – Discussion evaluates the findings presented in Chapter Four within the context of the literature discussed in Chapter One. It considers additional literature which has emerged from the data collected and this study’s contribution to knowledge.

Chapter Six – Conclusions and Recommendations summarises the answers to my research questions and draws conclusions from this study. It provides contributions to theory, knowledge and practice in adult learning, critical thinking teaching and continuous professional education. It reflects on the research process, outlines the study’s limitations and provides recommendations for future research.

Having set the context of the study, the next chapter maps the territory within which this research is located.
Chapter Two: Mapping the territory

2.1 Introduction

Chapter Two builds on the contextual introduction in Chapter One. It critiques the theoretical and empirical literature in order to establish what is already known about how educators are learning to teach critical thinking. It identifies the gaps which this study should address. It reviews the research questions which have informed data collection as detailed in Chapter Three. By reviewing the literature, this chapter also corroborates the main thesis argument that critical thinking is difficult to teach and that educators need support to do so.

2.2 Literature Search Strategy

Information has been retrieved using a combination of the following search terms derived from my research questions and title: professional learning, critical thinking, criticality, the curriculum, teaching critical thinking, skills development, barriers for teaching critical thinking. Citations drawn from these papers and wider reading identified the key authors in this field of study (Grant and Booth, 2009). Reference chaining was used to further investigate key themes and concepts.

The following sources were accessed: peer reviewed academic journals; books; reviews; the grey literature: for example, previous dissertations, conference papers and reports. Seminal textbooks on contemporary theories of adult learning, paradigms and pedagogy were accessed in order to identify a theoretical and conceptual framework. The databases used were EBSCO Education Research Complete, Educational Research Abstracts, ERIC, Taylor and Francis online, ABI Inform, Google Scholar and Sage Online. On occasion Open Access papers and the grey literature were retrieved, particularly when looking for examples of critical thinking teaching resources and continuous professional development programmes.
A combination of factors was used to ensure the quality of the papers selected: the peer review filter; journal rankings using the SJR journal search function; citation searching to establish the number of views and citations in other works for each article. To ensure relevance, individual papers were screened according to: the significance of the discussion to answer the research questions; commonalities of themes; argument quality. The relevance and appropriateness of the study design to answer the research questions posed, sampling and coherence of findings were scrutinised in order to establish methodological rigour. Wide reading around the subject to find seminal authors was undertaken to ensure that key arguments were included and evaluated and to further ascertain methodological quality (Hart, 2018).

Authors, findings and threads of discussion between papers were noted on the Thematic Analysis Grid (Anderson, Lees and Avery, 2015). This grid was used to appraise, analyse and synthesise papers (Grant and Booth, 2009). An example can be found in Appendix One. The majority of studies selected were meta-analyses of empirical studies as well as conceptual/theoretical literature with different authors discussing their perspectives on theory. Empirical literature tended to be dominated by qualitative designs, specifically action research, although there is some evidence of mixed methods (Taylor, 2007). To further avoid the risk of bias in assessment, papers were selected which had a balanced view, critically evaluated contestations, justified the exclusion of these alternative perspectives, and included citations which supported the arguments provided.

The search was limited to sources published between 1997 and 2022. These dates were chosen because, as discussed in Section 1.2, the Dearing Report introduced the marketisation of HE, the importance of teaching skills and knowledge in the curriculum and providing continuous professional development for educators (NCIHE, 1997). The report triggered a number of studies about the role and function of the university and the significance of teaching critical thinking (e.g., Barnett, 1997; Barnett, 2000a; Barnett, 2000b). This corresponded with scholarly interest in how educators learn, the types of knowledge which personify valuable practice and the impact on continuous professional education. However, because much of the seminal work on learning theory was written between 1940 and 1980, the search was extended for this area. It was important to appraise the historical development of these theories, particularly as Transformative Learning and Experiential Learning theory has been widely critiqued.
Finally, in order to get a wider perspective, studies were investigated both within and outside the UK, particularly in Sub-Saharan African universities where case study research about critical thinking teaching has been done, as well as in schools and colleges and in other workplace learning contexts, for example management learning. Evaluation studies of particular interventions on student development of criticality, those not published in the English language and no English translation available have been excluded. An evaluation of what constitutes learning, and a full critique of learning theories is not provided. Instead, only the theories which were relevant to the research questions and the positionality of this study were chosen.

This is a selective review of the literature as of the date of submission. **Figure Three** summarises the three key areas of literature which have been identified to help answer how educators can learn to teach critical thinking. It has not been possible to provide an exhaustive range of authors. However, on balance, these appear to be a sound representation of authors who have had the strongest influence in the theoretical and empirical development of HE policy and pedagogy, adult learning, continuous professional development, and teaching critical thinking literature. The choice of authors has been derived as follows: those who can contribute to answering the research questions and the aims of the study; authors who repeatedly come up in response to the search strategy detailed in **Section 2.2**; authors who relate to the personal lens and positioning which I bring to the study as detailed in **Section 1.6** and authors who have conducted robust empirical research.
2.3 Adult Learning Theory

Professional development programmes are most effective when underpinned by a model of learning which educators perceive as a continuous process situated in their everyday practice (Daley and Cervero, 2016). To reiterate the argument in Section 1.6, this research does not claim to develop its own theory. Instead, it draws readers to transformative learning, threshold concepts and experiential learning which have been influential to the development of this study. It has been established, in Section 1.5, that critical thinking is difficult to teach and that educators need support to do so (Janssen et al, 2019). The complexity of the territory of the research topic and the learning theory terrain suggests that one theory might not be sufficient to answer the research questions (Illeris, 2018).

As discussed in Section 1.6, this research is based on a social constructivist approach to learning (Illeris, 2016). Learning involves a process of change (Illeris, 2016), which in this case is about how educators learn to teach criticality. The combination of the learning theories detailed in Table Two below, draws on the cognitive, social, behavioural and
emotional dimensions of learning. **Table Two** explains how each of these theories relates to each of these dimensions. A critique of each theory then follows.

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<th>Cognitive</th>
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<td>Threshold Concepts</td>
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**Table Two: Comparing Learning Theories within the theoretical framework**

**Transformative Learning**

The first and main ingredient of the hybrid theoretical framework underpinning this study is Transformative Learning (TL). TL is defined in Section 1.4. It has both theoretical and practical utility. First, it offers researchers a concept which has solid theoretical foundations and has been critiqued and discussed more than any other adult learning theory (Taylor, 2007). Second, its practical application to adult learning in HE generally, and specifically to university professional development schemes, is well recognised (Christie et al, 2015). Third, its wide application shows its potential to be applied to different pedagogical areas and learning contexts (Taylor, 2007). Indeed, the need to integrate practice-based research, for example using case studies, with transformative learning theory is recommended (Christie et al, 2015). Transformative learning theory empowers educators to develop the autonomy to think for themselves, to critically reflect on their own points of view and to take charge of their own learning (Christie et al, 2015). Few examples of its application to learning to teach critical thinking have been found;
therefore, it provides a potentially relevant and novel theoretical lens to support this investigation (King, 2004).

Transformative learning has been critiqued and developed by many scholars since its inception (Illeris, 2016). A full definition of the phases of TL can be found in the glossary of terms in Section 1.4. The underpinning characteristics are as follows: it starts with a ‘disorienting dilemma’ which is a catalyst for change (Mezirow, 2000, p. 22); it puts experience, critical reflection, dialogue and peer to peer learning at its centre (Taylor, 2007). A ‘disorienting dilemma’ (Mezirow, 2000, p. 22) can be a major life changing event, a dilemma or crisis; for example, children leaving the family home (Mezirow, 1981). This can happen gradually or suddenly and triggers a change in perspective and behaviour (Baumgartner, 2001). The contexts within which these dilemmas have been investigated have broadened in more recent studies, which provides a different perspective on its definition (Nohl, 2015). The more casual, often unnoticed, ‘non-determining start’ of the transformative learning process, where new practices are simply added to existing ones seems to be a more realistic and practical catalyst for change for the purposes of this study (Nohl, 2015, p. 39). Educators experience new practices which represent the ‘disorienting dilemma’ which triggers a critical examination of their existing teaching, the assumptions they have made about it, and the areas they feel dissatisfied with and would like to change (Mezirow, 2000, p. 22).

Mezirow has also been criticised for his original view that transformative learning was simply a cognitive process (Dirkx, 2006). He responded to this by integrating the affective aspect of learning into TL theory, recognising that emotion plays an important role in determining how individuals react to their learning (Illeris, 2016). Educators may feel frightened about trying out new teaching practices, angry or resistant due to the demands put on their time, or feel ashamed that they have not already tried them out (Mezirow, 2000). Consequently, the role of the self and academic identity is integral to the phases of transformative learning, as educators respond subjectively to these experiences and have their own transformative outcomes (Dirkx, Mezirow and Cranton, 2006). Educators are likely to have their own levels of self-awareness, self-knowledge and sense of responsibility and motivation toward their learning (Hoggan, 2016). However, the deeper spiritual Jungian emotional perspective has not been considered within this review due to the practice-based nature of this study (Dirkx, 2006).
A change in perspective involves both a change in what is known as well as an understanding of how this is known (Kitchenham, 2008). Educators bring their lived experiences and ways of viewing the world as well as their own set of skills and attributes to their practice (Hoggan, 2016). They have their own set of values and assumptions which could impact on the transformative learning process and how they become aware of new learning and understandings (Hoggan, 2016). While it can be difficult to shift educators’ beliefs about changes to practice (Hoekstra et al, 2009), it could provide the opportunity for critical reflection, encourage self-regulation and a deeper understanding of how to teach criticality (Taylor, 2007). Through TL, educators increase their self-awareness about what they know and the context in which they work (Meijer et al, 2017). This is in keeping with the relativist ontology and the study design which is discussed in Chapter Three.

A third criticism of TL is that it is often used to cover any type of learning, particularly simply acquiring new information and knowledge (Brookfield, 2003). However, knowledge is not something which is waiting to be found (Mezirow, 1996). It involves an active element, where educators explore possibilities to use their learning, develop plans to implement their new knowledge and skills and build their confidence, competence and professional capability in their new roles (Mezirow, 2000, p. 22). This is a critical point which refutes this criticism. Transformative learning is rooted in a social constructivist epistemology where educators are encouraged to actively reflect on their experiences and create new knowledge through dialogue and interaction with others (Pugh, 2002). It is important therefore to examine changes to professional practices (Hoggan, 2016). Critical reflection is embedded within the learning process (Mezirow, 2000) and reflective practice is a useful tool to support this (Walsh and Mann, 2015).

Transformative learning therefore targets the cognitive, emotional, social and behavioural aspects of learning and as such impacts on teachers’ professional development (Illeris, 2016). It is influenced by Habermas’s domains of adult learning theory, which is grounded in how educators interact with their environment (Mezirow, 1991). A key transformative learning outcome is the enactment of new professional practices (Hoggan, 2016). The emancipatory element of this domain challenges staff to become more aware of their own assumptions, expectations and perspectives, and, through dialogue with others, fosters an understanding of the impact of previous experiences on current practice (Calleja, 2014).
Nonetheless, transformative learning has been criticised as having little understanding of the social aspects of learning and instead is too focused on the rational aspects (Fleming, 2018). This can be refuted by the fact that it is grounded in Vygotsky’s (1978) social cultural theory which enables educators to situate their learning within their day-to-day practices and interactions (Castro-Felix and Daniels, 2018). Learning is situated within and supported by educators’ teaching contexts (Lave and Wenger, 1991) and developed through communities of practice which are groups who share a common learning goal (Wenger, 2000). Communities of practice provide the space and opportunity for educators to deepen their knowledge, share teaching experiences and develop further their knowledge, skills, confidence, competence and teaching behaviours (Wenger, McDermott and Synder, 2002).

However, for peer learning to work, it needs to function based on ‘critical friendship’, with professional learning conversations grounded in equality, trust, openness and vulnerability (Schuck, Aubusson and Buchanan, 2008). Transformation can be generated using an inquiry-centred professional development process where educators participate in discussions about specific learning tasks and co-create resources which they use in their teaching (Gravett, 2004). These types of community learning conversations where discovery takes place in everyday situations can support learning and refute the criticisms made about the social aspect of transformative learning (Kwakman, 2003). Educators feel empowered to use their judgement and make decisions about what will work for them in their classrooms (Dadds, 2014).

Consequently, communities of practice provide a useful model to explore how educators participate together in learning, experiment with resources and co-create teaching activities to try in the classroom (Wenger, 2000). The collective socialisation of their teaching practices builds on the concepts of peer support and relationship building in order to generate transformative experiences (Taylor, 2007). Through dialogue and peer to peer interaction, educators identify both the contextual challenges relating to practices and which resources support them (Clarke and Hollingsworth, 2002). The empirical evidence around professional development is discussed in Section 2.4.

To conclude, transformative learning has the potential to be applied to the practice based problem of how educators can learn to teach criticality. Its main characteristics are grounded in the centrality of experience, involving meaning and behavioural change triggered by a ‘disorienting dilemma’ (Mezirow, 2000, p. 22) in order to learn new
knowledge, skills and behaviours. This section now turns to discuss how the transformative nature of ‘threshold concepts’ (Meyer and Land, 2003, p. 1) can further enhance these characteristics and support further the difficulties associated with learning to teach critical thinking (Hodge, 2019).

Threshold Concepts

The second ingredient of the hybrid theoretical framework is ‘threshold concepts’. A threshold concept is a gateway which guides learners to a transformed way of thinking about knowledge which enables them to progress with their learning (Nicola-Richmond et al, 2018). As such, it has been used to support curriculum development and teaching approaches in HE. One of the main characteristics of threshold concepts is that they are transformative, resulting in a change in a learner’s perspective, and how they view the world and their sense of self (Hodge, 2019).

Empirical studies tend to frame threshold concepts in relation to the mastery of specific aspects of disciplinary knowledge, for example ‘opportunity costs’ in economics (Meyer and Land, 2003, p. 3). These phenomena are challenging to grasp, disrupt former ways of thinking and lead to a significant discovery about their subject matter (Hodge, 2019). Critiques of this theory are mostly related to how threshold concepts are defined and measured within student disciplinary learning (Barradell, 2013). Studies which try to evidence learners crossing their learning thresholds lack methodological rigour (Nicola-Richmond et al, 2018). Other studies in the health professions (e.g., Brown, Whybrow and Finn, 2021) challenge the consistency of how threshold concepts are explained and used to structure the curriculum and teaching strategies (ibid). However, threshold concepts can be used as a catalyst to stimulate discussions about learning and teaching within the disciplines and may provide a useful tool for educator engagement and change (Lucas and Mladenovic, 2007).

Furthermore, there are few studies which fully recognise the potential of threshold concepts theory to enhance educator learning and professional development programmes (Hodge, 2019). There also appears to be little discussion about how threshold concepts can be applied to the types of knowledge educators need to master in order to teach effectively (Hodge, 2019). Furthermore, while threshold concept theory has been used to
support teaching critical reflection in the social work discipline (Foote, 2013), it seems that it has not yet been applied to learning to teach critical thinking. Consequently, this thesis proposes that learning to do so is a threshold concept for educators, and as such could provide a useful lens through which to support them to learn to teach it (Foote, 2013). This theory enriches the hybrid theoretical framework discussed in Section 1.6.

The characteristics of threshold concepts are as follows: it is potentially ‘troublesome’ to learn; it changes the way learners think about their knowledge; it is bounded within the concept being discussed; it integrates with other bodies of knowledge and ways of thinking and once learned it cannot be forgotten (Meyer and Land, 2003, p. 4-6). By mastering this ‘troublesome knowledge’, learners think differently about their discipline (Meyer and Land, 2003, p. 3). They discover the freedom of accessing challenging concepts to transform their perspective and understanding (Meyer and Land, 2005). Threshold concepts can be difficult to become proficient at, but once mastered, help learners unblock previous misapprehensions about their learning and move forward (Davies, 2006).

Threshold concepts could present ‘epistemological obstacles’ for learners which challenge their previous perspectives and ways of learning (Meyer and Land, 2003, p. 3). However, once acquired, they can change the way learners think about a topic or situation (Meyer and Land, 2003). They lead to a much deeper way of examining knowledge and help move from a routinised method of learning to viewing the wider context within which a particular topic is situated (Meyer and Land, 2005). Through this learning process, educators can be exposed to new disciplinary discourses and language as well as ‘alien’ knowledge which introduces unaccustomed new perspectives (Perkins, 1999).

Collectively, these characteristics can lead learners to a ‘liminal state’ where they experience uncertainty and difficult in mastering this new knowledge (Meyer and Land, 2005, p. 379). Learners negotiate a change in values, attitudes and behaviours as they grapple with mastering new information (Meyer and Land, 2003). This can result in a transformed understanding and interpretation of their subject matter which previously was inaccessible.

Educators often struggle to conceptualise and integrate critical thinking within their teaching practice (Shpeizer, 2018). The purpose of this study is to investigate how educators can learn to teach critical thinking. However, criticality could be perceived as ‘troublesome knowledge’, both to learn and to teach (Meyers and Land, 2003, p. 3). There is evidence which illustrates the complexity of defining and building criticality within
pedagogical and content dialogue (Nicholas and Raider-Roth, 2016). There is a need to develop professional development in the meaning of, and methodologies for, the teaching of critical thinking (Bezanilla et al, 2019). Threshold concepts could enhance this area of educator development.

Furthermore, assumptions are often made by educators that, because they are teaching a disciplinary concept, for example opportunity costs in economics, students are being taught how to think critically about this concept at the same time. Teachers often assume that critical thinking is taught through the language of disciplinary teaching, when in fact the language of criticality is often hidden within disciplinary dialogue (Davies, 2006). On the other hand, explicitly teaching criticality offers both teachers and students an opportunity to think about and make sense of disciplinary knowledge (Davies, 2006). For example, the teacher explains what opportunity cost means and then shows students how to critically evaluate different perspectives about how it could be applied to an economics problem.

Threshold concepts support learners to access and explore knowledge in ways they may not have been able to do before (Meyers and Land, 2005). By learning through these experiences, both individually and through social interaction, educators could practice teaching criticality and could acquire this threshold concept. To the best of my knowledge, this has not yet been fully explored in adult learning or critical thinking teaching literature. Threshold concepts are also explored further within the empirical literature about the barriers to learning about teaching critical thinking in Section 2.5 below. This study therefore investigates how educators experience learning about the threshold concept of teaching critical thinking and how they develop the skills, knowledge and behaviours to do so (Davies, 2006).

To conclude this section, the affinity between threshold concepts and transformative learning theory is critiqued. To reiterate, the actual experiences of mastering the knowledge to teach criticality could represent the ‘disorienting dilemma’ needed to trigger a transformed view of teaching practice but also the worldview of the participant (Mezirow, 2000, p. 22). Threshold concept theory could provide a lens through which to analyse whether the learner has mastered the knowledge and skills to teach critical thinking (Hodge, 2019). Developing this proficiency could trigger a perspective transformation, where educators move through their ‘liminal state’ (Meyer and Land, 2005, p. 379) and
critically reflect on the skills, knowledge and behaviours they have acquired (Hodge, 2019).

However, the kinship between threshold concepts and transformative learning theory is not without critics (Hodge, 2019). First, threshold concepts focus only on the cognitive aspects of learning and ignore the affective and conative aspects which are inherent in transformative learning theory (Tisdell, 2012). However, this is refuted by the counter-argument that the process of mastering the ‘troublesome knowledge’ needed to acquire a threshold concept involves a significant emotional and behavioural commitment (Hodge, 2019). Furthermore, there is a power imbalance inherent in the determination of what constitutes a threshold concept (Roessger, 2010). The individual learner is not recognised as having the agency to determine what is crucial knowledge for their discipline, and instead is at the hands of the dominant disciplinary or institutional discourse and pedagogy which identifies these (Roessger, 2010). This contradicts the empowering and constructive nature of transformative learning theory which argues for the important impact which individual experience has on knowledge construction (Roessger, 2010). However, this argument assumes a deficit in educators’ agency and judgement to influence pedagogical practices within their own teaching contexts (Hodge, 2019).

The parallels between these theories have not yet been explored and so are underpinning this investigation about how educators are learning to teach criticality (Hodge, 2019). It is suspected that engagement with this threshold concept could be a stage in the transformative learning process which triggers the disorienting dilemma (Hodge, 2019). Furthermore, in keeping with the relativist ontology underpinning this study, learning the threshold concept of teaching criticality could take place within everyday contextual learning experiences, supported by dialogue and discussion (Magro, 2009, p. 2666). This affinity with experiential learning, the final ingredient of this framework, is now discussed.

**Experiential Learning**

Experiential learning is the final ingredient of the hybrid theoretical framework detailed in Section 1.6. The ‘problem centred, real world practice’ purpose of this study involving a process of learning to teach criticality which is grounded in educators’ experiences makes it attractive to this investigation (Mackenzie and Knipe, 2006, p.195). It fits with the main
research question as presented in Section 1.6. Experiential learning theory (ELT) enables educators to integrate their actual experiences with their perceptions and behaviour in response to these practices (Kolb, 2015). As such, it counters the purely behaviouristic learning theories which are based on a rational epistemology (Kolb, 2015).

ELT is defined as a learning process where knowledge is created through the transformation of experience (Kolb, 2015). It has the following characteristics: it focuses on the process of learning rather than its outcome; it unearths learners’ beliefs and ideas about their experiences which can be reflected upon, experimented with and integrated with new teaching ideas; it includes tensions between different, and potentially opposing aspects of learning, for example reflecting and acting; it encompasses a holistic approach to learning incorporating its cognitive, affective and behavioural aspects; and it involves the integration of new learning into existing praxis and ways of thinking. It is based on a social constructivist view of learning where knowledge is individually and socially constructed, rather than relying on a transmission mode (Kolb and Kolb, 2005).

The traditional experiential learning cycle is now explained and detailed in Figure Four below. Through experiencing a teaching episode, educators actively absorb information about how to teach (concrete experience). In addition, they evoke this experience by interpreting and acting on what they have learned. This helps them build a set of knowledge, skills and teaching behaviours (abstract conceptualisation). This conceptualisation takes place using the process of critical reflection on the teaching episode (reflective observation). Educators then build on this learning by experimenting with a new teaching experience (active experimentation). In doing so, educators also need to consider the wider HE educational environment discussed in Section 1.2, and be flexible and ready to change in response to this (Nicolaides, 2015). Experiential learning theory provides educators with a holistic way of learning which can respond to this real world context (Kolb, 2015). As discussed in Section 1.6, experiential learning is used to underpin learning to teach criticality because it is likely to involve an adaptation of teaching practices.
Furthermore, experiential learning theory is in keeping with the social constructivist epistemology which underpins the theoretical framework behind this study (see Section 3.3). Indeed, the origins of experiential learning are rooted in a Vygotskyian social constructivism where learning is mediated by language (Kayes, 2002). As discussed in Section 1.4, in the context of this study, experiential learning could support educators to actively construct their own meaning about teaching criticality within their authentic teaching contexts (Illeris, 2016). This is because the theory focuses on the process of education rather than its outcome. It therefore provides educators with the flexibility to learn by thinking, experiencing and reflecting on concepts and ideas rather than acquiring knowledge in a fixed way (Kolb, 2015).

Experiential learning provides the flexibility to learn in a range of different contexts and spaces with the opportunity to interrelate and augment these different learning experiences.
experiences (Kolb and Kolb, 2005). For example, educators can situate their learning within their own contextual teaching spaces, as well as learning socially through communities of practice (Lave and Wenger, 1991). This authenticity and flexibility again lends itself to this study, which focuses on the learning experiences of a diverse set of educators with varied teaching contexts and external influences. It also values the role and experience of the learner in the process. However, the learning space needs to be supportive and have an open culture, so that educators feel trusted to experiment with new ideas and learn from these experiences (Kolb and Kolb, 2005). Educators also need to be given the space within their busy schedules and competing commitments to be able to engage and fully reflect on their learning.

Searches within this review identified the use of experiential learning theory in management education (Kayes, 2002) and in pre-service teacher education (Lee 2019; Gao, 2015). Furthermore, ELT has been well used to support secondary school teachers’ professional development, focusing on classroom experience to generate new practices (Girvan, Conneely and Tangney, 2016). It supports educators to try out teaching innovations and recognises and builds on their prior experiences, enabling them to generate new knowledge to inform their future practice (Girvan, Conneely and Tangney, 2016).

It is important to reiterate again that experiential learning focuses on the process and not the outcome of learning (Kolb, 2015). Professional development which involves active participation in authentic learning scenarios, can be more effective than ‘training’ which merely transmits knowledge (Webster-Wright, 2009). However, there is significant evidence which indicates that any adaptations to teaching practices in response to participation in active and authentic professional development takes time (Girvan, Conneely and Tangney, 2016). Furthermore, experiential learning theory is widely acknowledged as a beneficial framework for learning about pedagogical and curricula innovations (Kolb and Kolb, 2005). However, there appears to be little empirical evidence where experiential learning has been used to support educators to learn to teach critical thinking. This supports the use of this theory to inform the design of this study which is discussed more fully in Chapter Three.

However, there are weaknesses of experiential learning theory. First, it relies on educators being willing and able to engage with the experiential learning process and to access a concrete learning experience, which for this study would be a critical thinking teaching
episode (Kolb, 2015). Second, educators need to be prepared to reflect on their practice, think critically about how to enhance it, and be eager to translate their learning into future practice (Moon, 2008). Third, experiential learning theory assumes a certainty that each teaching experience is always based on similar factors, which does not always reflect authentic teaching situations (Kolb, 2015). Furthermore, there may be tensions between the four modes within the cycle; in reality learning might not take place in the sequential order reflected in it (Coffield et al, 2004).

On the other hand, the poststructuralist view of experiential learning has further developed the traditional experiential learning cycle to include both individual and social aspects (Kayes, 2002). Using a spiral approach to experiential learning, educators bring their tacit knowledge gained from individual experience and reflection and make it explicit through interactions with peers (Kayes, 2002). In short, there is both an active and reflective dimension to experiential learning which participants view more holistically and move between the modes of the cycle rather than following it on a step-by-step basis (Kolb, 2015). The ‘K Schema’ model, detailed in Figure Five, emphasises the role of dialogue to make tacit knowledge explicit and as such is consistent with the nature of transformative learning (Calleja, 2014). Through the social aspects of experiential learning, educators could be more encouraged to try out new ideas, critical reflect on these and act upon their learning.

![Figure Five: The K Schema (Kayes, 2002, p. 145)](image-url)
To conclude, as discussed in **Section 1.5**, critical thinking is ‘notoriously ill-defined’ (Davies, 2013, p. 536) and challenging to teach (Janssen *et al*, 2019). There are commonalities which unite the three learning theories underpinning this study, which suggest that they could be helpful to inform the design of this research. First, there is a conflict and tension which is often experienced as learners acquire new knowledge, skills and behaviours. By experiencing concrete teaching episodes, and the ‘troublesome knowledge’ (Meyer and Land, 2003, p. 3) which arises from these, educators experience a ‘disorienting dilemma’ (Mezirow, 2000, p. 22). Second, through the process of trying out teaching ideas and reflecting upon these, both individually and collectively, educators can make sense of these teaching episodes through critical reflection, and travel through the ‘liminal space’ towards mastery of this knowledge (Mezirow, 2000, p. 22). By moving through the ‘conceptual gateway’ of experiencing a teaching episode, teachers can reflect on the knowledge skills and behaviours they can now access (Meyer and Land, 2005, p.412). Through this sense making experience, they acquire confidence and competence with the implementation of these new teaching behaviours and integrate these into their ongoing teaching practices (Mezirow, 2000). This also impacts on the learners’ affective state and how they feel about the experience. In short, educators could experience both a perspective and a behavioural transformation (Calleja, 2014).

This review now explores the empirical evidence about continuous professional education and explores the synergies between these studies and the learning theories discussed here.

### 2.4 Continuous Professional Education

Continuous professional education (CPE) is an umbrella term which covers formal and informal workplace learning, including specific professional development programmes (Cranton, 2016). **Section 1.2** discussed the importance of critical thinking to a university education and the value of providing continuous professional education for teachers (NCIHE, 1997). However, as argued in **Section 1.5**, criticality is challenging to teach (Janssen *et al*, 2019), and there is lack of professional development to support educators to do so (Bezanilla *et al*, 2019). It is therefore timely for this study to investigate what continuous professional development and resources educators need to help them learn to teach critical thinking.
Before proceeding, it is important to reiterate the point made in Section 2.2 that this part of the review is not an exhaustive analysis of the continuous professional education literature. A significant amount has been written about this topic and its value and purpose is highly contested (Bierema, 2016). This section synthesizes a selective range of studies about the conceptual debates in professional learning (Coady, 2015) as well as professional development activities (Thurlings and den Brok, 2017). Daley, Cervero, Coady and Cranton are frequently cited, because they are scholars whose perspectives on continuous professional education I have most aligned with due to my own social constructivist positionality as discussed in Section 1.3. The key debate in the literature is between the vision of CPE as the vehicle for lifelong learning and the reality of CPE programmes which tend to focus on quality improvement, reciting knowledge and competency-based approaches (Coady, 2015).

Professional development practice involves much more than training, which often focuses only on providing educators with the knowledge to enable them to perform their roles (McWilliam, 2002). These competency-based approaches encourage educators to acquire the technical knowledge to teach, for example how to design effective assessment (Cranton, 2016). This didactic approach emphasizes measuring the effectiveness of learning and ‘quality of academic performance’ through attendance and participation in professional development activities rather than focusing on any changes in practice (McWilliam, 2002, p. 296).

The challenges of embedding learning from such workshops are well documented (e.g., Eraut, 2004), and studies have found that workplace contexts are just as important as the educational context within which learning takes place. This supports the situated and contextual nature of learning underpinning this study where educators make meaning about their teaching practice within the multiple realities of their disciplinary contexts (Illeris, 2016). Studies have shown that educators build their professional knowledge by linking new learnings to their existing professional experiences and contexts (Webster-Wright, 2009). This has been likened to the process of ‘creating a mosaic’ where different ‘pieces’ of learning create an individual knowledge base for the educator to use in their practice (Daley and Cervero, 2016, p. 21).

Developing educators involves a pedagogic approach which moves beyond didactic workshops and seminars which focus on transmitting content rather than enriching learning (Coady, 2015). This section builds on Section 2.3, where it was argued that
professional development programmes are most effective when underpinned by a model of learning which educators perceive as a continuous process situated in their everyday practice (Daley and Cervero, 2016). Knowledge could be co-created through social discussion and peer-based learning (Clarke and Hollingsworth, 2002). By nurturing teachers through mutually supportive networks and starting with the knowledge they already have, a CPE programme could encourage staff to examine their beliefs and change their perspectives (Kinchin and Miller, 2012).

Peer to peer observations and peer coaching provide a valuable opportunity for educators to ground and situate their learning within the context of their own teaching practice (Peel, 2005). Furthermore, they offer teachers the opportunities to critically reflect on actual teaching experiences and as such become more aware of their practice and how they could enhance it (Peel, 2005). Studies (e.g., Bell and Mladenovic, 2008) have highlighted the developmental and transformative potential of peer observation partnerships between teachers. However, there appear to be few studies which have used peer to peer observations as a learning tool to teach critical thinking. By observing how different educators do this in the reality of their own contexts, and then explain and discuss what was observed with a peer, could be a constructive approach to take (Bell, 2005).

More recent studies (e.g., Thurlings and den Brok, 2017) discuss professional development activities which involve an active, collaborative and inquiry based approach where educators participate in coaching activities, communities of practice and peer to peer reviews. These programmes encourage educators to challenge their assumptions about their teaching practice, build on their prior knowledge and learn through collaboration, experience and sharing practice (Cranton, 2016). However, there appears to be few studies which specifically discuss a professional development model and programme for supporting educators to learn to teach critical thinking.

**Professional Development Model**

The ‘model of professional learning and development’ detailed in **Figure Six** provides those with responsibility for professional education with a system for integrating learning and professional development with working contexts. The model incorporates elements of social constructivist and transformative learning which are incorporated within the hybrid
learning framework discussed in Section 1.6 (Daley and Cervero, 2016). Furthermore, this model is based on a more democratic, empowering view of continuous professional education which avoids the idea that the provider of learning is knowledgeable and the receiver is knowledge deficient (McWilliams, 2002).

However, this approach may provide challenges to providers of CPE who may find it difficult to move away from their role as creators and deliverers of generic programmes (Coady, 2015). This could involve a shift in mindset to become facilitators of professional learning where participants are encouraged to create their own knowledge both individually and in professional communities (Coady, 2015). This change in direction of professional development resonates with my own experience as a teacher educator. The model in Figure Six therefore contrasts with the ‘transmission’ mode of learning where educators turn up to workshops to receive information (Kolb and Kolb, 2005). However, educators often find it difficult to contextualise and apply the learning from such approaches to their professional practice (Knight, Tait and Yorke, 2006). On balance, therefore, it is suggested that the ‘model of professional learning and development’ detailed in Figure Six is more appropriate to underpin this study.

The constructivist mode of learning in Daley and Cervero’s (2016) model provides continuous professional education which develops ‘knowledge’ through educators’ ‘disciplinary contexts’, their ‘professional practice’ and ‘transformative learning’. There are three aspects of this model which have synergies with the hybrid model illustrated in Figure 2, Section 1.6. First, knowledge about teaching practice is constructed through the process of transformative learning. This provides a lens through which to examine the beliefs, attitudes and behaviours of educators when challenged with implementing new knowledge within their practice and contexts (ibid). This inspiring approach also recognizes the value educators can bring when creating their own meaning about their praxis, promoting self-awareness and understanding (Coady, 2015). As discussed in Section 2.3, this mode of learning supports educators to critically reflect on their practice, challenge their existing assumptions and change their perspectives and behaviours (Mezirow, 2003).

Constructivist learning also draws on experiential learning theory (see Section 2.3). Educators create knowledge individually through experience and reflection and make this tacit knowledge explicit through social interaction which enhances learning further (Kayes, 2002). This is further supported by empirical evidence (e.g., Clarke and Hollingsworth,
which argues that professional learning can be situated in practice and enhanced by the social dimensions of learning. Moreover, this model could develop educators’ professional capital to organize their learning, as they interact with other teachers and work out how they can access the professional development they need (Fullan, 2016).

Second, the model contextualises ‘knowledge’ to educators’ working contexts and professional practice. The impact of context and professional identities within different disciplines are critical elements to consider when designing professional development programmes (Daley and Cervero, 2016). This study values the importance of the multiple realities within which educators at University A work which is reflected in the design of this study as discussed in Chapter Three.

Third, the model empowers educators to feel motivated through being supported to learn new pedagogical approaches, provided with opportunities to practice and reflect and therefore learn new competencies (Tynjala, 2008). Knowledge sharing could use community-based learning conversations where learning is situated in everyday situations (Kwakman, 2003). Arguably, this process of social constructivism is worthy of investigation to find out whether, through critical reflection, collaborative learning and sharing knowledge, educators could collectively learn, develop and adapt resources to help students with their critical thinking development. These methods might support educators to become aware of the importance and definition of critical thinking teaching within their different disciplines (Mezirow, 2003). Teachers could identify what knowledge, skills, resources and developmental support they need to transform their critical thinking teaching practices (Jones, 2009). Within the context of this study, professional development could be viewed as an ongoing process of learning, which goes beyond simply mastering particular areas of knowledge through a one-off training session (Hodge, 2019).
In summary, the reality of professional learning and development within a contemporary educational setting is complex (Hodge, 2019). There is much debate about how continuous professional education programmes should be designed, and so I acknowledge the assumptions about knowledge upon which this model is built and how this relates to my positionality (Daley and Cervero, 2016). However, a new type of CPE is needed which differentiates itself from the existing models (Bierema, 2016). Rather than providing formal compulsory accredited CPE programmes, CPE can instead empower educators to learn within their everyday practices which could enable them to generate authentic meaningful professional learning experiences which support them to make changes to their practice (Eraut, 2007). The Model of learning in CPE (Daley and Cervero, 2016) is supported by studies which argue that, to be successful, CPE should represent authentic professional learning (Webster-Wright, 2009). Moreover, by participating in learning which is relevant to

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**Figure Six: A Model of Learning in CPE, adapted from (Daley and Cervero, 2016, p. 21)**

![Diagram of Learning in Continuing Professional Education](image-url)
their everyday professional practices, teachers can construct knowledge and make the necessary connections to become critical thinking educators within their disciplinary contexts (Boud and Hager, 2011). Through this construction of new knowledge, teachers can access a new, more accessible way of thinking about how to teach critical thinking (Hodge, 2019).

Transformative learning through reflective practice could be integral to the design of CPE to empower educators to critically reflect on their practices in order to develop the professional capital to adapt them to teach critical thinking. Consequently, CPE could be a fundamental part of an HE lecturer’s education both from their own professional development perspective and to ensure that quality standards for the contemporary educational environment are maintained (Bierema, 2016). This approach, based on the model articulated in Figure Five, could underpin how educators could learn how to teach critical thinking. This study investigates this underdeveloped area further.

This review now turns to evaluate the literature about teaching critical thinking.

2.5 Critical Thinking Pedagogy

Teaching Approaches

As discussed in Section 1.2, government policy over the last twenty-five years has continually outlined the importance of universities designing curricula which go beyond teaching knowledge and cultivate a disposition to learn and become a critical thinker (Barnett, 2009). Critical thinking is crucial to equip students for their fast-paced technological learning environments (Marin and Halpern, 2011), where knowledge is acquired from a range of widely available sources (Higgins, 2014). The development of students’ learning dispositions and ways of being are arguably more important than knowledge and skills acquisition (Barnett, 2007). Nevertheless, despite emphasising its significance, many institutions are still failing to effectively produce graduates who are prepared to think critically once they enter employment (Flores et al, 2012). This could be because teaching critical thinking is a highly debated pedagogical area (Larsson, 2021).
As discussed in Sections 1.4 and 1.5, this study uses the leading APA framework of critical thinking (Facione, 1990). The framework draws on a range of empirical studies which define criticality as a set of skills and dispositions which can be taught using a range of teaching interventions (Abrami et al, 2015). Objections to this framework from the critical theorists have been documented in Sections 1.4 and 1.5. However, these could be overcome by harnessing opportunities to amalgamate the teaching approaches identified from the critical thinking teaching studies with critical theory and critical pedagogy (Abrami et al, 2015). This common ground is realised through using teaching techniques such as active learning, dialogic teaching, mentoring, co-operative and collaborative learning and problem-based learning (Abrami et al, 2015). Nonetheless, there is little consensus about how educators can be best supported to teach critical thinking, a gap which this study aims to address (Tiruneh, De Cock, and Elen, 2018).

However, it would be remiss not to mention the argument that it is an assumption that critical thinking can be taught and instead develops only through experience and maturity (Riddell, 2007). This perspective is refuted by many more studies (e.g., Abrami et al, 2015; Ennis, 2018; Bellaera et al, 2021) which provide evidence to support the fact that criticality can be explicitly taught. Of particular note is the dispute about the learning context for teaching critical thinking and the type of knowledge which should be used to support its development (Larsson, 2021). This centres around the long-standing debate about whether critical thinking skills are generic and can be applied across different subject areas or whether they are attached to a subject specialism (Abrami et al, 2015).

The generalist view argues that critical thinking is a set of skills which can be taught and then transferred across any discipline (Ennis, 1989). This approach advocates teaching criticality as a separate course in parallel to disciplinary curricula. Scholars who advocate this approach (Ennis, 1989; Davies, 2006, 2013) argue that critical thinking is not domain or knowledge dependent, and that the ability to think critically can be learned independently and transferred to any context. It holds the dominant position in the critical thinking field and has been adopted by many policy makers in the UK and the US, despite the counter argument that it is lacks enough robust empirical evidence to support it (Larsson, 2021). In an attempt to address this, Ennis recently provided a vision for a programme of critical thinking teaching where both generic and subject specific critical thinking skills and dispositions are taught in parallel to a disciplinary curriculum, with
opportunities for application within disciplinary content (Ennis, 2018). However, to date, this vision has no empirical data to support it as an approach (Ennis, 2018). From my own experience as a teacher and teacher educator, the generalist view may persist because of the time and effort involved in rethinking and adapting programmes to include critical thinking. Educators often resist having to adapt their practice and prefer the generic approach where critical thinking is taught as a separate course with no specific subject content (Ennis, 1989). This could also reflect the lack of confidence felt by educators that they have the skills, knowledge and behaviours to teach critical thinking (Janssen et al, 2019). These feelings could be ascerbated by the discourses of pedagogic fraility discussed in Section 2.6 (Kinchin et al, 2016) resulting in the avoidance of change and the adoption of ‘safe’ pedagogic approaches (Canning, 2007).

On the other hand, the specifist view (e.g., McPeck, 1981; Moore, 2011) argues that critical thinking is context specific and that subject-related knowledge is necessary for critical thinking abilities to be developed (Moore, 2011). The immersion approach encourages students to think critically about existing subject matter and critical thinking development is made explicit (Abrami et al, 2015). Similarly, the infusion approach integrates the teaching of criticality within existing subject matter; however, this is done without making critical thinking principles explicit (Abrami et al, 2015). The immersion approach aligns with my own experiences of teaching criticality which draws on Jones (2007), who argued that the underpinning epistemology and culture of each academic discipline heavily influences how critical thinking is perceived and facilitated. Furthermore, there are a number of studies (e.g., Behar-Horenstein and Nui, 2011) which refute the basis upon which the generalist perspective was constructed, arguing that the empirical evidence used to support it should be reviewed. To think critically involves thinking about something in particular, in the case of this study the specific subject matter or topic which is being taught by the participants involved (Larsson, 2021). As further support for my argument, I refer to transformative learning which is the leading learning theory underpinning this study. To empower educators to make meaning of their own critical thinking teaching practices, teaching needs to happen within their own curriculum (Mezirow, 2003). Critical thinking skills are scaffolded within the immediate learning context to enable learners to socially construct and access their disciplinary knowledge (Wass, Harland and Mercer, 2011).
The generic versus specificist debate influences the nature of a pedagogy for critical thinking and the type of instructional interventions used (Abrami et al, 2015). Many studies (e.g., Clifton, 2012; Tiruneh, De Cock and Elen, 2018) evaluate a range of critical thinking instructional interventions and how these have been used in different teaching contexts. Therefore, this research does not aim to test and evaluate interventions, build a recommended typology of critical thinking teaching activities or evaluate the use of specific resources. Critical thinking teaching practices will only be successful if supported by continuous professional education for educators which supports them to teach it (Schendel, 2016). Therefore, this study aims to add to existing knowledge about how educators can learn to teach critical thinking by exploring their working experiences within their disciplinary curriculum (Schendel, 2016).

To conclude this section, a number of scholars (e.g., Marin and Halpern, 2011; Davies 2013, 2006) argue that explicit instruction within the curriculum is the optimum approach to developing criticality. However, there is debate about how to make critical thinking explicit in teaching and which learning activities and resources can support this (Marin and Halpern, 2011). Meta-analyses, such as Abrami et al (2015), have reviewed the range of methodologies for teaching critical thinking. Yet there still appears to be limited empirical evidence about how educators are actually teaching critical thinking across a range of different subject areas in practice, and how these techniques are informed by research (Bellaera et al, 2021). It is suggested that educators are teaching using an implicit rather than an explicit approach, and primarily using dialogue based activities and active learning which is explore more in the next section (Bellaera et al, 2021). This could suggest that educators need further support to develop the skills, knowledge and behaviours and attitudes to teach critical thinking, a gap which this study seeks to address (Janssen et al, 2019).

**Dialogic and Active Learning and Teaching**

Critical thinking teaching approaches are best served by a social constructivist philosophy where skills' development is actively facilitated using a ‘learner-centred pedagogy’ (Schendel, 2016). In *Section 2.3*, it was argued that learning to teach criticality could be a ‘threshold concept’ (Meyer and Land, 2003, p.2). The role of dialogue within a democratic,
empowering environment where lecturers and students ask questions, justify answers, reason and challenge is widely acknowledged as an enabler to teach critical thinking (Abrami et al, 2015). The principles of dialogic teaching could support educators to do so (Teo, 2019). Dialogic pedagogy could assist educators to move away from a content driven teaching approach where knowledge is simply transmitted, to an approach which encourages students to critically think about what they are being taught (Teo, 2015).

In keeping with the constructivist perspective, dialogic teaching encourages learners to think critically about a particular topic or subject (Larsson, 2021). It does not advocate that this happens in a knowledge vacuum, but instead could be infused within the content of the curriculum (Hirsch, 2006). There could be a symbiotic relationship between teaching disciplinary content and teaching critical thinking. However, critics (e.g., Bali, 2015) argue that using dialogue as a pedagogic approach assumes that all students can participate equally in discussions and could privilege more confident students who have had practice and experience of this way of learning (ibid). Furthermore, this could disadvantage students who are less familiar with interactive learning and teaching environments and discourage them from participating (Bali, 2013). On the other hand, educators could model how to be critical using dialogue themselves, so that students understand what the process looks like (Brookfield, 2015). As discussed in Section 1.5, by using explicit critical thinking language and instruction, educators could set clear expectations about how discussion is used to support critical thinking development (Manalo et al, 2015). They could demonstrate supportive behaviour when there are dissenting views which some students may be uncomfortable with (Browne and Freeman, 2000). The supportive principle of dialogic teaching, discussed below, could also help overcome this criticism (Alexander, 2020).

Returning to the threshold concepts’ discussion in the previous section, using dialogic teaching principles to develop a common language and vocabulary of critical thinking could support educators to access new ways of thinking critically about their disciplinary knowledge (Meyer and Land, 2003, p. 3). Furthermore, dialogic teaching is based on the Vygotskyian notion that learning is contextual and social (Vygotsky, 1978). Dialogic teaching principles could therefore provide an empirically robust framework for supporting educators to teach critical thinking (Alexander, 2020). These principles are as follows: collective where participants address learning tasks together; reciprocal where participants listen to each other, share ideas and consider alternative viewpoints; supportive where
learners express their ideas freely, without fear of embarrassment over ‘wrong’ answers and help each other to reach common understandings; deliberative where participants discuss and seek to resolve different points of view, they reason and support their positions; cumulative where participants build on answers and other oral contributions and link them into coherent lines of thinking and understanding; purposeful where classroom talk, though open and dialogic, is also planned and structured with specific learning objectives (Alexander, 2020).

These principles could support educators to set purposeful dialogic critical thinking tasks relating to the specific disciplinary topic and educators could encourage participation using questioning techniques to stimulate discussion and argumentation (Teo, 2019). The principles of accountable classroom talk could further scaffold criticality in the classroom (Michaels, O’Connor and Resnick, 2008). Using this framework might support students to be accountable to each other for their learning, to the knowledge they are studying and also to reasoning about this knowledge (Michaels, O’Connor and Resnick, 2008).

Empirical studies (e.g., Bezanilla et al, 2019; Bellaera et al, 2021) provide evidence that teachers are most frequently using oral and written methodologies to teach critical thinking. This includes oral and written reflection, argumentation, analysis and synthesis of resources, in class discussions, questions and answers, feedback and student presentations. Active learning strategies are also recognised as being effective for teaching critical thinking (Doody and Condon, 2012). Problem and project-based learning, case studies, collaborative and cooperative learning and real-world learning are examples of techniques which have been used (Bezanilla et al, 2019). However, while there is evidence of these techniques being used individually, to be effective there needs to be a consistent approach to their design and implementation across a programme of study (Bellaera et al, 2021). As discussed above, this could be sustained by a learner-centred teaching approach across the curriculum which all educators buy into (Schendel et al, 2020). Merely introducing new techniques is insufficient to drive a change in practice (Schendel et al, 2020). Educators could therefore be provided with opportunities to critically reflect on their use of these new ideas (Schendel et al, 2020). This provides further evidence for the purpose of this study.

The literature about resources and frameworks for teaching critical thinking are now discussed.
Toolkits and Teaching Frameworks

Toolkits can act as a catalyst to initiate curriculum change and stimulate professional learning conversations about how to enhance student learning (Margolin and Hayden, 2015). A number of authors (e.g., Mercer, Warwick and Ahmed, 2017) highlight the importance of teacher collaboration in developing tasks within a toolkit and the positive impact this has on educator’s learning. Using toolkits can build educators confidence and competence in their professional practice, encourage self-regulation and stimulate professional growth resulting in student learning gains (Terrazas-Arellanes et al, 2016). Toolkits can provide an opportunity for educators to learn by doing and provide insights into their learning processes, stimulate critical reflection and improve their professionalism (Haya et al, 2015).

The power of a network of academic relationships and the trust built when developing and sharing instructional resources as part of toolkit design, can help educators to enhance their academic practice (Cruz-Cruz, Curbelo and Frey, 2010). Toolkits therefore could be an enabler for learning, not just a set of resources (Dyckhoff et al, 2012). They could play an important role in producing a common language to assist educators to become experts in what they are teaching (Thomas et al, 2015). This resonates with the aims of the Critical Thinking Skills Toolkit which educators in this study have already used to support their practice (Wason, 2016).

However, when using toolkits, it is crucial that educators recognise students’ prior learning, their assumptions, values and beliefs about their learning and how they have constructed knowledge (Leopold and Vickerman, 2010). Toolkits could be used as a catalyst to challenge both educators and students to think outside their comfort zone and provide a safe and encouraging environment for them to do so. Collectively, this suggests that toolkits could foster educators’ understanding of the importance of critical thinking and provide a useful addition to a professional development programme and resources (Bezanilla et al, 2019).

On the other hand, there is the counter argument that toolkits could sit on educators’ shelves and never be used. This has been my experience in practice. It could be argued that toolkits appeal most to those who design or fund them. They may be useful only to these authors rather than the educators. It is therefore not enough to expect educators to
use toolkits and new teaching methods in order to bring about change (Schendel et al, 2020). Furthermore, caution is urged when drawing conclusions from evidence-based toolkits as they can result in oversimplifying solutions to teaching challenges (Wrigley, 2018). The importance of context and the crucial role of teachers’ interactions with students when using toolkits to enhance their learning has also been identified (Wrigley, 2018). Consequently, it is important to contextualise the teaching of critical thinking and provide educators with professional development and resources to help them to do so (Moon, 2008).

This review now concludes with evidence from the literature about the barriers to learning to teach critical thinking.

2.6 Barriers to learning to teach critical thinking

Embedding Skills in the Curriculum

Studies have examined the challenges faced by institutions when attempting to change the practices of educators in order to embed new skills within the curriculum (Chan et al, 2017). These barriers include a lack of institutional and curriculum support and alignment, educator and student perceptions of generic skills development, ineffective pedagogy and limited professional development provision. Furthermore, more specific studies (e.g., Nicholas and Raider-Roth, 2016; Schendel et al, 2020) identified more particular barriers and challenges with regard to teaching critical thinking. These are now discussed.

Resistance and Fragility

Educators often struggle to conceptualise and teach critical thinking within their disciplines (Shpeizer, 2018). They often define it according to their own perspectives and faculty’s ontological positions (Nicholas and Raider-Roth, 2016). While there is evidence to show that learner-centred, active approaches can facilitate the development of students’ critical
thinking skills, this does rely on the motivation, disposition and willingness of educators to invest time and effort moving from transmitting content to active knowledge facilitation (Tsui, 2002). This, coupled with a lack of confidence, skills and knowledge about how to develop students’ critical thinking abilities, and assumptions that students already have these skills, could provide challenges for adapting teaching practices to embed critical thinking (Nicolas and Raider-Roth, 2016).

The lack of motivation could be explained by academic perceptions that their role is only to teach students their discipline-based knowledge and that through doing so students organically develop critical thinking (Nicholas and Raider-Roth, 2016). In other words, a barrier exists about academics’ perceptions about whether they should teach criticality. The motivational barrier could also be explained by a lack of understanding about the need for pedagogical change and the perceived effort to change practice (Schendel, 2016). Collectively, this could suggest that a shift in educators’ mindsets about how to teach critical thinking within their disciplinary contexts and a preparedness to critically evaluate teaching practices and engage in lifelong learning could support educators to do so (Barnett, 2012). In addition, professional development and resources to help educators to embed critical thinking in their practice are needed (Schendel, 2016).

Furthermore, as discussed in Section 1.2, critical thinking teaching challenges are compounded by a marketized HE landscape where students often want to learn strategically in order to pass exams and who may find self-regulation of their own learning challenging (King and Bunce, 2020). This could be influenced by their secondary school environments which prioritise learning information for assessment purposes and devote less time to independent learning and reflection (Pokorny and Pokorny, 2005). This is supported by Nicholas and Raider-Roth (2016) who noted that students seem to lack confidence in demonstrating their critical thinking abilities. Students are unlikely to have been exposed to formal critical thinking teaching within their school environments yet are faced with the new language and vocabulary of critical thinking within assessment criteria when they enter Higher Education (Ku, 2009). This can result in challenges for students as they enter a new learning environment where they are expected to form their own views about the knowledge they are acquiring, a concept which can often seem alien (Askham, 2008). Furthermore, as discussed in Section 1.5, there are cultural dimensions which could impact on learners’ perceptions of criticality and how it should be taught (Davies and Barnett, 2015). However, few studies (e.g., Bali, 2015; Manalo et al, 2015) illustrate what
these dimensions are. Prior learning experiences, varied confidence levels with using critical thinking and linguistic differences could be factors to consider (Bali, 2015). This provides educators with a challenging context to transform their teaching of critical thinking and to learn how to provide students with the skills needed to achieve.

Critical thinking skills teaching is also challenged by the lack of a common language about what criticality means between educators and students (Danzak, Thompson and Overton, 2016). Educators often have erroneous and unrealistic assumptions about how their students learn and can assume that a deficit model exists (Haggis, 2006). I argue that educators need to critically reflect on these assumptions as well as their practice of supporting students to develop critical thinking skills. However, this needs professional development, resources and a teaching pedagogy for critical thinking (Schendel et al, 2020). It also requires alignment of critical thinking within the curriculum in a cohesive and progressive way (ibid). Finally, a collective teaching culture where educators have the time and space to reflect on and discuss their critical thinking pedagogic practice could also help educators overcome these barriers (ibid).

2.7 Conclusion

The literature review has provided evidence to corroborate that critical thinking is difficult to teach and that educators need support to do so. There appeared to be few studies about how educators were learning to teach critical thinking. The theoretical framework detailed in Section 1.6 could help with understanding how they could do so. While studies (e.g., Gravett, 2004; King, 2004) have investigated the use of transformative learning to support discovering new pedagogical practices, there appears to be little evidence about how this theory had been used to learn to teach criticality.

As discussed in Section 1.5, critical thinking is challenging to teach (Janssen et al, 2019). Therefore, it is suggested that learning to teach critical thinking could represent the ‘troublesome knowledge’ needed for a threshold concept to be identified (Meyer and Land, 2003, p. 2). Furthermore, synergies between transformative learning theory and threshold concepts which could support educators’ learning have also been discovered (Hodge, 2019). Finally, the definition and characteristics of experiential learning provided insights
into how educators could learn through a process where knowledge about teaching criticality is created through the transformation of this experience (Kolb, 2014, p.49).

In conclusion, the research questions below have not changed. This is because the literature review has shown that answers to these questions are not yet known.

- How can educators in HE learn to teach critical thinking?
- What are the enablers to support learning to teach critical thinking?
- What are the barriers which hinder learning to teach critical thinking?
- What continuous professional development and resources do educators need to support them to learn to teach critical thinking?

The literature review and the research questions have informed the choice of methodology and study design which is now discussed in Chapter Three.
Chapter Three: Methodology

3.1 Introduction

Chapter Three explains how this study has been designed and conducted in order to answer the research questions confirmed in Chapter Two. It explains the choice of analytical framework used to identify the findings discussed in Chapter Four. This chapter contributes to the main thesis argument that critical thinking is difficult to teach and that educators need support to do so by providing a research design to enable the research questions to be answered.

3.2 Ontology and Epistemology

Building on Section 1.2, it is important to acknowledge at the start of this chapter how my own professional background, identity and perspective about how knowledge is constructed has influenced the research design and the interpretation of the findings (Court and Abbas, 2013). My professional experiences as both a lecturer and a teacher educator exposed me to a range of learning contexts, which had similarities and differences. While supporting educators with their practice, I embraced the principles of social constructivism to design sharing practice sessions, communities of practice and action learning sets. My natural worldview about how educators construct their own meaning relative to their authentic working contexts has influenced this study’s design.

The nature of my research problem is multi-faceted, as participants may see their teaching realities in different ways. The following ‘purpose statement’ (Creswell, 2013, p.134) provides a road map for this research:

The purpose of this study is to describe how a small and diverse group of educators are making sense of their experiences of learning to teach critical thinking within healthcare, academic support, business and science disciplines at University A and what support they need. The central phenomenon to be explored is the meaning of learning to teach critical thinking within a range of teaching contexts.
As discussed in Chapter Two, there are many views about the nature of critical thinking (Abrami et al., 2015). Educators experience their own reality and construct their own meaning about it relative to their experiences, disciplinary contexts, learning environments and students (Danczak, Thompson and Overton, 2017). The specifist view of teaching critical thinking argues that its development best occurs within the disciplinary context (Moore, 2011). Critical thinking practices are situated in the socio-cultural context in which staff find themselves (Vygotsky, 1978), which could be influenced by staff skills, dispositions and knowledge about how to think critically themselves. This practice resonated with my own experience, and led me to use a relativist ontology to investigate how educators actively constructed meaning about teaching critical thinking within the multiple realities of their disciplinary contexts (Illeris, 2016). A relativist ontology helped me understand the situational complexity of different teaching contexts and the working experiences of colleagues relative to each other.

I have chosen a qualitative paradigm to give me the flexibility to gain an in-depth understanding of these perspectives (Braun and Clarke, 2022). For clarity, I use the term qualitative research to cover the set of data collection techniques as well as how I have applied them within a qualitative paradigm (ibid). I have used a critical rather than experiential orientation to collect and analyse the data (Braun and Clarke, 2020). This fits with my relativist ontology.

I actively interrogated and applied my own interpretation of how participants constructed the meaning behind their critical thinking teaching practice. Furthermore, this approach enabled me to be reflexive in how I analysed the data which is discussed in Section 3.3. I have developed a model to illustrate the layered process of this investigation which links to the research questions detailed in Section 1.7. This is visualised in Figure Four below.
Creating meaning about learning to teach critical thinking from actual experiences

RQ1 – How can educators in HE learn to teach critical thinking?

Making sense of the enablers and barriers for learning to teach critical thinking

RQ2 – What are the enablers to support learning to teach critical thinking?
RQ3 – What are the barriers which hinder learning to teach critical thinking?

Identifying what professional development and learning and teaching resources are needed based on these experiences

RQ4 - What continuous professional development and resources do educators need to support them to learn to teach critical thinking?

Figure Seven: Context for methodology decisions

The central layer denotes how participants created meaning about their experiences of learning to teach criticality (links to RQ1). The second layer represents what barriers and enablers they identified (links to RQ2 and 3). The final layer represents the professional development and resources they need (links to RQ4). This sense-making, active approach connects with the conceptual framework detailed in Section 1.6. This connection is important so that a contribution is made to existing evidence about the theory and professional practice of learning to teach criticality. This contribution is explored in Chapter Six. For clarity, this study did not focus specifically on researching the critical
thinking phenomenon or evaluating teaching interventions but how educators are making sense of their own situated learning and teaching experiences.

Due to the multi-faceted nature of my research questions, I have drawn on elements of the social constructivist and pragmatic epistemologies to frame my research design (Pring, 2015). To reiterate, the reality I am investigating is socially constructed. Educators actively create meaning about teaching critical thinking within the multiple realities of their disciplinary contexts (Illeris, 2016). I have interpreted and made sense of the multiple accounts of participants’ working experiences relative to each other in order to create answers to the research questions (Hesse-Biber, 2010).

However, as discussed at the start of this chapter, this research goes beyond the ‘what’ and ‘how’ of critical thinking teaching experiences. This study is also about the practice-based problem of how to support staff to adapt their teaching practices to teach criticality. Thus, elements of pragmatism, which place the research questions at the centre of this study, have also been drawn upon (Mackenzie and Knipe, 2006). The interplay between these epistemologies provided the freedom to explore participants’ construction and interpretation of the nature of their experiences and how this learning could be enhanced with resources and continuous professional development.

Finally, I revert to my key argument in Chapters One and Two. The theoretical framework underpinning this research is influenced by transformative learning theory, experiential learning and threshold concepts. This study has examined how these theories could support educators to make meaning of their critical thinking teaching practices. I refer again to the discussion in Section 1.6, where I explained that rather than claiming to develop its own theory, this study has investigated how transformative learning, experiential learning and threshold concepts may have influenced educators learning.

### 3.3 Positionality and reflexivity

Critical reflexivity is central to the accountability of a qualitative study and helped me to mediate my position and generate authentic findings (Savvides, et. al., 2014). I explained in Chapter One that my research journal enabled me to document my research decisions, particularly in light of the COVID-19 pandemic, and to reflect on my position within the
research process. It also helped me interpret and evaluate the data. Due to my relativist ontology and social constructivist and pragmatic epistemology, I decided to use a critical qualitative approach and reflexive thematic analysis to evaluate the information (Braun and Clarke, 2022). I saw myself as an active participant in the process of data collection and used the journal to interpret and create my own meaning about what I had collected (Guba and Lincoln, 1994).

As discussed in Section 3.2, this research involved looking at participants’ working experiences of learning to teach critical thinking. The choice of research design meant that participants needed to deeply reflect on their teaching practices, values and beliefs. My role as teacher educator and the fact that I had invested time trying to develop critical thinking resources for colleagues, helped me to demonstrate my own understanding of the complexity of the phenomenon. I recognised that I could not divorce my own reality and beliefs from the research process (Heidegger, 1967). Instead, I used my positionality to build trust and a transparent method of recruitment and a safe space to conduct the study. I spent time on a one-to-one basis talking through the research with each participant rather than just relying on them reading the standard ethical documents. I provided reassurance for participants about the study’s non-judgemental approach. I explained the benefit to their own practice and how their experiences could add to existing knowledge about the ambiguous phenomenon of learning to teach critical thinking. This was further helped by my previous faculty teaching position as discussed in Section 1.6. These roles enabled me to enter participants’ disciplinary worlds and take on the role of a facilitator, coach and sounding board for their ideas (le Gallais, 2008).

However, I had to consider the potential tension between this and my role as a doctoral researcher (le Gallais, 2008). During the research process I moved along Hellawell’s ‘insider-outsider continuum’ (2006 p. 488) from an insider researcher with close involvement with the research participants, to being both an insider and outsider where I was researching from the perspective of my teacher educator role. The fluidity of my research stance helped me embrace the richness of insights it offered (le Gallais, 2008, p. 153). It helped me explore my participants’ experiences as a researcher as well as considering the implications for my professional identity as an educational developer.
To establish collaboration and trust, I co-constructed pseudonyms and biographical details for each participant to use with the verbatim quotes which are detailed in Section 4.2. Linking to my ontological position of relativism, I felt that it was important to recognise that each participant’s story might be different due to contexts and personal teaching experiences (Hesse-Bieber, 2017). The positive working relationships I had developed as part of my teacher educator role enabled relatively straightforward recruitment and participation because people had a sense of who I was. However, I recognised the potential concerns participants might have about power and status differentials afforded by my role, and the impact of this on how I might represent the data (Savvides, et. al., 2014). To counter this, findings were shared with participants on an ongoing basis to ensure transparency in data representation and so that they could make use of their own data in their ongoing practice. I was keen that participation in this study would provide support and guidance for educators to reaffirm and improve their practice, feel supported and valued, and contribute to participants’ own personal development.

I continuously scrutinised and documented my reflections on my positionality, how this impacted on recording and analysing the data, as well as the credibility, confirmability and dependability of the findings (Connelly, 2016). This process challenged me to ensure that I was not making the findings fit any preconceived notions which I might have due to my positionality in the study. During the analysis stage, I sent regular drafts to my supervisors and external critical friends who acted as verifiers and sense checked the validity of my interpretations. This is discussed further in Section 3.12 and helped mediate my research by recognising my own experiences as a teacher educator and to ensure assumptions did not overly-influence the contents of the participants’ accounts (Creswell, 2013).

### 3.4 Methodology

This study used a qualitative methodology because of the dynamic research context (Nicolaides, 2015). In addition, social constructivist paradigms tend to use a qualitative inquiry design (Silverman, 2011), whereas pragmatic paradigms utilise the most appropriate methodologies to fit the research questions (Mackenzie and Knipe, 2006). Furthermore, this methodology fitted within the conceptual framework detailed in Section 1.6, the type of data I wanted to collect and the range of methods of inquiry. As discussed
in Section 2.2, it also reflected the types of methodologies used in previous empirical studies in the field of education and critical thinking (e.g., Clifton, 2012).

‘Qualitative design is rife with ambiguity’ (Patton, 2002, p. 242). I critically evaluated the five different qualitative inquiry designs: narrative, phenomenology, grounded theory, ethnography and case study (Creswell, 2013) against the essence of this study as detailed in Sections 3.1 and 3.2, and the checklist of questions in Table Three (Denscombe, 2017). I also considered whether elements of action research which relates to the pragmatic research paradigm and transformative learning was a relevant methodological approach. This evaluation can be found in Table Three below.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes/No</th>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Am I looking to establish the workings and or cultures of a group of</td>
<td>No</td>
<td>Not ethnography</td>
</tr>
<tr>
<td>staff, over a substantial period of time in the field?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Am I looking to generate concepts and theories from the data collected?</td>
<td>No</td>
<td>Not grounded theory</td>
</tr>
<tr>
<td>Does the research involve a small number of cases using multiple methods</td>
<td>Yes</td>
<td>Case study</td>
</tr>
<tr>
<td>for data collection and analysis?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Am I looking to research lived experiences?</td>
<td>Yes</td>
<td>Phenomenology or narrative research or case study</td>
</tr>
<tr>
<td>Am I looking for detailed stories from a small number of participants?</td>
<td>No</td>
<td>Not narrative research</td>
</tr>
<tr>
<td>Am I looking broadly across a range of perspectives of the phenomenon</td>
<td>Yes</td>
<td>Phenomenology or case study</td>
</tr>
<tr>
<td>of learning to teach critical thinking?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Am I looking to test the effect of a specific intervention?</td>
<td>No</td>
<td>Not action research</td>
</tr>
<tr>
<td>Am I trying to establish as a result of staff making meaning from these</td>
<td>Yes</td>
<td>Action research or case study</td>
</tr>
<tr>
<td>experiences, what changes they might make to their practices and what</td>
<td></td>
<td></td>
</tr>
<tr>
<td>support they will need?</td>
<td></td>
<td></td>
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</tbody>
</table>

Table Three: My decision making in relation to research design
The two main contenders from this analysis were phenomenology and a case study approach. I was investigating participants' varied interactions with learning to teach critical thinking, rather than the critical thinking phenomenon itself. Therefore, I concluded that a qualitative case study approach, which provides the flexibility of using multiple methods of data collection would best serve the purpose of this study and the type of research questions it sought to answer (Hyett, Kenny and Dickson-Swift, 2014). Furthermore, there are studies (e.g., Clifton 2012; Schendel 2016; Schendel, et al., 2020) which use a case study approach to investigate how critical thinking can be taught. I refer to Section 3.11 where I expand on this choice when I discuss my choice of analytical framework. I now turn to explain how this educational case study was designed and discuss some of the challenges of using this approach.

### 3.5 Research Design

There are contestations in the literature about the purpose and limitations of case study research (Hyett, Kenny and Dickson-Swift, 2014). To avoid criticisms about the validity of this approach as used in this research study, it is important to be clear about the terms used to describe the case and the design framework (Hyett, Kenny and Dickson-Swift, 2014). This is an educational case study as pioneered by Stenhouse (1985). The model adopted is the collective case study because it focuses on a single case with a range of different contexts within it (Hamilton and Corbett-Whittier, 2013). I wished to capture the complex issue of educators learning to teach critical thinking at the research site (Stake, 1995). It has involved an in-depth investigation of this specific, complex and unique teaching problem which was investigated from multiple perspectives situated within their teaching contexts (Simons, 2009). The context of the case, the rationale for choosing the research site as a single case and my relationship with it is described in Section 1.2. Furthermore, my role and positionality is described in Section 3.3 (Merriam, 2009).

The boundaries of the case study now follow (Creswell and Creswell, 2018). The setting was a post-92 university in the south of England. Individual educators were selected from different disciplinary teaching contexts and with a range of previous critical thinking teaching experiences. Different teaching locations, types of teaching episodes (lecture, laboratory, seminar, online or face to face) and timings of delivery were selected to collect
the data. It is important to mention that much of the data collection was significantly disrupted by the COVID-19 pandemic. The implications of this on data generation are discussed in Section 3.7. A multiple methods approach was used in order to investigate participants’ espoused, intended and enacted behaviours and to see how educators were interacting with their learning (Aubrey-Smith, 2021). Full details of the multiple methods of data collection are provided in Section 3.7.

### 3.6 Sampling

In keeping with the case study approach, I ensured that my sample was fit for the purpose of the topic of study. My sampling frame included 200 staff at the research site with varying experiences of teaching criticality in a range of different disciplinary contexts (Cohen, Manion and Morrison, 2018). They may also have used the Critical Thinking Skills Toolkit (Wason, 2016) and participated in a critical thinking community of practice called CritTALK (Wenger, 2000). This ranged from staff who were beginning to experiment with teaching criticality, to those who had more experience, and were willing to be interviewed and rigorously reflect on their own practice. It was important to achieve a degree of comparability and representativeness and to get as wide a view as possible about the multiple realities of my research problem.

I used non-probability, purposive and convenience sampling (Teddlie and Yu, 2007). Participants were chosen based on the following criteria: experience of critical thinking teaching in different disciplinary contexts; availability and willingness to take part in the study; opportunity to experiment with higher order skills teaching during the time period of this study; my professional judgement about who could provide rich data about their experiences and which related to my research questions; willingness to share experiences.

The final sample consisted of fourteen educators from the following disciplines: four business teachers; two science teachers; six health and social care teachers and two information specialists. Their full biographical details can be found in Appendix Two and a short summary is provided in Section 4.2 before the findings are discussed.
3.7 Ethics

The ethics approval documentation can be found in Appendix Four. However, I view the whole thesis in ethical terms, not just as a form to be completed at the start of the research process. As discussed in Section 1.2, I believe that critical thinking is what HE is in part for. Elements of the CERD Ethical Framework (Stutchbury and Fox, 2009) have guided the ethical framework for this study. For example, ecological thinking made me aware of my responsibility to a range of stakeholders, including the OU research committee, the gatekeepers of my study, data protection officers and the participants. I ensured that they were given accurate, relevant and timely information to enable them to make decisions about their participation. I took into consideration the context of my research site and showed empathy to the norms and ways of working of the different participants. I sought access approval from the leadership team. I sent emails to my sample explaining the purpose of the study. I provided copies of the information sheets and consent forms in advance so that participants had time to familiarise themselves with the study before they agreed to participate. I ensured adherence to relevant codes of practice and the requirements of the 2018 Data Protection Act and BERA research guidelines. When writing up my study, I used the evidence responsibly and to back up my analysis and conclusions.

With regards to deontological thinking, I ensured that the purposes of the research were clear, that there was no harm posed to my respondents and the way the data were used was transparent. Written informed consent was obtained and reiterated at the start of every data collection method, along with an explanation of the purpose of the study and how the data would be used. Participants were provided with Open University (OU) contact details for my supervisor and myself, and were encouraged to contact me should there be any queries. Anonymity of data was ensured with the provision of unique reference numbers and pseudonyms which were stored separately from the data transcripts. Staff were provided with the opportunity to read their own verbatim scripts and redact any areas they did not want to have included. Participants were informed within the ethics documentation and verbally at the start of data collection that they could withdraw from the study at any time up to the incorporation of their data into the analysis. The data were stored securely and anonymously on password protected files which were encrypted.
Final transcripts were sent to participants for checking and comments and final findings were shared with them.

### 3.8 Data Collection Methods and Fieldwork

I collected verbal and written data using multiple methods of data collection in keeping with the case study approach: semi-structured concept mapping mediated interviews; peer collaborations which involved completing a lesson plan, conducting a peer-to-peer observation, completing a peer observation form and participating in a professional learning conversation; focus groups to triangulate the data and provide credibility to the findings (Creswell, 2013). These methods were grounded in critically reflective practice so that participants could make meaning of these experiences, rather than feeling that research is being imposed on them (Wlodarsky, 2020). I also had experience of using peer observations and professional learning conversations in my practice which I found generated rich insights and learnings which could be transferred to this research context.

In keeping with the cumulative and collective nature of this case study approach, I started with semi-structured interviews to enable participants to reflect more generally on their critical thinking teaching experiences (Hamilton and Corbett-Whittier, 2013). Then, peer observations and professional learning conversations enabled participants to critically examine a specific live teaching experience and compare and contrast with their peers. This process provided staff with the opportunity to become more aware of their perceptions and practices and they used the process to make new meaning about how to teach critical thinking (Peel, 2005). I consciously avoided participant reflective journals as a data collection instrument. This is because participants specifically requested not to fill these out due to the lack of time to regularly reflect, particularly in light of the additional workload and pressure caused by the COVID-19 pandemic (Hall and Smith, 2006).

The final sequence of activity was two focus groups where participants were given the opportunity to compare and contrast their teaching experiences and to explore and triangulate the findings, particularly where there was evidence of transformative and experiential learning and use of threshold contexts. Participation provided the potential for worthwhile support and guidance for educators to improve their practice and to feel supported and valued. For example, once the formal part of the interviews had taken
place, and the recording had stopped, participants stated that they welcomed the opportunity to reflect and discuss their practice in a safe space. They felt it helped with their own personal development, reaffirmed their practice and encouraged them to think about what they were doing in a much more positive light.

This choice of depth over breadth of data collection instruments could inhibit the generalisability of the findings. Yet this design is in keeping with my relativist positioning and the fact that the questions explored the multiple contextual realities in which individuals found themselves. In short, the instruments were chosen in order to yield the most appropriate evidence for this case (Simons, 2015). Furthermore, the careful documentation of the context of this study and how it has been conducted could mean that this research could be applied to similar settings (Simons, 2015). See Appendix Four which contains each of these instruments and a data collection timeframe.

Developing the Question Schedule

I designed the questions in each instrument to connect to each overall research question and to integrate with my hybrid conceptual and theoretical framework detailed in Figure Two (Section 1.6). The question schedule can be found in Appendix Seven. I asked each participant a similar set of questions to enable comparisons to be made across the data set but also varied the wording and order depending on their responses (Bernard and Ryan, 2010). A key dilemma within the question design across the full study, was how to incorporate my conceptual framework.

The empirical literature on transformative learning, threshold concepts, and experiential learning informed the theoretical model detailed in Chapter Two and provided a valuable frame of reference to support the design of this study. These links have already been explained in Section 2.3. It also provided a lens through which staff learning experiences could be explored. On reflection, I deliberately chose not to refer explicitly to transformative learning or threshold concepts in the wording of the questions for the following reasons: educators may not be aware of the meaning or purpose of these concepts; I did not want to lead them towards stating that their experiences were transformative. Instead, I chose to use the questioning process to empower educators to
naturally discuss their experiences and to see what arose from the conversation. This approach meant that I could go back to the data during the analysis stage to see to what extent their experiences were transformative. Appendix Eight summarises the link between transformative learning theory, threshold concepts and the relevant questions in each part of the study.

**Stage One - Semi-Structured Interviews**

Feedback on my initial study highlighted that my interviews needed to engage participants in a more productive and convincing way and yield more significant data. While I still felt that semi-structured interviews suited the objectives of this study, on reflection I agreed that I had imposed too rigid a structure with their use which prevented participants engaging easily in dialogue. I also felt that it would be more productive to engage participants in the process of coding and analysis during the fieldwork so that critical discussion of themes could take place (Loubere, 2017). I therefore used concept mapping to enhance the interview process to enable the co-construction of knowledge about staff’s lived experiences of teaching criticality, with transcripts from the interview supporting the data collected (Heron, Kinchin and Medland, 2018).

Questions in the semi-structured interviews were designed holistically to enable participants to reflect back on their experiences. My conceptual framework was implicit in their design as demonstrated in Appendix Eight. Each interview was based on participants’ own teaching context. This meant that the flow, order and specific language used varied. The interview guide provided an anchor to direct the flow of the conversation.

I refer to my relativist ontology and the fact that staff made sense of their teaching within the socio-cultural context in which they found themselves (Vygotsky, 1978). My starting point was a focus question (Heron, Kinchin and Medland, 2018) about how staff have experienced critical thinking teaching within their disciplinary contexts. This helped me start the interview and to build trust (Bernard and Ryan, 2010). The discussion developed flexibly using the interview guide as a broad structure. I used words such as ‘describe’, ‘tell me more’ to elicit staff’s experiences of the phenomenon of learning to teach critical thinking.

I used ‘long question probes’ (Bernard and Ryan, 2010, p. 32) in order to help participants articulate their thoughts and experiences retrospectively in a way they may not have done before. This provided staff with the space and time to make meaning about their
experiences (Hoggan, 2016). From this, the challenges and enablers experienced in learning to adapt their practices to teach critical thinking were explored. I used ‘what’, ‘how’ and ‘why’ questions to encourage staff to reflect on how they could use these experiences to answer my final research question, ‘What professional development do you need?’ I listened carefully to the interviewees and allowed silences to take place and avoided making assumptions about the reasons. I also looked for any other non-verbal clues (e.g., hesitation).

I took a conversational approach to my interviews, employing active listening and ensured that the participants had opportunity to co-create the answers to the questions (Hesse-Biber, 2017). I adapted the order and ways of asking the questions in my discussion guide in response to the lived experiences of my participants, recognising the relativity of their responses to context. Findings have been shared with staff to further this development. I was careful to avoid leading questions, ensuring that I started with general questions to make participants feel comfortable. I also took time to explain key terms and ensure my questions were understood as well as allowing candidates time to speak without jumping in to provide answers.

Using ‘post-it’ notes, I distilled the answers to a main point and placed the notes on an A3 piece of paper, probing and encouraging the respondent to review and rearrange as the interview progressed. I also used review questions based on the research questions to finalise the map and sense check the key themes. However, while I was able to use ‘post-it’ notes to distill the answers and visualize these on an A3 sheet, it proved challenging to co-construct these with the participants and to sense check the concept maps at the same time as facilitating the interview, especially when the interviews moved online. Instead, I developed the map after each interview and provided it to each participant with their interview transcript so that they could provide feedback at this point. The concept maps have also provided a valuable tool for further probing to obtain deeper information, both during and as a follow-up to the interview when the map and transcript were sent (Kinchin, Streatfied and Hay, 2010).

Each interview lasted between one and one and half hours. Busy timetables often proved to be a barrier, as well as participants having the space to plan their critical thinking sessions within the range of content that they needed to cover. Time was a challenge throughout this study. I had to delicately manage this in order to maintain momentum and motivation and to avoid participants dropping out. Interviews were conducted informally
and confidentially in a meeting room at the research site and were audio-recorded and transcribed verbatim to support the concept map generated.

I took a conversational approach to my interviews, employing active listening and ensuring that the participants had the opportunity to answer the questions (Hesse-Biber, 2017). I invited the interviewees to structure the order and ways of asking the questions in my discussion guide in response to their lived experiences, recognising the relativity of their responses to the context. Interviews were originally planned to take place between January 2020 and April 2020 to fit with staff teaching and placement schedules. Six interviews took place face to face at the participants’ place of work. A further six took place virtually using the Big Blue Button and Microsoft 365 Teams Meetings due to the impact of the COVID-19 pandemic. The rationale and choice for this will be discussed in Section 3.10 below.

Stage Two - Peer Observation and Professional Learning Conversations

I chose peer observations as one of the data collection instruments for a number of reasons. First, as discussed in Section 3.2, they aligned with my social constructivist view about how knowledge is constructed by educators relative to their authentic working contexts. Furthermore, they are a useful tool to enable staff to critically reflect and learn from their practice (Peel, 2005). Second, feedback from my initial study indicated that educators wanted the opportunity to learn about critical thinking teaching from their peers. Furthermore, I felt it could enable the development of educators’ social capital and decisional capital (see Section 1.3) by learning through classroom practice supported by teaching colleagues (Fullan, 2016). Finally, peer observations followed by professional learning conversations could enable participants to model the teaching of critical thinking. Through sharing their experiences they could enhance their learning and provide additional data to answer the research questions (Schuck, Aubusson and Buchanan, 2008). These observations were conducted by educators who were in the research sample and they peer-observed staff from other disciplines.

The process of peer observations provided participants with a specific experience of the teaching phenomenon. It helped them understand and interpret their teaching behaviours and to evaluate whether this experience was transformative (Peel, 2005). Participants used a range of oral and written data collection tools, which enabled them to
systematically generate their own data (Walsh and Mann, 2015). These included a lesson plan, a peer collaboration observation form and a professional learning conversation (see Appendix Four and Five for exemplars of these). This dialogic and data led approach helped participants to focus on interpreting their own teaching experiences and enhancing their understanding through collaborative dialogue with peers (Walsh and Mann, 2015).

However, there were a number of challenges to implementing peer collaborations. I had no experience of administering these as a data collection tool for a research study. However, I had used them to support educators with their teaching practice. Consequently, I sought guidance from my professional experience and the empirical literature. This helped to frame this part of the study and design the questions. I was acutely aware of some of the negative connotations around the language of ‘teaching observations’ at my research site where they were often perceived as evaluative rather than developmental (O’Leary, 2013). I was keen to frame this part of the research as a learning process, which could influence participants’ professional development, not as surveillance of their teaching performance driven by a need to improve it (O’Leary, 2013). Lastly, and most importantly, it was a useful tool to answer the main research question.

Consequently, I followed a peer review model and avoided the word ‘teaching’ in the title, in order to provide a supportive and empowering learning experience for educators (Gosling, 2002). This proved to be even more important when, as a result of three lockdowns in March 2020, November 2020 and December 2020 to April 2021 as part of the COVID-19 pandemic, the peer observations moved to blended teaching environments. This move was discussed with participants during the semi-structured interviews. They all stated that, while slightly daunted, they welcomed the prospect of synchronous peer observations. They believed that this process would provide them with some support to help with their move to online teaching, as well as specifically how to teach criticality. This feedback helped me frame and position this part of the study and alleviated some of my own concerns about it.

Synchronous teaching at the research site took place via a ‘plug in’ conference platform called the Big Blue Button or by using Microsoft Teams meetings. While participants had undertaken training on these new platforms, I was aware that they might feel like novices again and was keen to build their confidence and security in this part of the research process (Bennett and Marsh, 2002). Consequently, I set up a face to face and latterly online briefing where I ran through the ethics documentation again and answered any
specific questions (see Appendices Three to Six for ethics documentation). This was supported by recorded screencasts for each of the research instruments which explained their purpose, the procedures of data collection and how it fitted within the overall framework of the study (Jones and Gallen, 2016).

I drew again on the ‘discovery-led’, collective nature of this case study design, emphasising the quest for understanding and the importance of discussing authentic experiences (Denscombe, 2017). It was important for staff not to view the observation as something that had to be ‘passed’ which could affect the veracity of the data (Walsh and Mann, 2015). Instead, the observations were positioned as a catalyst for dialogue about critical thinking teaching practices. To fit with the empowering context within which the methods were chosen, participants were also given a choice over their peer collaborator, the timing of the peer observation, and the focus of the observation (McMahon, Barnett and O’Neill, 2007). Participants valued interdisciplinary peer to peer learning to help them appreciate different perspectives about how to teach critical thinking (Wason, 2019). With the exception of two information specialists, all participants elected to work with colleagues from different faculties. For operational ease, and at the request of the participants, each staff member chose to observe the person who had observed them. This meant that each professional learning conversation involved feedback and a facilitated discussion about two observations. All research participants agreed that this seemed more equitable and practical since the COVID-19 pandemic had significantly impacted on teaching schedules.

Prior to the first lockdown in March 2020, two peer collaborations took place followed by one face to face and one online professional learning conversation on the Big Blue Button platform. Data collection using this method then ceased during the period March to September 2020. Six peer development observations and six professional learning conversations took place online between September and December 2020.

Participants were briefed on the lesson plan pro-forma for this observation (see Appendix Five for an exemplar). This proforma template had prompt headings and questions for participants to complete and which would form the basis of their own lesson plan for the session. Participants were asked to consider how this session fitted with their overall learning outcomes; what pre-activity they had planned; what critical thinking skills they wanted to develop, and what activities they would use, which may or may not have involved using The Critical Thinking Skills Toolkit (Wason, 2016). In addition, they had to consider their specific higher order learning outcomes and how they would gauge whether
students had used critical thinking. There was also an individual reflective element built in, which prompted participants to immediately reflect on what happened during the teaching activity; how they felt about the session and why; what was good or bad about the experience; what they would do differently next time, and what support they could need (Gibbs, 1988). It was used because of its clarity and adaptability to the purpose of this study.

Participants shared this with their observer in advance of the session and jointly completed the peer observation form in Appendix Five after the observation. This provided the basis for the facilitated Professional Learning Conversation. The participant who was observing the session had to briefly review the lesson plan sent to them in advance and record their observations on the peer observation form detailed in Appendix Five. The prompts and questions in the peer observation form were adapted from the research site’s standard peer observation form, due to its familiarity with participants and its clarity.

Observers made notes about the specific aspects of their peer’s critical thinking teaching and recorded their observations and questions against the prompts in each section of the form. The prompts provided further depth and linked to each of the study’s overall research questions, asking observers to evaluate the following: the appropriateness of the critical thinking learning outcomes; the planning, structure and delivery of the critical thinking activities and methods; the organisation of the critical thinking resources; how critical thinking skills were articulated to students; how students were encouraged to think critically within the session, and what helped and hindered this development. Observers were also asked to identify specific critical thinking teaching behaviours, examples of good practice which they could use in their own teaching, and what professional development and/or resources would support their critical teaching even further.

The penultimate part of this study was the professional learning conversation. Questions were designed to stimulate dialogic critical reflection and to encourage both participants to explore more deeply their actual teaching experience, what worked well and not so well, what were the barriers and enablers and what they learned from this. For the learning conversations which took place after the COVID-19 lockdowns from March 2020, an additional question was added which asked participants to reflect on their experience of teaching criticality online and how it compared to their face-to-face experiences. By facilitating this joint critical reflection, I was able to encourage participants to socially construct an even deeper understanding of their classroom experiences of the critical
thinking phenomenon and examine more closely whether this had led to a change in their practice.

**Stage Three - Focus Groups**

Focus groups were chosen as the final method of data collection. These provided participants with the opportunity to collectively discuss their experiences. The groups enabled participants to tease out the challenges and enablers, any impact on how they taught, how they had changed their practice and what professional developmental support they needed in the future. Questions were designed to triangulate all of the findings from the data sets detailed above. They were also used to find out whether there were any moments of revelation where staff articulated any *disorientating dilemmas* which could have triggered transformative learning outcomes (Cord and Clements, 2010).

**3.9 Data Storage and Management**

The data are stored securely and anonymously on password protected files which are encrypted. Each participant has a unique identifier which is stored separately from the data transcripts. I transcribed all the data collected personally and verbatim so that I could familiarise myself thoroughly with the evidence. I experimented with voice recognition software (otterai.com) but found that this did not correctly pick up the full range of data. Through listening to the transcripts and carrying out the analysis, I was able to make decisions as to the style and relevance of the questions, and how the data collected could inform my wider study. The data management plan in *Appendix Eight* outlines how the data have been stored and labelled and how the overall database has been prepared for analysis.

**3.10 Validity and reliability**

I spent over a year gathering data from this study and used a range of data sources to provide credibility for my findings (Creswell, 2013). Data have been triangulated and cross referenced across the dataset during the data analysis stage. I involved the participants at every stage of the research process, from checking transcripts to sense-checking the code labels, to reviewing the themes and final conclusions. As discussed in *Section 3.3*, I also
collaborated with critical friends to sense check the coding and themes. I have discussed in Section 3.12 that critical reflexive thematic analysis has been used to analyse and interpret the data (Braun and Clarke, 2022). Therefore, it would be remiss of me not to mention researcher subjectivity and the fact that my own interpretations of the data could be different from those of another researcher in another institution.

However, this case study research and the findings could echo similar challenges and possibilities for researchers in other institutions (Pring, 2015). It could help other researchers develop their thinking and understanding about the practice-based problem of supporting educators to learn to teach critical thinking in their own institutions, and as such be a form of generalisability (Stake, 1995). Researcher subjectivity is seen as critical resource for carrying out analysis (Gough and Madill, 2012). This reflexivity is key to good quality reflexive TA and it is important that researchers in another institution also understand and own the particular perspective they bring to the data (Elliot, Fisher and Rennie, 1999).

Furthermore, in Section 3.11, I have systematically discussed the procedures for analysis and how the findings were abstracted from the data to aid transparency and replicability of the study in other contexts. By carrying out this robust process, I argue that that there is value in generalising the findings to other contexts and that this study could be replicated in another HE research site (Simons, 2015).

3.11 Data Collection During the Pandemic

I had conducted six interviews, two peer observations and one professional learning conversation prior to the first lockdown in the UK in March 2020. My fieldwork was then significantly disrupted. Guidance from HREC stated that research could no longer take place face to face and had to be adapted to take place remotely. I received confirmation that no additional ethical clearance was required for interviewing online. However, this transition involved making decisions about how to access participants who were willing to be interviewed online, and how to obtain consent while being sensitive and aware of the significant impact on their workload and personal circumstances. In addition, I had to consider the timing and medium for these interviews, how to record and store the data, and how to build trust and rapport within an online medium (Jowett, 2020).
I turned to the relational and deontological elements of the CERD framework (Stutchbury and Fox, 2009) to help me operationalise my online fieldwork. I had a duty to ensure that my participants did not feel imposed upon and that the timings and medium of the interviews worked for them. I waited until the end of April 2020 before contacting them again to see if they could still participate in the study, if they were comfortable with an online medium and if so which one. All colleagues agreed to continue to participate in the study overall although Mia and Kai were unable to participate in the interviews. The Big Blue Button Canvas platform, a medium they used for teaching, was used to conduct the interviews. Six more took place online between April and late July 2020, making a total interview set of 12 people.

However, Open University guidance stated that peer to peer observations could not take place face to face, in order to protect the health and safety of all participants. I was then faced with a number of challenges: whether teaching critical thinking could take place in an online context; whether participants would be willing to continue with the study, bearing in mind the steep learning curve involved with this new platform; whether participants would feel comfortable being observed doing a new type of teaching and using a completely new teaching platform.

I explored a range of literature (e.g., Bennet and Barp, 2008) about teaching online and carrying out peer observations online. There appeared to be few studies about teaching criticality online, so I saw this as an opportunity to make a further contribution to knowledge in this area. The Open University’s ethics committee granted an amendment to move my peer observations and professional learning conversations online in July 2020 (see Appendix Three for details). I included an additional question within the professional learning conversation which asked about the difference between teaching critical thinking online and face to face. Participants reported that the lesson plan discussed in Section 3.7 above was useful to plan their critical thinking teaching and other online teaching. This made the transition to participate in an online teaching peer observation more palatable.

Nine peer to peer observations and two focus groups took place between September 2020 and December 2020. Two members of staff had to withdraw from the study due to changes in roles in their departments and being overloaded with work and family pressures. Participants requested that the peer collaborations were scheduled to fit with
their teaching, and to be adaptable to different teaching environments and the needs of students.

Some participants chose to run the session face to face but used technology to enable the observer to observe online. Others used it as an opportunity to try out teaching critical thinking using an online mode of delivery. Some participants used a hybrid model where some students were in the classroom, and some were online. This provided a challenging yet interesting range of contexts to work with and added to the richness of the data generated. The focus groups, also administered online, provided a useful method for participants to compare the reality of their experiences, which fitted the cumulative and collective nature of the case study approach (Hamilton and Corbett-Whittier, 2013).

### 3.12 Analytical Framework

To reiterate, my research is about how educators experience, conceptualise and interact with learning to teach critical thinking. It has specifically investigated the following; what was this experience; how did participants make sense of and interpret it; what barriers and enablers have they faced in doing so; what professional development and resources do they need; how do they behave as a consequence? (Hoggan, 2016). My stance within this study; the relationship between elements of my theoretical framework; my conceptual framework and subsequent research design, underpinned how I analysed the data. I considered how best to answers my research questions; to what extent transformative learning, threshold concepts and experiential learning could help educators to learn and how to be true to the practice-based purpose of my research.

I initially considered Interpretative Phenomenological Analysis (IPA) and Reflexive Thematic Analysis (TA) as possible analytical frameworks (Braun and Clarke, 2022). At the start of this process, I engaged too deeply in the theoretical aspects of analysing the data. I inadvertently focused on the word ‘experience’ which clouded my judgement about my approach. Indeed, I tried out IPA in a few of my interviews. However, I realised that this approach would only be helpful if I was trying to understand the practice of teaching critical thinking itself (Aubrey-Smith, 2021). Instead, I was trying to understand my participants’ learning relationships and behaviours with regards to the teaching of criticality. This study investigated participants’ own espousals about their experiences, as well as their
intentions derived from their learning and how they planned to enact these (Aubrey-Smith, 2021). This is visualised in Figure Four in Section 3.2. The research was therefore centred in a social constructivist/pragmatic epistemology and not a phenomenological one, which would have prioritised the detail and understanding of everyday experience (Braun and Clarke, 2020).

On the other hand, Thematic Analysis can be applied and used across a range of different paradigms and approaches (ibid). I decided to use a critical reflexive approach to Thematic Analysis so that I could value the subjective and situated nature of my participants' accounts, actively interrogate patterns in the data and acknowledge my own reflexivity when interpreting the findings (Byrne, 2021). My role as a researcher in the analytic process is highly valued in reflexive TA, with subjectivity recognised as a strength and not as a source of bias (Nadar, 2019).

Alternative approaches to thematic analysis such as coding reliability (e.g., Boyatzis, 1998) and codebooks (e.g. King and Brooks, 2016), use multiple coders to reach agreement about the codes used. While I did not seek to reach such an agreement, as part of the reflexive process, I was keen to test whether both the codes and themes sufficiently captured the range and depth of meaning within the data set (Terry et al, 2017). Consequently, as discussed in Section 3.3, I collaborated with critical friends within my EdD cohort and my supervisors, to discuss my interpretation of the data and the meaning behind the codes and themes (Braun and Clarke, 2022). Because I was preserving confidentiality, I was unable to share the transcripts, but instead shared the codes and themes (see Appendix Nine and 10). Colleagues checked these against the research questions, for clarity of meaning, for how codes were clustered to produce themes, and for clarity of the final themes (Braun and Clarke, 2022).

Nonetheless, RTA has been criticised for being too basic to enable depth of analysis because it lacks the theoretical underpinnings of its qualitative cousins, for example phenomenology and discourse analysis (Crowe, Inder and Porter, 2015). On the contrary, reflexive thematic analysis provided me with the flexibility to suit the needs of this multi-faceted practice-based study (Braun and Clarke, 2022). It enabled me to primarily use an inductive with elements of a deductive approach in order to try to find answers to the research questions. I developed the codes and themes through the content of the data but also related and compared them to the literature so that I could connect, support and
challenge my data with existing knowledge in order to identify the contribution which this study has made (Bazeley, 2009).

A further criticism is that the process of coding, clustering and developing common themes, while useful to systematically analyse and evaluate across a large data set, could reduce the meaning of these data (Lichtman, 2012). To counter this, I engaged in the process of complete coding within each data item, set and across the full data corpus. I coded anything and everything in the data which was relevant to my research questions and fully engaged with the data to develop the themes (Braun and Clarke, 2022). This process is now discussed.

**Process of data engagement, coding and theme development**

*Figure Eight* summarises the stages of my analysis. This process involved data familiarisation, systematic data coding, generating initial themes, developing and reviewing themes and refining, defining and naming these themes (Braun and Clarke, 2020). The process did not always flow sequentially, and there was flexibility between stages. The structure and method of developing the codes and themes allowed for an auditing of the process and served as a helpful tool for managing the data, ultimately contributing to the credibility of the study (Crabtree and Miller, 1999).

I actively chose to avoid using software to code and categorise the data. I thought this would negate the reflexive and critical approach I had chosen to take. I felt more comfortable to assimilate and reflect on the data using hard copy, highlighters, notes and my reflective journal. I used the notes I made after each data collection point to check my thinking. Participants were also involved in both reviewing their transcripts and the codes and themes in keeping with the dialogic approach to data collection. This also linked to the ecological lens I discussed in Section 3.6. It helped me draw effective conclusions from the evidence and provide honest and transparent claims based on the fact that I had conducted the full analytical process myself.
Data familiarisation

I began my analysis during the transcription stage. I transcribed each data item personally to immerse myself in the voices of the participants. This was a daunting and time-consuming process as the interviews and professional learning conversations were often over one hour long, as participants were very keen to have their voices heard. I allocated pseudonyms and biographical details to each participant which are described in Section 4.2.

I started by reading through all of the transcripts and analysed the evolving nature of these experiences during each data collection period. I made initial notes and memos about each data item as I was transcribing it (see exemplar in Appendix 13). This proved invaluable when I was interpreting the data (Bryne, 2021). I set up the database and labelled each data set ‘Data set ready for analysis’. All participants had checked and approved their transcripts to ensure validity of the final database. I then re-sorted each
transcript’s responses under each main research question to make the process of analysis easier. I separated out each data set as follows so that analysis could begin with each individual set and then across the corpus of data so that findings could be combined and triangulated:

1. Semi-structured interviews (12 data items) (**Data Set A**)
2. Professional Learning Conversations (Nine data items) (**Data Set B**)
3. Lesson Plans (10 data items) (**Data Set C**)
4. Peer Observation Sheets (10 data items) (**Data Set D**)
5. Focus Groups (Two data items) (**Data Set E**)

I was then ready to systematically code the data.

**Systematic Data Coding**

I coded each item in the data set inductively for everything of relevance to answering the research questions (Byrne, 2021). I worked across the corpus of data and coded for as many different patterns as possible. I was very careful not to discount anything at this early stage so that I could capture any contradictions or surprises in the data (Braun and Clarke, 2022). Linking to my ontological position of relativism, I felt that it was important to recognise that each participant’s story might be different because of teaching contexts and personal teaching experiences (Hesse-Bieber, 2017). This resulted in 70 codes (see **Appendix Nine**).

As discussed in **Section 3.3**, my own researcher subjectivity was guiding this process of interpretation and meaning making. I recognised that I was bringing my own professional perspective as well as my knowledge about my hybrid theoretical framework discussed in **Section 1.6**. I began to notice some connections with transformative learning theory, threshold concepts and experiential learning in the data and some of the codes reflected these concepts. As already discussed in this section, I recognised that this reflected more deductive TA and that while I was leading with an inductive approach there was also an element of deductive coding (Braun and Clarke, 2012).
Codes were a mixture of semantic, which captured explicit meaning, and latent codes where I reflected on the implicit and hidden meaning which often related to the conceptual and theoretical framework detailed in Section 1.6 (Braun and Clarke, 2022). I carried out the coding process twice, reversing the order, in order to ensure accuracy and to make certain that I fully reviewed all of the data sets. For the first coding iteration, I began with the interviews. For the second pass, I began with the focus groups. I looked for patterns of meaning across the whole data set, colour coded these electronically and labelled the codes with explanations beside each extract so that I could track and signpost my thinking process (Byrne, 2021). I was also looking for similarities and differences in perspectives across the data set. These initial codes described particular features of the data e.g., ‘scaffolding as a teaching enabler’. As discussed in Section 3.6, I used critical friends to sense check the meaning and interpretation of these codes.

I introduced the concept of my research journal in Chapter One of this thesis. Throughout the process I made notes about which literature the codes were referring to, particularly with regards to how participants were learning, how they were making sense of their experiences and why (Braun and Clarke, 2013). An example of the methodological noting can be found in Appendix 13.

I then applied these codes across all of the data twice more to check that all were applicable and generated and refined these new codes as appropriate (Braun and Clarke, 2006). Again, I mixed the order of coding between each of the runs to ensure the coding was even and that I did not miss anything important (Braun and Clarke, 2022). Next, I reviewed, re-sorted and rationalised the initial codes.

Some codes were combined to ensure that the multiple meanings and perspectives present in the data were clustered together. This also ensured that the key meaning and essence of the data were not lost. Some codes were discarded because of lack of frequency across the corpus of data or because they did not contribute to answer the research questions sufficiently. The inclusion criteria were as follows: how often was the code mentioned; was there evidence of the code across the full data set; were there codes which were similar and could be grouped together and renamed; which codes were of most value to answering the research questions? It was important to allow time to elapse between each application stage so that I could reflect on the codes generated and go back again with a fresh perspective. Finally, I applied the codes to each data item in order to
identify the data extracts pertaining to each code. A coded data extract can be found in
Appendix 12.

**Generating initial themes**

This stage involved clustering codes together to form sub-themes based on codes which
had similar underlying meaning and which contributed to answering the research
questions (Byrne, 2021). I searched for initial themes and developed thematic maps of all
the different data patterns and relationships between the codes.

This resulted in eight initial overarching themes as follows: learning through the
experiences of teaching critical thinking; learning through collaboration with peers;
pedagogy and common language; a holistic and connected curriculum; pedagogic frailty
and academic resistance; student experiences and perceptions of critical thinking; pivot to
online learning; authentic professional development and resources. These are
summarised in Appendix 10.

**Developing and reviewing themes**

These eight themes were then reviewed to ensure the following: that each one made a key
contribution to answer the study’s research questions; that there was enough data across
the full set to evidence the theme; there was a clear central organising concept; there was
coherence across the themes and they contributed to the overall narrative behind the data
(Braun and Clarke, 2022).

I decided that having eight themes was too unwieldy and that there were insufficient
differences between some of them. This happened as I was writing up my first draft report
and following feedback from my supervisor and critical friends. I read through the analysis
again and particularly reviewed the central organising concepts for each theme. I
combined ‘pedagogic frailty and academic resistance’; ‘student experiences and
perceptions of critical thinking’; ‘pivot to online learning’ to become one theme called
‘fragility and resistance’. I also combined ‘learning through collaboration with peers’ and ‘a
holistic and connected curriculum’ to become ‘connections and collaborations’. This is
because I realised that some of the data within these themes could be clustered together to provide subthemes.

**Refining, defining and renaming themes**

This process identified five key themes: learning through experience; collaborations and connections; pedagogy and common language; resistance and frailty; and authentic professional development. I chose the names for these themes to reflect the essence of the meaning behind the theme. The final summary of the themes, sub-themes and codes can be found in *Appendix 11*. These have formed the basis of *Chapter Four* (Findings) and *Chapter Five* (Discussion).

**3.13 Chapter Summary**

This chapter outlined the conceptual and theoretical framework within which this study is situated and the methods used to answer the research questions. It explained the choices for the qualitative methodological approach, case study design and multiple methods of data collection. It discussed the sampling strategy within which this case is bounded. Finally, it articulated the ethical considerations, my position within the research process, the impact of the pandemic on the data collection and process of thematic analysis taken to produce themes from the data.

Five themes across the full data set have been identified which are now discussed in *Chapter Four*. 
Chapter Four Findings

4.1 Introduction

Chapter Four describes and interprets the findings for each of the research questions which have been investigated using the methodology discussed in Chapter Three. By identifying five themes and 13 subthemes, as summarised in Table Four, this chapter offers data to support the main thesis argument that critical thinking is difficult to teach and that educators need support to do so. To structure this chapter, each research question is answered in turn with a discussion of the corresponding themes and subthemes as summarised in Appendix 11. Personal reflections about the data are referenced with extracts from my reflective journal, detailed in Appendix 13. These findings present the first step in providing a contribution to knowledge in the field of learning to teach critical thinking which are developed further in Chapter Five and Six.

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<tr>
<td>Learning through experience</td>
<td>1. Critical reflection and experimentation</td>
</tr>
<tr>
<td></td>
<td>2. Developing knowledge and skills</td>
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<td></td>
<td>3. Building confidence and capacity</td>
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<td>4. New perspectives and behaviours</td>
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<tr>
<td>Connections and collaborations</td>
<td>1. Peer to peer learning and professional dialogue</td>
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<td></td>
<td>2. Embedding and alignment</td>
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<tr>
<td>Pedagogy and Common Language</td>
<td>1. A common language of critical thinking</td>
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<td></td>
<td>2. Active and collaborative learning</td>
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<tr>
<td>Fragility and Resistance</td>
<td>1. Tension between content and skills teaching</td>
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<td></td>
<td>2. Academic resistance and fragility</td>
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<td></td>
<td>3. Student resistance and fragility</td>
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<tr>
<td>Authentic Professional Learning</td>
<td>1. Authentic professional development</td>
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<tr>
<td></td>
<td>2. Authentic resources</td>
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</tbody>
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Table Four: Summary of themes and subthemes
4.2 Participants

As discussed in Section 3.2, I had the benefit and privilege of being able to bring my own experience as a teacher educator in designing the study. As well as giving voice to my participants, I have also drawn on my own experience to inform the data analysis. In keeping with the principles of reflexive thematic analysis, I recognise that this process just provides one interpretation of the data (Braun and Clarke, 2022). However, drawing on my own professional archive has enabled me to interpret my participants’ experiences in a way I would not have been able to if I had not brought my own understandings to the analysis. I have allocated pseudonyms for each of my participants. Pen portraits are briefly summarized in Table Five below. A full description can be found in Appendix Two.

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Educational and teaching experience</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alina</td>
<td>Alina has over 15 years’ teaching experience, a disciplinary PhD and encourages students to use their criticality to interrogate scientific concepts.</td>
<td>Science</td>
</tr>
<tr>
<td>Darya</td>
<td>Darya entered HE as a healthcare professional and has 10 years’ teaching experience. She helps students to use criticality to support their clinical decision making.</td>
<td>Health and Social Care</td>
</tr>
<tr>
<td>Hanna</td>
<td>Hanna joined HE via as a healthcare professional and has 15 years’ teaching experience. She supports students to use dialogue and reflection to develop their criticality.</td>
<td>Health and Social Care</td>
</tr>
<tr>
<td>Kai</td>
<td>Kai entered HE as a healthcare professional and has 20 years’ teaching experience. He encourages students to use criticality to make the link between their academic learning and becoming a professional.</td>
<td>Health and Social Care</td>
</tr>
<tr>
<td>Kamal</td>
<td>Kamal has over 20 years’ experience in HE teaching students how to develop their information literacy and to be critical with the use of sources.</td>
<td>Student Support</td>
</tr>
<tr>
<td>Leyla</td>
<td>Leyla has 15 years’ teaching experience, a disciplinary PhD, and particularly encourages criticality within PhD supervision and in the laboratory.</td>
<td>Science</td>
</tr>
<tr>
<td>Name</td>
<td>Background and Experience</td>
<td>Field</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Lily</td>
<td>Lily has 10 years’ teaching experience, a disciplinary PhD, and has previously worked in industry. She teaches critical thinking to support teamwork.</td>
<td>Business</td>
</tr>
<tr>
<td>Mia</td>
<td>Mia joined HE as a healthcare professional and has over 10 years’ teaching experience. She is particularly interested in using coaching techniques to help students develop critical thinking.</td>
<td>Health and Social Care</td>
</tr>
<tr>
<td>Nadya</td>
<td>Nadya has over 15 years’ teaching experience and a disciplinary PhD. She is passionate about her disciplinary research and helps students to use critical thinking to apply content to solve business problems.</td>
<td>Business</td>
</tr>
<tr>
<td>Nina</td>
<td>Nina joined HE as a business professional and has over 15 years’ teaching experience. She uses active learning techniques to teach students to be critical.</td>
<td>Business</td>
</tr>
<tr>
<td>Oti</td>
<td>She entered HE as a healthcare professional, has a disciplinary PhD and over 15 years’ teaching experience. She is interested in encouraging students to develop criticality with their research projects.</td>
<td>Health and Social Care</td>
</tr>
<tr>
<td>Sami</td>
<td>Sami is a practitioner, has a disciplinary PhD and over 20 years’ teaching experience. He believes in the professionality of education and the importance of collaboration to enhance critical thinking teaching practices.</td>
<td>Health and Social Care</td>
</tr>
<tr>
<td>Sarita</td>
<td>Sarita has over 20 years’ experience in HE, teaching students how to develop their information literacy to support their assignments.</td>
<td>Student Support</td>
</tr>
<tr>
<td>Zola</td>
<td>Zola has an educational PhD and over 20 years’ teaching experience. She is particularly interested in helping students to be critical with quantitative information.</td>
<td>Business</td>
</tr>
</tbody>
</table>

Table Five: Participant pen portraits
4.3 How are educators learning to teach critical thinking?

Theme One ‘Learning Through Experience’, reports how participants learned how to teach critical thinking by experiencing it in their own practice. This is explored through the subthemes of ‘critical reflection and experimentation’, ‘developing knowledge and skills’, ‘building confidence and capacity’ and ‘acquiring new perspectives and behaviours’ to teach criticality.

For example, Nadya used her annual teaching reviews to evaluate her students’ critical thinking development. She applied these reflections to introduce activities incrementally to make them less daunting for her students. She said this process helped her feel,

‘more confident to teach critical thinking [and] become more of a critical thinker in terms of how I design the work I give to students. I have got better at building it into the course. I think it’s so powerful and it’s really transformed the way I think and the way I teach, and I never believed that that would happen.’ (INT)

I was struck by the impact of this experience on Nadya’s confidence (RJ5, Appendix 13). This may suggest that in order to teach critical thinking, educators need to think critically themselves about their practice. Further examples from other participants teaching episodes are now explored.

4.3.1 Learning through experience

Critical reflection and experimentation

Darya, Kai and Lily described their ‘light bulb’ moments in their teaching practice when they became more aware of how they taught critical thinking, why it was important and what it meant and looked like. Darya explained that writing and getting feedback on her own Master’s dissertation was the trigger for becoming aware about what critical analysis
meant. This impacted on how she provided feedback to students about how to demonstrate criticality in their own assignments. She said:

‘I know what this thing is now, it’s a tangible thing, and it was that kind of eureka moment where I thought I get it, I get what all this feedback is now and [it makes me] really mindful when I write on students’ work that they might not know what I am taking about.’ (INT)

Kai’s ‘lightbulb’ moment was his dissatisfaction with his assessment and feedback practices which triggered awareness of the importance of teaching critical thinking and that he needed to learn to do so. He recognised that over a number of years he was writing,

‘the same comments about a lack of criticality in assignments for students in year 1, 2 and 3 which prompted me the most to get involved with learning more about critical thinking.’ (INT)

Lily’s ‘lightbulb’ moment arose from a challenging teaching experience where she had taken a risk and experimented with a new critical thinking teaching approach. She embedded a new critical reflection exercise into a summative assessment and mentioned the angry feedback she received from a student.

‘So I mean the student was like we just want to go into the marketplace and do the job and take the grade and I don’t understand this fluffy talk. He said I am sorry but I don’t want to write this.’ (INT)

Lily spent time reflecting on why the student had provided this feedback. She realised that she needed to explain more clearly the link between critical thinking and how it could support students to get a job. She revised the exercise, introduced it as a formative task and allocated more time in class to work collaboratively on it. This increased students’ understanding of the importance of criticality to support their job prospects.
It was noteworthy that these teaching episodes provided insights into how participants were learning from their concrete experiences (RJ5, Appendix 13). They were using critical reflection to generate new perspectives about what critical thinking meant, adapt their teaching methods and try out new methods in their practice. Furthermore, the ‘lightbulb’ moments suggest that critical thinking is a demonstrable concept which should be overtly signposted within teaching. This could help students become aware of what criticality looks like and why it is important to their learning.

**Developing knowledge and skills**

During the early stages of data collection, I noticed that participants were more hesitant about whether they were actually developing the knowledge and skills to teach criticality. In my research journal I noted that that this could be because participants had not yet developed the metacognition about their critical thinking teaching practices. Perhaps they needed to be exposed to more situations where they could try it out and articulate these experiences. Indeed, as the study progressed and participants were involved in the peer-to-peer observations and subsequent professional dialogue, I noted they were able to more concretely identify particular changes in their skills, knowledge and behaviour. I detected that this was particularly evident in the final focus groups when participants collectively reflected on their cumulative teaching experience and explained how they had developed the skills and knowledge to become more explicit with their critical thinking teaching practices (RJ5, Appendix 13).

For example, Zola noted how she had used the toolkit to introduce the concept of criticality to her students and then found specific disciplinary content to which students could apply their critical thinking. Over time, she developed the knowledge and skills to be able to embed the toolkit fully and regularly in her practice so that using it became a habit. She said:

‘Actually if you craft [teaching activities] correctly and embed a little bit each time in a structured manner, and to start with it is obvious and explicit, and then over time it
can become more implicit and inferred by the very nature of the way that you think, but you have got to give that time to develop.’ (PLC)

Oti noted how using the toolkit had provided her with the skills to be able to deliver a session about how to conduct a literature review which was something she previously struggled with. She used a scaffolded approach to introduce how to critique an individual paper. Then she taught students what a theme was and how to create it. The toolkit helped her further her teaching knowledge and behaviours and provided,

‘the support and the help I needed to structure my session. They gave me that relief from stress. I did not have to go and find different frameworks for papers and think and ask students to use all of these frameworks. I knew how to structure my session because I had the toolkit.’ (INT)

It was clear that participants valued frameworks and tools to help them structure critical thinking teaching activities (RJ5, Appendix 13). This resonated with my own experiences as a teacher educator where I found that educators responded best to introducing new pedagogical approaches when they were provided with clear resources to help them.

**Building confidence and capacity**

The collective sharing of their critical thinking teaching experiences also helped participants recognise how they had built their confidence and competence. Many spoke emotionally about how they felt much more at ease with teaching criticality and had built their self-efficacy through experience and practice. All participants now felt capable not only of continuing with this practice but also of changing their teaching behaviours to incorporate critical thinking.

For example, Nina confessed that the more she taught criticality using the toolkit, the more freedom she felt she had when applying it to her practice. Nina used a structured worksheet to teach students how to evaluate case studies. At first, she felt constrained and
rigidly followed the questions on the worksheet. However, the more she used it, the more confident she felt to tailor it to her own teaching needs. She found this approach liberating and felt that students were more interested in the case study. She said:

‘Now I am focusing on what I want to teach and I use the tool when it suits me and how it suits me, even if I skip some bits or don’t answer some bits. Now that I use the worksheet it is freeing me from the questions of the case too because I want to tell a story.’ (PLC)

Participants noted that they saw themselves as teachers of disciplinary knowledge as well as educators of critical thinking. Alina reflected on how critical thinking was not her area of expertise but that through trying to deliver criticality within her content area, she now continually expanded her ways of teaching to stretch students’ criticality. She felt:

‘more confident than I was to step out of my comfort zone in terms of what I have been brought up to focus on and at the back of my mind I will always now have that niggling thinking, “is there a deeper critical thinking question I can ask?” rather than “what’s the answer?”’ (FG)

Finally, Oti and Darya mentioned how their experience of teaching critical thinking on one module had given them the confidence to teach it in another module. In fact, Oti went so far as to say that she could now support her colleagues to teach critical thinking. It was notable how participants were developing their metacognition about teaching critical thinking. Through building the confidence in their abilities to do so, they discovered that they were doing it habitually and perhaps even subconsciously. This illustrates that through the process of regularly practicing teaching critical thinking, educators built their capability to think more critically about how they design their sessions.
New perspectives and behaviours

All participants said they had changed their perspective about how to teach critical thinking as a result of experimenting with teaching approaches. They also mentioned changes they had either made or planned to make as a result of this change in perspective. The specific impact often depended on the contextual role which participants had in the organization. For example, Nadya, a course leader, explained how, as a consequence of experiencing the benefits of teaching criticality within her discipline, she had worked with colleagues to embed it in every module and to ensure a consistent teaching approach. Nadya said:

‘I have made it USPs [Unique Selling Points] of the degree and was pleased to report that at least 50 per cent of my colleagues were now using it. For it to be beneficial it should not be a one man band but to have it as a theme in a course.’ (FG)

Kai talked about how he had changed the language of his feedback on assignments to explicitly reference the toolkit to support students to improve how they critique and use sources. He felt that his previous approach used to be too implicit, for example when he wrote feedback which said that students needed to be more critical with evidence. Kai said that he changed his practice to be more explicit with the language of feedback and noted that this had contributed to an improved pass rate and very good feedback from visiting examiners about the enhanced quality of his students’ work. He said:

‘I will explain what I think is a good source or what I think the weaknesses are of the sources or the limitations. I try to do that more – I think Nadya is right, it’s about giving them the tools they need to succeed and making it explicit what they need to be doing.’ (PLC)

To conclude this theme, it was striking how much participants identified that they had learned to teach critical thinking through a process of individual and collective reflection (RJ5, Appendix 13). They had become more aware of what critical thinking meant and why
it was important to explicitly teach it. Furthermore, through a process of experimenting with teaching ideas, participants had developed the knowledge, skills and confidence to continue to teach criticality. This was powerfully evidenced through the articulation of future teaching plans and examples of particular changes. For example, Alina reported how she had completely restructured the delivery of her science curriculum and design of assessment to full embed critically. She said:

‘What I am trying to do is build in tiny flashes of critical thinking all the way through my lectures to get students to actually think a little bit more rather than just being able to blindly follow an algorithm to get an answer.’ (INT)

I now turn to discussing themes and sub-themes from the data which answer this study’s second research question.

4.4 What enables learning to teach critical thinking?

Theme Two ‘Connections and Collaborations’ reports how participants’ learning has been helped by collaborating with peers about their critical thinking teaching practices and aligning and embedding critical thinking in the curriculum, teaching and assessment. This is explored through the subthemes of ‘peer to peer learning and professional dialogue’ and ‘embedding and alignment.’ For example, Darya talked about:

‘participating in conversations and watching other people do it so you are reflecting on your own practice as well as other people’s. So it has been quite helpful to think “how do we do that, why do we do that and is there a different way of doing it?”’

(FG)

Sami, Hanna and Alina emphasised the importance of parity of critical thinking teaching across all modules in a programme so that students could make connections within and
across their levels of learning. To enable this, Alina recommended weaving critical thinking skills teaching within all modules as students progress through their educational pathways so that they can be revisited and extended. I noted the link Sami made between the articulation of pedagogical approaches to critical thinking and how this should be integrated within a programme of study (RJ6, Appendix 13).

‘Critical analysis needs to be one of the pedagogical underpinnings which is integrated throughout a programme and I would suspect in a professional programme there needs to be an element in every module.’ (INT)

These comments about the value of peer-to-peer learning supported by professional dialogue and a well designed curriculum resonated with my own experiences of supporting educators to develop their teaching practices.

Theme Three ‘Pedagogy and Common Language’ reports how participants’ learning has been helped by the development of a teaching vocabulary and range of techniques which demystify the application of critical thinking and make it more accessible to students. The importance of explicitly signposting critical thinking skills and the relevance of active and collaborative teaching activities was discussed. This is explored further through the subthemes of ‘a common language of critical thinking’ and ‘active and collaborative learning’.

I was interested in how teaching frameworks, in particular the toolkit, were likened to a springboard which participants could use to launch critical thinking teaching activities and develop an explicit common language (RJ5, Appendix 13). Participants explained that structured and scaffolded approaches helped students learn to think critically. Nina said:

‘I think the journey over the 20-week period in understanding the data and making sense of it has to be progressive. So it’s really taking them by the hand and taking them on a journey and that is the best of teaching when suddenly they say “ah now I get it!”’ (INT)
Unsurprisingly, since much of the data were collected during the three lockdowns, the importance of online tools as an enabler for online critical thinking teaching was also highlighted.

The findings within each of these themes and subthemes are now discussed.

4.4.1 Theme Two: Connections and Collaboration

Peer to peer learning and professional dialogue

All participants agreed that observing colleagues’ teaching as part of this study had developed their confidence to try out new critical thinking teaching methods. A number of interviewees mentioned the specific teaching episodes they had observed and how these had helped them build their own evidence base of teaching ideas from different disciplinary perspectives.

For example, Oti and Nina discussed the benefit of transdisciplinary peer to peer learning. Nina explained that she felt like a student in Oti’s class because she had no prior knowledge of the healthcare topic she was observing. She saw how Oti was explicitly teaching students to analyse and synthesise academic papers which gave her ideas to experiment with in her classroom. Nina watched how students were taught to record themes using a thematic analysis grid which she could understand despite the different disciplinary content. During their follow up professional learning conversations and focus groups, Nina examined the value to her learning:

‘I think there is a huge benefit in that collaboration between two or several members of staff sharing best practice. It’s helpful to me because it gives me points of reference, options, ideas to experiment with in the classroom. So in terms of self-development I think we should do more of this.’ (PLC)

Lily explained how she had learned how to teach criticality in a supportive and collaborative virtual learning environment. She watched Leyla use active learning activities
to enable students to evaluate and discuss solutions to a series of problems in a collaborative way. This peer to peer learning process inspired her to use a virtual storytelling exercise in her own class the following week. She created a collaborative document based on the Source tool which students completed online using articles they needed for an assessment. They then wrote a story about the characters from these articles. Lily described her learning experience:

‘It was the way Leyla was bringing in agency and control using the collaborative space which she created on screen… it gave me an inspiration which I tried out in my following class, the day after you observed me.’ (PLC)

Finally, Sarita and Kamal explained how they had supported a new colleague to teach critical thinking to a new class. He was unclear about what teaching approaches to use and approached Kamal and Sarita for advice. They showed him how to use the Source tool from the toolkit. Kamal felt this example illustrated the power of collaboration and dialogue to help educators learn to teach critical thinking. He developed this point further when he discussed how he learned from the interdisciplinary critical thinking community of practice he regularly attended. Leyla, who also participated in this community, said:

‘The great thing about having the community is that I can constantly evolve and bounce ideas off it and get feedback so my ideas are constantly evolving which has been amazing.’ (FG)

However, I noted Sami’s argument about the importance of a supportive learning environment to enable these conversations to productively take place (RJ5, Appendix 13). He felt that a change in thinking which could involve a cultural shift within in his working context was needed to enable learning through collaboration and dialogue to take place. This is further discussed in the ‘resistance and fragility’ theme.

I now consider how embedding and alignment in the curriculum have helped educator’s learning.
Embedding and alignment

A range of experiences of how criticality was aligned and embedded within different disciplinary curricula and to assessment and teaching approaches were offered. Nadya connected the design and delivery of her teaching with the language of criticality from her learning outcomes. She likened criticality to a lens through which students could solve problems and answer questions. She encouraged them to find and use the most useful sources of business information and critically evaluate the content using the toolkit. This helped her students apply relevant theoretical concepts to their work. Nadya reflected on the relationship between teaching content and critical thinking when she said:

‘There is my disciplinary teaching and then there is the skills teaching.. this is like the second layer’ – so there are marketing models and frameworks and what has been show recently is that you do a much better job if you search in the right direction and evaluate the right things’. (INT)

On the other hand, Darya had been involved in a formal revalidation process where critical thinking was fully embedded within learning outcomes, curriculum content and assessment strategies. For example, she explained how different elements of the toolkit were allocated to different modules throughout the degree programme. She said that this gave her confidence to teach critical thinking because it was already part of the content. It was noteworthy that these examples illustrated that having the language of critical thinking in formal curriculum documentation helped participants make the connections between their disciplinary content and critical thinking teaching. Kamal agreed:

‘The more critical thinking can be embedded across the curriculum, the easier it is to make these forward and backward connections. So if you know that students are going to be doing something later you can lay the scaffolding for that.’ (PLC)
Participants used assessment briefs as a resource to help them teach critical thinking using a scaffolded approach. For example, Zola used continuous assessment in her module and designed her teaching to align to the assignment brief. Students worked in class on a weekly activity which involved critically analysing quantitative data using worksheets from the toolkit. Examples were provided to support them, and they submitted a task each week for a small amount of credit and feedback. This portfolio of activities was aligned to the final assessment, where students had to produce a data infographic using the findings. Furthermore, the tasks were aligned to an assessment in another module. Zola found that this process of alignment enabled students to see the point of learning critical thinking. The assessment provided them with the foundations to enhance and develop their criticality as they progressed through their degree. She explained:

‘The habit of submitting something regularly [helped] them know that they can do it, feel that they are learning and getting feedback. That repetition and use just hammers in that validity.’ (INT)

In addition to teaching criticality across the same level of study, participants highlighted the importance of connections throughout levels of study. Darya used the metaphor of a map where students were introduced to critical thinking right at the start of their studies so that they understood what was expected of them at each stage of their degree. She mentioned how the toolkit helped her support students with the mastery of critical analysis at different levels of study (See Appendix 15). For example, she used the Source tool to teach students to find evidence in year one, the Critique to critically evaluate evidence in year two and the thematic analysis grid to synthesise a range of sources in year three. This scaffolded approach also provided students with the flexibility to consolidate skills by recapping on some of the activities if they felt they needed more practice. Equally they had the option to stretch and challenge themselves by extending their thinking to the next level. Darya said:

‘We need to do this repeatedly. I think you need to return to it and keep referring back to what critical thinking looks like. I think certainly by embedding it in year 1, it becomes a road map, a smooth process. It’s not suddenly then “right in year 3 we
are doing to start talking about analysis” and everyone is like “What?” It’s a gradual process.’ (FG)

In conclusion, I was struck by how these examples illustrated the importance of both students and educators making meaningful connections between what they are learning and how they are learning across the curriculum (RJ5, Appendix 13). I agree with Nadya’s suggestion about ‘having everyone on board and speaking the same language’ and that a collective effort is needed amongst educators to enable students to make these connections (RJ5, Appendix 13). These teaching episodes also suggested the importance of consistent delivery of critical thinking teaching within modular content, across the programme and at different levels of study.

I now examine how a pedagogy and common language can further enable educators to learn to teach criticality and support the curriculum.

4.4.2 Theme Three: Pedagogy and common language

A common language of critical thinking

A number of participants highlighted the use of an everyday and accessible discourse of critical thinking to help frame teaching activities and resources. Darya talked about the challenges posed by the academic nature of critical thinking terminology which could make the concept unattainable to students. In order to demystify the terms, she introduced a structured discussion activity called ‘The Game’ which was peer observed by Mia. Students were provided with a template of language prompts and questions about a health care scenario which they had to debate in groups and provide evidence to support their arguments. Darya reflected that framing this activity as a game helped make the academic language of critical thinking more accessible to students. Mia observed how Darya used a series of questions at the end of the session to signpost students to the specific critical thinking skills they had been developing. The structure of the activity and the questions
helped students build their metacognition about how they had been using criticality. She said:

‘Those very clear questions about the scenario kept the discussion focused and moving forward. I think that without that series of questions then some of the pennies wouldn’t have dropped so much about the usefulness of this.’ (PLC)

Nina and Hanna built on the importance of explicit language to signpost their students to critical thinking teaching resources and in class teaching activities. Nina framed this point in a lighthearted way when she said:

‘In our institution at least, it needs to be signposted. And I would even make a joke, not just a little post it note, but in big huge posters in class which said CRITICAL THINKING HAPPENING HERE.’ (INT)

Reflecting on these remarks, I recognised that participants were illustrating the value of educators making connections with the concept of critical thinking through their teaching discourse. The poster analogy suggested the importance of making what is hidden very obvious to everyone in the room and gave critical thinking a serious status. I visualised the ‘pennies dropping’ in students’ minds in response to Darya’s questions as they became aware of the critical thinking skills they were being taught. (RJ6, Appendix 13)

The importance of teaching frameworks, particularly the toolkit, was discussed by Leyla as supporting her to teach the skills of deduction, logic, assumptions and inference, and to guide her students to develop their awareness of the skills they were developing. For example, she introduced a set of questions from the Critique framework in the toolkit to support students to interrogate the literature about a specific scientific concept. Students had to establish the purpose of the paper, the key themes and the author’s key argument in their independent study time. Then, they discussed their findings in class, framing their presentations using the vocabulary from the Critique tool. Reflecting on this teaching episode, Leyla said that embedding critical thinking vocabulary in the disciplinary discourse and teaching activities had helped her overcome her own perception that teaching content was a barrier to teaching criticality. The vocabulary of the toolkit helped
her to embed the language of criticality in her teaching and enhance her own metacognition. She said:

‘It’s such a wonderful thing that we can actually articulate how to think and we have got mechanisms, so there are buttons you need to press in order to get the thing working and to start the ball rolling. The toolkit is a great enabler.’ (INT)

Participants mentioned their dissatisfaction with delivering didactic lectures and the benefits of facilitating criticality through applying the principles of dialogic teaching. For example, Zola explained how she used a structured discussion about the credibility of data used by Nike to illustrate how business decisions can be made. Supporting Leyla’s example in the previous paragraph, Zola used the language of the toolkit within her classroom discourse. She reflected that framing the discussion in this way and encouraging a debate about the pros and cons of different data sources had provided her students with the confidence to say,

“‘Oh okay I can do this I know how to be critical. I know what I am doing. I am just putting a name to the relevant bit’. And the prompting in the group is really good because it just helps them get started.’ (INT)

The active and collaborative aspects of supporting teaching critical thinking are now developed in the next sub-theme.

**Active and collaborative learning**

Active and collaborative learning was identified as a key enabler for critical thinking teaching. Following the peer observation, Kai positively commented on Nadya’s active collaborative assessment which embedded critical thinking exercises. He noted the process of in-class co-production between the students and how Nadya provided them
with opportunities for formative feedback. For example, using a collaborative document, Nadya made a start to the task by typing all the sources of information which students would be expected to use. She then provided a very simple critique of one source and related it to the assessment. Students were then expected to do their own analysis using the collaborative document and to share findings each week. During the subsequent professional learning conversation both commented on the value students placed on being able to watch and learn from Nadya’s expertise with the exercises. Nadya said:

‘We are sort of collaborating together and I think maybe that might help make the tasks less daunting and maybe engage them more, doing it together and sharing it and then they all go away and do the analysis.’ (PLC)

However, Sarita provided an honest account of her dilemma about trying to use active learning to deliver a large amount of content within a specified time. In addition, she often felt frustrated with the amount of time she spent preparing critical thinking activities which students often did not engage with. This was exacerbated when teaching critical thinking in an online environment. This issue was discussed during the professional learning conversation about Kamal’s online session. Kamal concurred with Sarita’s point and said that it can be very challenging to encourage peer to peer interaction in an online session. He used an example of how he had used the collaborative tool Padlet with a student cohort to support them to critically evaluate a business source they needed to use in an assignment. He posted a series of questions on the padlet which students had to answer during the session. This active collaborative activity helped him and the students to see all of the evaluative discussions. He suggested this tool for Sarita to use in her practice to stimulate an active discussion about a critical thinking activity. Kamal said:

‘As students are typing you can see the words appearing so you don’t have to wait until they finish a complete sentence – you can see it interacting in real time which means other students can see it at the same time which is good.’ (PLC)

To conclude this theme, I noticed that there was a feeling of increased satisfaction and confidence amongst participants as a result of infusing critical thinking teaching within classroom discourse about disciplinary content (RJ6, Appendix 13). I thought Nadya
summarized this well when she talked about how this approach had become a progressive and incremental teaching process.

I now discuss themes and subthemes from the data which answer this study’s third research question.

4.5 What hinders learning to teach critical thinking?

Theme Four outlines how participants’ learning has been hindered by pedagogic fragility and resistance from both academics and students and is the largest theme in this study. This theme is explored further through the subthemes of ‘tension between content and skills teaching’, ‘academic resistance and fragility’ and ‘student resistance and fragility’. It discusses the impact on teaching criticality caused by curricula which are packed with content as well as educators relying on didactic lecture delivery. It examines academic perceptions and attitudes towards teaching criticality. While participants in this study felt comfortable with teaching critical thinking themselves, they suggested that colleagues either actively resisted, were disinterested, overwhelmed or lacked the confidence to make this change. Kai summed this up when he said:

‘I am the only one teaching criticality. For most of the team it doesn’t really appear on their radar. We have had some conversations about trying to embed it but it is still running alongside.... there is a bit gap which is frustrating.’ (FG)

This theme also outlines the challenges posed by students’ resistance and fragility. This may be caused by perceptions of difficulty and prior knowledge of what critical thinking is and why it is important to their learning. A feeling of disempowerment was also identified due to the forced move to teaching online necessitated by the COVID-19 pandemic. Participants felt disconnected from their students’ experiences of learning about criticality.

I noted the interesting dichotomy between the barriers and enablers identified in this study which could help with the design of professional development and teaching resources. For example, the challenges provided by the tensions in the curriculum, might be addressed
by professional development which encourages educators to collaborate with others. In addition, these findings provided an interesting contrast to Theme Three, which discussed how online collaborative learning tools helped not hindered the learning and teaching process. I was also struck by how a number of participants used a ‘radar’ as an analogy to describe the difficulties colleagues felt about locating critical thinking within the curriculum and in their own teaching practice. This might also suggest the need for professional development, time and resources to support educators to interrogate their curriculum to see where they could infuse critical thinking teaching and link it to existing content (RJ6, Appendix 13).

The findings within each of these themes are now discussed.

4.5.1. Theme Four: Fragility and resistance

Tension between content and skills teaching

All participants highlighted the tensions they experienced when trying to teach critical thinking within their disciplinary content. While it was recognised that to be meaningful it should be infused within disciplinary curricula, Zola recognised the challenges.

‘It doesn’t really sit inside anybody’s specific content so it can be hard to see how it can integrate… colleagues often assume that they have already embedded critical thinking in their delivery just because of the way they teach.’ (INT)

This suggests that educators may not appreciate the value of explicitly teaching critical thinking in their disciplinary content. In fact, they may not see this as a tension, instead assuming that they were automatically teaching critical skills through their content teaching.

Furthermore, Zola said that some colleagues did not perceive it as their role to teach critical thinking. Their academic identities were formed through the nature of their subject specialism and their research. Conflict was recognised between this and making critical
thinking explicit in curriculum content and teaching delivery. For example, Zola suggested that many educators saw it as a bolt-on to their disciplinary content teaching and not as something which should be integrated. As a consequence, she felt:

’that critical thinking falls along the wayside [as] one of those underpinning skills that you don’t have to teach. A lot of staff look at it and say “but that’s not relevant to my content so why should I be teaching it?”’ (INT)

A different perspective was provided in other disciplinary areas where participants said that colleagues may actually be teaching critical thinking in their content without being explicit about it. Hanna and Leyla explained that this could be because of a lack of understanding amongst educators about what critical thinking teaching actually looks like. Leyla felt that explicit professional development was needed to support educators to develop their metacognition about what criticality is so that they could learn how to make this more explicit in their practice. Leyla said:

’But you actually need to get it explained how to use it. It’s like being given a car to drive yet not being given any guidance on how to use the pedals – it’s not a standard operating procedure it is something you can evolve- it needs support and it needs explaining.’ (FG)

I noticed how this comment resonated with the key argument behind this thesis that critical thinking is challenging to teach and that educators need support to do so. This is discussed further in Theme Five.

Mia, Alina, Zola and Sami expressed concerns about the amount of content they were expected to deliver in the curriculum. They felt that this could be hindered by the pressures from teaching metrics because students had to pass a certain amount of content. This could result in a lack of motivation from academics to integrate critical thinking teaching across their programmes. Mia suggested that educators needed to be supported to change their mindsets in order to teach in a different way and overcome the challenge of infusing criticality within content teaching.
'It’s hard so in my module I am freeing things up, you know 3 sessions of critical thinking toolkit seminars, but it is not adding content, it’s just learning in a different way. But for some people that’s quite a challenge, it’s quite a barrier'. (PLC)

These examples suggest there are significant barriers to learning to teach criticality because of the tension between delivering a content-based curriculum and integrating critical thinking within this content. It was noted that time is needed in the curriculum and educators need to believe in the importance of teaching critical thinking so that they can begin to learn to do so. However, academic resistance to learning was also identified, which is now discussed.

**Academic resistance and fragility**

As discussed at the introduction to this theme, all participants talked about the barrier of resistance from other academics to teach critical thinking which they felt impacted on their own ability to learn and develop their practice effectively. Participants debated the reasons for this. Leyla and Nadya thought that educators might resist learning to teach critical thinking because they perceived this as a threat to their identity and way of being. They could be resistant to change or feel that they do not need to learn to teach criticality because they could not see the point in doing so. Nadya said:

‘*There are so many complicated factors here – “are they interested in learning to do this?” I don’t know how to engage people because academics can be very stubborn and they think they know everything and they don’t need to be taught anything.*’

(PLC)

However, Oti felt that this resistance masked a lack of motivation, knowledge and confidence. She felt that educators might be embarrassed at not knowing how to teach critical thinking and mask this by denying that students actually need to learn to be critical. Oti felt that this lack of motivation to teach students criticality could mean that educators
are reluctant to learn how to teach critical thinking themselves. This could further illustrate
the point that, as subject specialists, educators felt less confident to be able to deliver
skills-based teaching. Oti said:

‘Because they may say that students should know these things because they do not
feel confident about how to teach the students. Sometimes, if people do not feel
confident to do it they say “okay well what’s the use of it, what’s the need in
teaching it?” Because they do not know how to do it.’ (PLC)

Darya and Sami discussed their own fragilities of learning to teach critical thinking. As
discussed in Section 4.4.1, Darya experienced imposter syndrome when studying for her
Master’s degree and her move from practice to academia heightened this feeling. She
thought that educators could make critical thinking an elusive impossible goal for students
to achieve and indeed compared it to the ‘holy grail’. Sami suggested that the label of
academic could automatically suggest an educator was competent in teaching critical
thinking when this may not be the case. He wondered if educators might pretend to know
how to teach it rather than admit they did not know how to. Sami said:

‘I don’t know “is it the emperor’s clothes?” it’s you wanting to be seen as competent
and we should know it as it is so fundamental. It’s the kind of thing we think we
should know about and pretend we know enough about it. I think there is a fragility
to our academic’s personae. I do worry at times that there is a bit of imposter
syndrome.’ (INT)

I was struck by the comparison with the fragility of the emperor and the fragility of the
academic who might not want to admit that they did not know how to teach critical thinking
(RJ5, Appendix 13).

The fragility experienced when moving to teaching critical thinking online was discussed by
all participants. They felt that they had lost control and agency over the teaching process
and found it more challenging to gauge whether students understood the particular critical
thinking concept being taught. Interestingly, all participants thought that the barriers they
experienced when teaching criticality online could be caused by both their own and students’ lack of confidence of this new way of teaching. Sarita felt that she lacked the skills and knowledge to teach critical thinking online. She said:

‘So while I really would like to get on board with the technology, I can honestly say that I am not as confident as some of my colleagues are with jumping on new technology and using it to its best use’. (PLC)

I felt that this perhaps illustrated that the challenge was not so much the online modality, but the disconnection staff felt with the learning space, the relationships with students and the engagement with the material. On the other hand, this dilemma triggered reflection and experimentation with new critical thinking teaching ideas (RJ6, Appendix 13). Despite this feeling of fragility, participants have embraced this challenge as discussed in Themes One and Two.

I now discuss challenges posed by students’ prior learning experiences and their perceptions about critical thinking.

**Student resistance and fragility**

Participants highlighted that while experimenting with teach criticality they became aware that many students did not seem to have been taught critical thinking during their secondary or college education. They reflected that they had previously made assumptions that students had already learned to be critical and thought that many educators may think the same. Nina explained that it was only through her experiences of reflecting on her own schooling and teaching critical thinking herself that she realized that:

‘maybe some of our students didn’t go through school being equipped as much as me so when our students get to university they are not on an equal par.’ (INT)

This lack of prior learning impacted on students’ confidence and competence to be able to demonstrate critical thinking. For example, Zola mentioned the challenges she had experienced teaching students to critically evaluate the ‘best measure of average’ and to
help students understand that there could be more than one answer which could be interpreted from data. She felt that students relied on being able to easily find the right answer and seemed to lack experience of working independently to find a solution. Zola said:

‘One of the big barriers is about confidence with the discourse and getting them into that critical mindset, being critical of everything they do. And extending what they feel comfortable with in terms of what they see as critical thinking.’ (INT)

This barrier was heightened, specifically in the scientific disciplines, by the rigidity of the assessment process at secondary school. Alina discussed the expectation within the school curriculum for students to achieve set answers in examinations rather than achieve qualifications which demonstrate how they can use a critical approach. She expressed the frustration felt by university lecturers about the impact of this on students’ criticality. She said:

‘Quite a lot of us are frustrated about it because it doesn’t help teach reflection or any sort of interest in anything except exactly what they are being taught and then they go to university and we want them to think exactly the other way round.’ (PLC)

However, Sarita felt that the lack of criticality was not a deficit in students’ capabilities but rather a lack of confidence due to their prior learning experiences. At school and college, students were used to being provided with exactly the information they needed to help them answer specific assessment questions and were not required to independently find this information for themselves. Sarita felt that this caused problems for students when they transitioned to university and were expected to be able to use criticality independently. She noted that,

‘they were finding themselves in an unfamiliar situation which was a huge leap for many of them. It is a steep learning curve and this is where confidence comes in as there is a lot of reassurance required. So my role is very much to say, look you can’t
possibly know those things, that’s what the tutors, library staff are there for and that’s very important at the start of the course.’ (INT)

Furthermore, Leyla and Alina discussed the fear and anxiety experienced by students when discussing their academic work. She reported that her students often struggled to find their own solutions when examining problems within her discipline which is a fundamental part of thinking critically. She also felt that this fear and misplaced expectation often made her teaching experiences challenging. Alina noted:

’S0 they have to think around the whole problem rather than just making a snap decision. They have to know why from a scientific point of view and take all of the knowledge which they have gained and try to answer the question. It is not a simple yes or no answer which involves applying an equation which is what they expect. That's not what they get from me and they find that challenging.’ (FG)

I was struck by some of the similarities between academic and student reluctance to learning about critical thinking (RJ5, Appendix 13). Both educators and students seemed to not fully appreciate what critical thinking looked like in their discipline and perhaps did not feel it was important to either teach or learn. This could be explained by the lack of teaching of criticality at school but also the lack of professional development for educators to learn to teach it at university. This resulted in a lack of confidence and motivation for both students and educators to learn about critical thinking. This barrier further illustrates the importance of explicit teaching of critical thinking as soon as students arrive at university. It relates to the point made in Theme Two about spiralling these skills throughout the curriculum.

I now discuss the findings about professional development and resources which could support learning to teach critical thinking.
4.6 What professional development and resources could support learning to teach critical thinking?

Theme Five ‘Authentic Professional Learning’ extends the findings within Theme Two, ‘Collaboration and Connections’, where educators discussed how peer to peer observations and collaborations had supported their learning process. It outlines how learning to teach critical thinking can be supported, and explored through the subthemes of ‘authentic professional development’ and ‘authentic resources’. Overall, participants favoured authentic informal learning and sharing practice amongst educators over formalised training programmes. Furthermore, participants needed authentic and accessible resources to teach criticality. This links to the ‘resistance and fragility’ theme which discussed the lack of resources in the sector to support this endeavour. Oti summarized the support educators needed.

‘It needs to be contextual, meaningful, practical and pragmatic. We as staff need something practical, either this toolkit or other frameworks, or scenarios that we would need to give an answer to, to solve a problem, and then we can use what we have learned to our students.’ (PLC)

This theme therefore concludes with suggestions about what these resources could look like.

4.6.1 Theme Five: Authentic Professional Learning

Authentic professional development

Building on Theme Two, participants discussed that they would like to see a programme of informal professional development so that they could learn from the authentic experiences of other educators about what excellent critical thinking teaching looks like.
Nina suggested this could be either live or online masterclasses where educators who have solid experience of teaching critical thinking demonstrate their practice to less confident staff. She felt that a live experience was preferable to a recorded one, however, because this could help educators truly see the moments in the class where students actually learn to be critical. She drew on her own experience of participating in peer-to-peer observations with Oti to support this. I was interested in how the ‘lightbulb’ metaphor was used again by Nina when she recalled the lights switching on the faces of students when they could demonstrate how to synthesise literature and critically discuss the findings in Oti’s class. Nina said:

‘If there was a masterclass or you know somebody who used each of the critical thinking tools really well and staff who are not feeling very confident could go and watch it. And then seeing, and this is critical you know, one minute or two minutes of the class which creates that lightbulb moment with the student.’ (FG)

Mia and Sarita agreed with Nina’s observation but articulated another perspective on how this could be achieved. Mia recommended a buddy or consultancy process between critical thinking teaching experts and educators who want to learn to teach critical thinking. Mia suggested that this learning process could involve experts working alongside the learners, using a checklist of key areas to include in module design, teaching delivery and assessment. Educators could then try out these ideas in the classroom, reflect on their experiences and make recommendations for future practice. Mia felt that these authentic teaching episodes could be shared with other educators in professional learning conversations or communities of like-minded professionals. Sarita recommended using a peer to peer coaching model to learn how to teach criticality. She explained:

‘Whoever has got the experience says “well yes that would work, there give it a go”. And I think that’s the way in for lots of academic staff. They try out one section, one thing, it works and it gives them the confidence to try out something else. It’s about building their self-efficacy.’ (PLC)
Sarita’s use of the words ‘way in’ made me think about the importance of the accessibility and authenticity of professional development (RJ6, Appendix 13). The words suggest that peer-to-peer coaching can help educators feel confident to enter a learning space where they will be guided and support by colleagues who understand their learning context.

Alina recommended an ‘action learning set’ approach. This could empower educators to identify key issues they faced when trying to teach critical thinking and collectively discuss solutions to these. For example, one of the key challenges for her colleagues was how to differentiate between questions which elicit critical thinking compared to problem solving. She felt that engaging in moderated professional dialogue could support educators to do so and to build a bank of critical thinking ideas. Alina said:

‘None of us is an expert, I would certainly not class myself as one, maybe we are swimming blind and trying our best but I think it would be really good if we could get together and discuss what we have done so we can move forwards so maybe with a moderator who is very knowledgeable about critical thinking who could ask powerful questions.’ (PLC)

Finally, all participants discussed the role of engaging with communities of practice as a professional development tool. Kamal mentioned the online communities in his disciplinary area which educators used to post queries and get responses. He felt that engaging in a community of critical thinking practice could encourage educators to avoid the silo approach to teaching. Furthermore, it could support a more consistent use and application of critical thinking teaching frameworks as discussed in the ‘connections and collaborations’ and ‘pedagogy and common language’ theme. Kamal said:

‘And when you have things like the community of practice and when someone is talking about what they are doing with teaching, it goes back to this thing about silos, so if you have people across the organization using the same thing it means you have a common language.’ (FG)
Finally, I was struck by Darya’s awareness of the contextual nuances of teaching critical thinking in different disciplines. She said that the approach should be tailored to the needs of the learners, the teaching context, the content, the assessment and whether it is face to face or online (RJ5, Appendix 13). Darya commented that if she was advising a new educator, she would suggest they contact a range of colleagues about their teaching approaches. This suggests a new approach to professional learning which perhaps is in contrast to the more formal workshop-type learning educators have experienced in the past.

**Authentic resources**

The theme of authenticity was also strongly articulated with regard to the resources which educators need to support both their own learning and to teach students. Zola drew on her experience of using the toolkit as discussed in the ‘pedagogy and common language’ theme. She felt that students needed specific resources to support them to become aware of where criticality was being taught within her content. This point relates to the discussion in the ‘pedagogy and common language’ theme about the importance of building a common language of criticality in teaching. Furthermore, a set of explicit teaching resources could provide prompts for learners to review the key messages discussed in the classroom. When discussing the toolkit, Zola suggested:

‘I would say that any other member of staff would be happy to have those materials because they are relatively context free and you can integrate them with what you already have and your context.’  (INT)

Other participants agreed and I noted Mia’s comments about the differences within her field and how teaching resources should synthesis the language of criticality with the particular language of the discipline (RJ6, Appendix 13).

However, Lily talked about the complexity of learning to teach critical thinking as discussed in the ‘resistance and fragility theme’. She felt it was important to remember the objective of using toolkits and frameworks and what impact they could have on students’ critical skills as well as their dispositions to be critical. She said:
“So at the end of the day what do we want?” We want our students to become critical thinkers…and it’s a mindset- it’s beyond a template.’ (FG)

Leyla and Kai built on Lily’s point and stressed the importance of providing educators with guidance about how to use resources so that they could use them to the best of their ability. Leyla lamented the fact that, in her experience, educators were often given teaching resources which they did not understand how to use. Kai recommended the production of a teachers’ toolkit to support frameworks and activities provided to students. This toolkit could provide a set of instructional resources with a commentary about each of the tools with a set of exercises for educators to complete and tailor to their own critical thinking teaching practice. Kai suggested:

‘I do think there would be value in explaining in explaining how to use it, what the the value of tool is, this is how you could embed it in teaching.’ (FG)

Sami used his own experience of learning to use the flipped classroom to recommend using authentic case study examples generated by colleagues to learn to teach critical thinking. He explained how colleagues had developed a set of resources over a three year period. During the first year of the project, educators were learning the basics of how to use the flipped classroom. Then in year two, they were gathering teaching ideas to use in their practice. By year three, they were implementing these ideas and developing their own case studies. Sami said:

“I found this approach so inspirational, there was someone from physiotherapy who was using a good range of flipped activities and they explained exactly how they used it and they had case examples of how they used it and what were some of the challenges.’ (INT)

Darya and Leyla built on the teacher’s toolkit and case study recommendations and suggested developing a website of resources containing a suite of critical thinking teaching guides, authentic case study examples and toolkits. Leyla suggested these guides could
contain instructions about how to set up the activity, for example how to do a debate, how to embed critical thinking into assessment and then provide a series of examples of how colleagues have run these activities. Darya likened this to a ‘tapas menu’ where educators could pick and mix the examples provided and tailor them to their own practice. Kai also suggested that the format of the case studies should be accessible to busy educators, for example, as a 5 or 10 minute podcast which could be used as a learning tool during team meetings or listened to during short breaks in the teaching day.

I noted the empowering message of providing educators with choice and flexibility over which resources would be most relevant to their practice (RJ6, Appendix 13). Participants’ choice of communities of practice, master classes and peer-to-peer coaching over more formal training methods resonated with the key message behind this theme that professional development and resources should be authentic and accessible. The data suggested that instructional resources for educators to adapt and use in their own practice, a bank of case studies and good practice examples could contribute to overcoming the complexities of teaching critical thinking.

4.7 Conclusion

Chapter Four presents the participants and my own interpretation of the answers to each of the research questions. These are presented according to the following five intersecting themes: learning through experience; connections and collaborations; pedagogy and common language; resistance and fragility and authentic professional learning. Through the teaching examples provided, participants have articulated a range of perspectives about how they have learned to teach critical thinking and have provided some evidence of transformative learning, threshold concepts and experiential learning which will be evaluated in Chapter Five. Furthermore, participants have articulated the challenges they faced, what helped their learning and suggested what professional development and resources they needed, relative to their own working contexts.

I now turn to Chapter Five where these findings have been synthesised and compared to findings from the literature.
Chapter Five: Discussion

5.1 Introduction

Chapter Five synthesizes the analysis from the literature review with the themes discussed in Chapter Four in order to provide a contribution to knowledge about how educators learn to teach critical thinking. This chapter contributes to the macro argument of this thesis that critical thinking is challenging to teach. It suggests that it could be a threshold concept and that educators need support to learn to teach it. The chapter also offers an adaptation to an existing professional learning model which is built from a synthesis of the themes from this study with evidence from the literature.

In keeping with the principles of RTA, I had identified a balance and spread of data extracts across the range of data items as evidence for each theme and subtheme (Braun and Clarke, 2022). As I referred to the literature and revisited the data extracts again, I noticed the increasing significance of some of these extracts to support the conclusions of this practice-based study. I have therefore introduced some new important quotations in this chapter to support the implications and recommendations.

Finally, I reiterate what was discussed in Section 1.3 about the role of the toolkit within this study. While a range of tools have been used by educators to teach critical thinking, the specific impact of using the resources has not been tested. However, as discussed for example in Sections 4.1 and 4.3, participants have highlighted that the toolkit has provided them with a structure, some ideas and some ‘disorienting dilemmas’ or catalysts to get them started on their journey to teach criticality (Mezirow, 2000, p. 22). This discussion has, amongst other things, evaluated this learning process and drawn out contributions to learning theory.
5.2 Theme One: Learning Through Experience

Critical reflection and experimentation

Participants have experienced and reflected on a range of different transformative learning outcomes relative to their teaching contexts (Hoggan, 2016). For some, this happened through their habitual teaching practice. For example, Nina regularly used the Case tool and the Critique to teach critical analysis in her business classroom. By critically reflecting on these experiences, and her own criticality, this helped her challenge her assumptions about her students’ critical thinking skills and dispositions. Nina changed her perspective when she realised:

‘As a person, I think I am naturally a critical thinker but I think adapting the toolkit made me think that it’s not necessarily easy for people to think like that. So everybody has a different stage of learning critical thinking.’ (INT)

Alternatively, some participants began the process of learning to teach criticality by experiencing a form of ‘disorienting dilemma’ which disrupted their thinking about their teaching practice (Mezirow, 2000 p. 22). Zola recognised a very specific teaching episode which illustrated her own ‘disorienting dilemma’ (Mezirow, 2000 p. 22). She realised she was repeatedly writing the same feedback about the demonstration of criticality in her students’ assessments. This triggered a change in her assessment approach as well as an awareness that she needed to teach her students how to think critically about quantitative data. She said that ‘whatever I am doing perhaps isn’t clear enough [but] I had never taught critical thinking before’ (INT).

Up until this point, Zola had always felt that critical thinking teaching and resources had more of a qualitative focus, for example how to write a literature review or a dissertation. Zola recognised that she had not found anything to support her until she found the toolkit which contained tools which she could adapt to teach students to be critical in a quantitative way.
On the other hand, it was difficult for Nadya to recognise the starting point of her learning process as her dilemma manifested itself in a less specific way. She noted that developing criticality had ‘transformed her teaching’. She felt that she was not supporting her students in the way that she wanted to and recognised that experimenting with critical thinking development could help her improve her teaching. However, she could not pinpoint the exact moment when she realised this. She talked emotionally about her wish to have been taught how to teach critical thinking when she began her career. Through a process of ‘self examination’ and ‘critical assessment of assumptions’ (Mezirow, 2000 p. 22), she reflected that she had not been conscious of the importance of being explicit about supporting students’ criticality. As a time-pressed academic, she felt cheated out of this lack of support. She reflected:

“You don’t automatically know that those things need to be accounted for and I just assumed everybody knew how to do these things. It would have been been really helpful if someone had pointed these things out, it would have really speeded things up.’ (INT)

It was not until Nadya started to use the tools in her teaching that she challenged her own assumptions about students’ prior knowledge of criticality, and changed her teaching practice by immersing methods from the toolkit in her sessions (Wlodarsky, 2020).

The above examples suggest the individual ways in which participants experienced a perspective transformation, which originated from their differing teaching contexts. This implies that transformative learning evolves as participants overcome the ‘troublesomeness’ of learning the concept of criticality (Meyer and Land, 2003 p. 3). Like the complexity of the critical thinking phenomenon, findings suggest the complexity of making sense of learning to teach it. The examples challenge the need for a definite and specific disorienting dilemma to trigger the process of transformative learning and imply a more varied starting point depending on context, needs of students and the specific teaching objectives (Nohl, 2015). The process of transformation evolved from these experiences and could be likened to a spiral which twists around and permeates through the context within which it is situated (Taylor, 2007).
Participants planned new ways of teaching and explored new roles and relationships to support these changes based on their own personal experiences and contexts (Mezirow, 2000 p. 22). For example, Leyla expressed her dissatisfaction with the passive nature of lecturing. She explained that she changed from a lecture based approach to a student-centred, dialogic approach where students could discuss statistics from their own experiences. She facilitated discussions by getting students to think critically by engaging in dialogue about how statistics can be manipulated to suit individual agendas. This increased students’ engagement and brought the sessions to life.

Sarita noted that one of her best teaching experiences was when she experimented with transferring a face-to-face session to an online environment. She described how, through using a dual screen, she demonstrated database interrogation. Students actively searched and critiqued information simultaneously and used the Source tool to record their findings, and asked questions using the chat function. These examples show how participants are developing more democratic pedagogical relationships, where critical discussion about knowledge can take place (Freire, 1974). This pragmatic focus on the personal learning experience of the participants resonates with my positionality, hence putting their voices at the centre of my thesis.

**Developing the knowledge and skills**

Participants had, to a varying degree, acquired knowledge and skills to teach criticality (Mezirow, 2000). Many of the examples showed how educators had become more self-aware of their own strengths and limitations as part of the learning process (Hoggan, 2016). Kai developed the knowledge and skills to teach higher order thinking online. He now planned his online sessions much more carefully, using the lesson plans which enabled him to link his critical thinking activities to learning outcomes and assessment requirements. He became more aware of how ‘the learning design involves a different way of sequencing and managing the learning’ (PLC).

Alina now thought more carefully about how she designed multiple choice questions. She developed the knowledge to write questions which tested various critical thinking skills.
While this process took more time at the outset, Alina recognised that she had developed a methodology to design these questions which she could use again. Alina noted that this process ‘has made me able to reflect a bit more on what I teach and make sure that I refresh it more often’ (INT).

These findings illustrate Hoggan’s idea of ‘worldview’ where participants not only actively interpret their experiences of teaching criticality, but also become aware of new knowledge and understanding which impact on how they view their teaching (Hoggan, 2016, p. 65). By acquiring new knowledge and skills, participants have explored their values and beliefs as educators and increased their self-awareness about what they know about critical thinking teaching within the contexts in which they work (Meijer et al. 2017).

**Building confidence and capacity**

By experimenting with critical thinking teaching, participants began to feel more competent and confident about their practice (Mezirow, 2000). For example, Nina developed patience, resilience and perseverance when teaching her first year students about criticality. As discussed in the resistance and fragility theme which follows, students often find this concept challenging. She mentioned how a particular student, who had been disengaged from their studies over the year, told her that over the summer break he had mastered the concept of criticality and was now confident that he could apply it to his work. Nina said:

‘As teachers we have to persevere and not be discouraged by sometimes being rebuffed by students, we have to persist and sometimes we break through a barrier and sometimes it takes a year.’ (INT)

This finding illustrates Hoggan’s category of ‘self’ (Hoggan, 2016, p. 66). Through this teaching episode, Nina enhanced her sense of empowerment and sense of ‘self’ in relation to others (Hoggan, 2016, p. 66). She changed how she related to her students as she saw the impact of her determination on their learning.
This finding also provides an example of the conceptual framework underpinning this study, particularly the intersectionality between threshold concepts, transformative learning and experiential learning (see Section 1.6 Figure 2). Through teaching critical thinking as a ‘threshold concept’ (Meyer and Land, 2003 p.2), Nina was able to support this student with mastering ‘troublesome knowledge’ (Meyer and Land, 2003. p. 2). As a result, she experienced a change in her ‘worldview, epistemology, ontology and behaviour’ (Hoggan, 2016, p. 72). Her confidence and competence is probably best illustrated when she noted that ‘I feel now if colleagues came to me and asked how I use The Case tool, I could now show them’ (FG).

A further example of this empowerment and change in sense of ‘self’ (Hoggan, 2016, p. 66) is provided by Zola, who noted that using the toolkit had helped her develop and enhance her critical thinking teaching, giving her the confidence to incorporate the tools within her teaching content and delivery.

**Acquiring new perspectives and behaviours**

A range of examples illustrate how participants have embedded the teaching of critical thinking into their ongoing practice (Mezirow, 2000). This final stage is crucial to be able to illustrate the ‘depth, breadth and relative stability’ of their learning outcomes and therefore determine the extent to which their learning experiences were transformative (Hoggan, 2016, p. 67). The overall contribution to transformative learning theory is explored in more detail in **Chapter Six**. For now, examples are provided of how participants have performed new professional practices in order to further enhance their capabilities to teach criticality (Hoggan, 2016).

As part of her annual performance objectives, Lily extended embedding criticality into every module she taught and linked it to employability and research. This illustrates the ‘breadth’ criteria of Hoggan’s typology (2016, p.68) by showing how Lily is spreading this form of instruction into a range of different learning contexts. Leyla also illustrated this breadth by explaining how her critical thinking teaching had evolved into a range of different learning contexts. This started with using some of the activities in the toolkit, for example ‘dialogic teaching’, infusing a language of criticality into the scientific discourse,
and connecting with employability initiatives. She mentioned a new initiative where she is teaching critical thinking to her graduate research school and using a teaching grant to develop an arts project to support her science students to think critically about concepts rather than relying on just reading a textbook. Leyla explained that ‘I am developing a little course, just trying to get them involved in looking at science through the lens of art’ (INT).

Other participants discussed how they were enhancing the ‘depth’ of their practice by developing their critical thinking teaching in specific modules and teaching contexts. For example, Nadya introduced a new type of assessment for a module she had taught for a number of years. She collaborated with students on the research part of this in class, simplified the reading list and taught students how to use the Critique tool from the toolkit to evaluate academic sources in a more structured way. She said:

’Sof this is a new thing I have started this year and I am actually kind of doing the work with them. And in the end obviously they have to go off and do their own thing but I think they find it really useful.’ (PLC)

This example provides evidence of how Nadya had enhanced the impact of a particular activity in a particular context and the empowering effect it had on her practice and the student learning experience.

However, it has been difficult to provide evidence about the ‘relative stability’ of the transformative learning outcomes experienced by participants (Hoggan, 2016, p. 71). Further research would need to be done once these changes had been implemented to understand if a ‘permanent, irreversible change’ had occurred within participants’ practice (Hoggan, 2016, p. 71). The challenging teaching contexts and pressures placed on participants’ learning, discussed in the resistance and fragility theme, could drive educators to the safety of old comfortable ways (Hoggan, 2016). It is more likely that participants may adopt a spiraling approach to transformation where they dip in and out of changes to their practice and evolve and change as their teaching contexts dictate (Taylor, 2007).
In conclusion, there is insufficient evidence from this study to support the proposition that participants have experienced a fully transformative learning experience. However, it refutes previous research which states that it can be difficult to shift staff beliefs about a change in teaching practice, even if they are using new methods (Hoekstra et al, 2009). In contrast, participants relished the opportunity to critically reflect on their practice which influenced transformative learning, encouraged self-regulation and a deeper understanding of how to teach higher order skills (Taylor, 2007). Participants became more aware of their own assumptions, expectations and perspectives, and, through dialogue with others, fostered an understanding of the impact of previous experiences on their current practice (Calleja, 2014). This may reflect the ‘K Schema’ model detailed in Section 2.3 Figure Five which emphasises the social and individual aspects of experiential learning and role of dialogue to make tacit knowledge explicit (Calleja, 2014). This dialogic and collaborative aspect of learning will be considered further in the following theme.

These findings may also have important implications for synthesizing and enhancing the experiential learning cycle with aspects from transformative learning theory. However, this study has also been unable to demonstrate a full replication of Kolb’s Experiential Learning Cycle (2014, p. 51) as detailed in Figure Four. There was evidence of educators participating in, reflecting on, and concluding what they have learned as a result of experimenting with teaching critical thinking. In some cases, and as illustrated above, participants explicitly discussed how they had implemented new learning. Some participants on the other hand, discussed how they had planned for future learning but had yet to actually try what they have learned. This perhaps supports the criticism that learning cannot be part of such a cycle and does not take place in a sequential order (Coffield et al, 2004). Instead, it suggests a spiral approach to experiential learning and shows how, through collaborations and connections with peers and across the curriculum, educators enhanced their learning from these individual experiences (Kayes, 2002). This provides a useful new contribution to answer how educators are learning to teach criticality and is discussed in the next theme.
5.3 Theme Two Connections and Collaborations

Peer to peer learning and professional dialogue

Findings indicate that participants learned about criticality when it was situated in their practice and enhanced by the social dimensions of learning (Clarke and Hollingsworth, 2002). Through social interactions following a peer-to-peer observation of their teaching experiences, participants co-constructed knowledge about how to teach criticality in their own disciplinary contexts. For example, during a professional learning conversation between Mia and Kai, Mia talked specifically about how she had learned a new approach to teaching critical thinking to second year students. She discussed the tension she had experienced with colleagues in her department over when to introduce the evidence base to their second year students. Her colleagues felt that it was too early to teach them how to critique and evaluate evidence. They recommended that this should wait until students were in their final year when they were taught research methods. Mia on the other hand, and based on her own experiences and learning, felt that this approach should start during students’ first year. After watching Kai’s session where he taught his first year students how to find and analyse information sources, Mia said:

‘It’s very clear about students understanding the evidence base and this session provided a very clear indication of this so for me this was very useful.’ (PLC)

She used this learning to persuade her colleagues of the utility of this approach and they made plans to implement this in their teaching. This finding illustrates how collective reflection and discussion can provide a catalyst for changing teaching practice (McArdle and Coutts, 2010).

Furthermore, Darya’s peer observation provided Mia with a further teaching example which she wanted to implement in her own practice. She talked in the professional learning conversation about how Darya’s scenario-based teaching provided Mia with the idea to
create ‘some interdisciplinary scenario-based learning opportunities’ where students can think ‘across fields and from different perspectives’ (PLC).

Both these teaching episodes illustrate how Mia and Darya are learning through dialogue which is situated within their teaching contexts. Through this exchange they are learning from each other and adding to their teaching repertoires about how to teach critical thinking to their students (Cranton, 2016). Furthermore, they are building their social capital by accessing knowledge through collaboration with each other which informs their own decision making about how they teach criticality (Fullan, 2016).

The peer-to-peer observations and follow up professional learning conversations provided evidence of how participants were working as critical friends, using dialogue based on equality, trust, openness and vulnerability (Schuck, Aubusson and Buchanan 2008). Participants recognised that there was value in the knowledge they acquired from watching a peer observation and the subsequent unpacking of the experiences within the professional learning conversation. Nina mentioned the benefit of learning how to teach criticality from watching Oti’s online session where she was teaching students how to synthesise evidence from academic papers. She noted:

‘the huge benefit of that collaboration, with several members of staff sharing best practices.... It gives me points of reference and ideas to experiment with in the classroom.... In terms of self-development I think we should do more of this if anything.’ (FG)

Furthermore, findings illustrated feedback as a confidence builder. Following their observation, Zola and Kai, who taught similar levels of students but with very different content, found the feedback they received helped both affirm their practice and provided them with the confidence to continue to implement their learning in their practice. Zola said that ‘it’s nice to get that positive feedback from somebody else who can see what I am doing at level 4 and say yes I can see that works’ (PLC).
Feedback delivered in this way could be a driver for professional growth and learning and is a tool to include in a critical thinking professional learning programme (Fullan, 2016). Linking to this, Zola mentioned that ‘in the same way [that] students need that confidence I think we do too’ (FG). This further suggests that, in order to teach students critical thinking, educators need to develop a critical mindset and be willing to critically reflect on their own teaching practice.

Findings highlighted the value of peer-to-peer observation followed by joint critical reflection as a potentially transformative learning experience. Arguably, these episodes further enhanced participants’ learning from their individual experiences and reflections, as discussed in Theme One. Social learning has further contributed to the acquisition of the knowledge and skills for implementing critical thinking teaching plans and enhanced participants’ competence and confidence to do so (Mezirow, 2000). For example, Nina’s participation in the peer observations ‘made her prepare her session in a slightly different way and reflect in a way she might not have previously done’ (PLC).

Oti explained how, as a consequence of watching Nina’s session, she was now confident to improve her use of the toolkit and to try out new tools and techniques.

These findings illustrate how cognitive knowledge construction, situated teaching experiences, followed by critical reflection could facilitate changes in teaching practices (Clarke and Hollingsworth, 2002). Arguably this study provides evidence to support the transformative potential of peer observations (Peel, 2005). The observer provided the ‘critical energy’ (Barnett, 1997, p. 172) to enable the observee to reflect critically on their teaching experiences and consider ways of advancing and adapting these. This process of peer observation followed by collective reflection provides an example of professional learning about teaching critical thinking and as such could be part of a professional development programme.

**Embedding and alignment**

Evidence suggests that the teaching of critical thinking is further enabled when it is embedded within disciplinary curricula. Findings provide support for the ‘specifist’
approach which argues that critical thinking teaching is contextual and should be embedded in disciplinary content, rather than taught as a separate subject (Moore, 2011). Participants outlined their varying perspectives about what criticality looked like in their curricula (Jones, 2007b). For Kai, it meant, ‘making judgements about the value of evidence’ (INT).

Leyla interpreted it as a disposition as well as a set of skills when she said that ‘it is the missing link between learning a subject from a book, to being a professional... it’s about inviting discussion and being open minded’ (INT).

Underpinning these examples, is a recognition of how different disciplinary epistemologies shaped how participants defined criticality and that it should be taught within the language of the discipline (Jones, 2007b).

Therefore, to be meaningful and relevant, educators need to teach students to think critically about specific knowledge or a particular problem within their discipline (McPeck, 1981). This research therefore refutes Davies’ (2013), ‘generalist view’ which argues against a relativist, contextual approach to critical thinking skills’ teaching. The pros and cons of these much-contested definitions and approaches to criticality are still subject to debate and are referred to in the literature review in Chapter Two.

This study does not seek to extend or provide a new definition of the term, but instead illustrates how educators are interpreting and learning to teach criticality within the context and language of their own curricula. On balance, the teaching episodes and data generated align more with the ‘specifist’ perspective. The findings show that educators are learning to teach criticality most effectively within the design and language of their disciplinary curriculum. This also supports the relativist ontological position of this study as discussed in Chapter Three. Furthermore, these examples could support my argument that critical thinking practices are situated in the socio-cultural context in which educators find themselves (Vygotsky, 1978). As Darya summarised below, despite the different
contextual meanings, critical thinking skills’ teaching ‘needs to be truly embedded in all our modules and in our curriculum’ (FG).

However, it is unclear whether there are sufficient findings to support the fact that critical thinking teaching practices could be influenced by educators’ skills, dispositions and knowledge about how to think critically themselves. Leyla recognised the ‘symbiotic relationship’ between disciplinary knowledge and critical thinking which helped her support students to access the knowledge of their disciplinary teaching. She likened it to ‘the glue that builds the bridge between the pedagogic space and the knowledge because the two can’t exist without each other’ (PLC).

Nonetheless, while Leyla could appreciate this relationship because she felt she was a critical thinker, she thought that many of her colleagues might not because they may not be critical thinkers themselves. On balance, therefore, it could be that it is not necessarily the ability to think critically yourself which enables proficiency in teaching critical thinking. There is simply not enough evidence from this study to support this argument which could be an interesting subject for further research. However, as discussed in Section 5.2, there is evidence to show that educators have learned some of the skills, dispositions and knowledge to teach criticality, through experiencing various forms of ‘disorienting dilemmas’ (Mezirow, 1978), through experimenting and reflecting on their practice and from their peers.

This study also highlights how participants used some of the principles of the constructive alignment framework as defined in Section 1.4 to support students to make connections between their disciplinary learning and critical thinking development (Biggs and Tang, 2007). A range of examples showed how participants designed critical thinking activities and assessment to align to the language of criticality in their learning outcomes (Biggs, 2012). Lily and Nina both used critical reflection as part of a summative assessment which they discovered increased students’ self-awareness and metacognitive knowledge about how to demonstrate criticality in their work (Pintrich, 2002). These examples show how the principles of constructive alignment helped teachers clearly link the development of critical
thinking to learning outcomes and assessment and make this learning more transparent to students (Biggs, 1996).

The spiral curriculum was also highlighted as helping participants to teach criticality in a gradual and progressive way within and throughout levels of study (Bruner, 1960). For example, Nadya wove different tools into her modules according to the nature of the content she was teaching and level of the learners. She explained that this helped her to use a more student-centred tailored approach. She taught critical thinking skills incrementally and revisited them if students were struggling. Darya likened the spiral approach to a road map which she and her colleagues could continually refer back to when teaching critical thinking and use to signpost students to the skills they had learned and at what level of their study. Collectively this suggests the value of a clearly mapped critical thinking teaching process where skills are explicitly embedded and articulated within the curriculum and in teaching practice.

Findings suggest that the toolkit was a collection of teaching tools and a catalyst which triggered connections between teachers and external learning support functions, for example the library (Margolin and Hayden, 2015). For instance, Sarita and Kamal collaborated with a module leader to connect the teaching of critical thinking skills within the business curriculum and make this explicit to students. First, the module leader introduced the concept of critical thinking and its relevance to the module content. Then Sarita delivered a specific session about how to find and critique information sources which was relevant to their assignment. Their teaching episode illustrated the importance of collaboration amongst educators to enable the effective teaching of critical thinking (Lu and Wang, 2021). Co-operation also enabled the principles of constructive alignment to be implemented collectively and more consistently across a programme (Biggs, 2012). However, this shift to collective responsibility for critical thinking teaching is not without its problems, particularly the resistance which teachers may have to changing their practice (Biggs, 2012). This is discussed in Theme Four.

To conclude, learning to teach critical thinking from individual experience has been enhanced by social learning through professional dialogue and peer to peer support (Lave and Wenger 2001). Embedding and aligning criticality within the curriculum and collaborating within teaching teams to ensure a consistent approach has facilitated participants’ learning. The principles of constructive alignment (Biggs, 1996) and the spiral curriculum (Bruner, 1960) have further supported this consistent approach. Collectively,
these contribute to knowledge about how educators can be supported to teach criticality. Theme Three now discusses the importance of a pedagogy and common language of critical thinking.

5.4 Theme Three: Pedagogy and Common Language

A common language of critical thinking

Findings suggest that educators saw the benefit of being explicit with their strategies for teaching criticality. For example, Hanna used an image of a large sticker to describe how she explicitly signposted her students to the critical thinking skills they were developing during activities using the toolkit. Students achieve more academically when they are explicitly taught critical thinking, especially when they are at the early stages of development (Marin and Halpern, 2011). Participants felt that a common and consistent language would help to achieve this, which supports studies advocating that students should be taught more than just the language and discourse of their subject (Moore, 2011). Sarita said that ‘if we speak the same language it helps students take on board the things that we are teaching them’ (INT).

This aligns with the social constructivist philosophy underpinning thesis, where skills’ development is actively facilitated by the lecturer using a ‘learner-centred pedagogy’ (Schendel, 2016, p.552). Furthermore, the role of dialogue, particularly dialogic pedagogy, which is explored in the next paragraph, is firmly situated within the social constructivist paradigm (Teo, 2019).

I have argued that critical thinking teaching is a threshold concept which is facilitated in a democratic, empowering environment. Educators and students engage in dialogue, critical discussions, ask questions, justify answers, reason and challenge in order to move through their ‘conceptual gateways’ and access new ways of thinking and knowledge (Meyer and Land, 2003, p. 2). This research provides evidence to illustrate this. Teachers
have developed their own critical thinking instructional vocabulary and teaching techniques. For example, Nina created a learning environment where students felt confident to ask questions, to participate in discussion, to challenge and be challenged in order to enhance their critical thinking development. Darya explained how she had developed ‘a vocabulary of critical analysis, which needs to be part of the daily conversation in the classroom’ (FG).

Furthermore, participants were using some of the principles and repertoires of ‘dialogic teaching’ to support them, drawing on the work of Alexander (2020). For example, Kamal remembered a teaching episode where he developed a structured discussion using guided questions from the toolkit which helped him to teach students how to critically evaluate sources. This example supports the wide range of studies, e.g., Abrami et al, (2015) where the role of dialogue is widely acknowledged in the literature as an enabler to teach critical thinking. It also supports the ‘purposeful’ element of Alexander’s dialogic teaching framework which advocates that educational dialogue should have a clear learning objective (Alexander, 2020). Leyla learned about the ‘supportive’ principle of ‘dialogic teaching’ (Alexander, 2020) and created a ‘safe space’ in the classroom so that students felt confident to discuss their findings about a new scientific concept without fear of making a mistake. Arguably, these findings extend the role of dialogue as an instructional method to the specific pedagogical approach of dialogic teaching.

Participants used questioning and argument development to teach criticality (Alexander, 2020). Alina structured her seminars using questions to extend students’ ability to analyse and evaluate scientific concepts. She used,

‘simple and more complex scientific questions, [such as] why is a lid used when boiling water in a pan [and] explain the principles at play when water is boiled.’

(INT)

Alina mentioned that there were few taxonomies of critical thinking questions for her discipline and she therefore had to construct these herself. This suggests a need for a teaching resource containing a taxonomy of questions which helps students to think
critically about specific disciplinary concepts, and which could be used in a wide range of teaching contexts (Alexander, 2020). This would help educators to use questioning more effectively to support their critical thinking teaching (Alexander, 2020). Darya designed disciplinary debates to develop students’ critical analysis and ability to construct an argument about concepts they were being taught. She noted the importance of signposting a well articulated argument as well as pointing out areas which needed improvement.

‘If they don’t get really clear feedback about “this isn’t right and you need to make this better” we get them in year 3 still quoting Mumsnet and the Daily Mirror.’ (PLC)

All this leads to the enabling qualities of the dialogic teaching principles as a specific pedagogy for critical thinking development (Teo, 2019).

The collaborative aspects of thinking in the social context of the classroom, using the toolkit as support, helped students develop their criticality. Participants used teaching toolkits and frameworks with dialogic teaching principles as scaffolds. For example, Kamal and Sarita identified how using activities from the toolkit helped them develop a vocabulary around how be critical with sources. Sarita mentioned a teaching episode where she used the specific descriptions in the Source tool in the toolkit (See Appendix 15) to teach students the difference between trade journals and academic journals. Sarita felt that using this common language provided students with the confidence to signpost their own higher order thinking within the zone of proximal development (Vygotsky, 1978). During this teaching episode she discovered that students were referencing the language of the toolkit in their discussions.

‘It is really helpful because students talk that language back at us. And say things like “it is a trade journal so it’s a practitioner insight” and “I can’t use this because it is a practitioner and we’ve been asked to look for an academic journal.’ (PLC)
Sarita’s example suggests how the vocabulary of the toolkit, supported by classroom discourse, could provide the scaffold which supports students to achieve the challenging task of being critical (Davis and Miyake, 2004). Her teaching episode also illustrates the enabling qualities of teaching frameworks, particularly toolkits to provide support to develop a common teaching language of criticality.

However, it is important to refer back to the purpose of this study as discussed in Section 1.3. I am not evaluating the specific use of the toolkit, in order to generate evidence about its validity as a tool to teach criticality. The value of ‘evidence-based’ teaching is contested in the literature (Wrigley, 2018). Using the example of the ‘Education Endowment Foundation’s Teaching and Learning Toolkit’, where teaching interventions were analysed to establish what worked to address the attainment gaps in schools, Wrigley warned about the danger of oversimplifying cause and effect and drawing conclusions from this (Wrigley, 2018). The contextual nature of the teaching situation, the interactions between lecturer and student and the differing perspectives of teachers when they are using specific tools from the toolkit are arguably of more importance (Wrigley, 2018).

Therefore, I contend that it is not the use of a toolkit or framework by itself that has made a difference to the participants in this study. What mattered is how they facilitated their own and students’ interactions with it in order to make meaning about critical thinking within their teaching contexts. Furthermore, these findings relate to the discussion in Theme One where educators recognised the power of reflecting on their own experiences to help them become aware of the importance of teaching criticality. As discussed in Section 5.1, the toolkit often provided the catalyst, indeed the ‘disorienting dilemma’, which encouraged educators to change their teaching practice to teach critical thinking (Mezirow, 1978). Lily said the toolkit had enabled her to understand what criticality meant within her own teaching practice. She mentioned that since using the toolkit, she felt that ‘critical thinking has a substance, a meaning, there is more clarity’ (PLC).

Teaching toolkits can support professional growth and development with particular pedagogic approaches and build confidence and competence with these (Terrazas-Arellanes et al, 2016). Oti highlighted this point when she said:
'It was very important for me to have this toolkit. For me it was something, how can I say “sent from the god”. [However] we have to use frameworks in conjunction with some teaching.’ (FG)

This is a critical point to make. The effective use of the toolkit needs to be backed by a strong pedagogical commitment on the part of the educator. This links back to the main purpose of my study which is how to support educators to learn to teach critical thinking. Having a toolkit gathering dust on the shelf does not mean that educators are learning to teach criticality. In fact, one of the key barriers identified was the fact that some educators were unclear about how to use the toolkit. The supporting professional development to help develop their practice further is discussed in Theme Five.

Participants identified the importance of accessible and adaptable toolkits and frameworks to make criticality meaningful and relevant for different teaching contexts (Margolin and Hayden, 2015). For example, Zola adapted a teaching activity in the toolkit to help her teach sampling. She combined two of the tools and adapted some of the wording to create an exercise which helped students break down their analysis into small steps. Through this process, students were able to access the data more easily, look at it from different angles and work out which specific data they should be using. Zola said:

‘You can adapt it with little effort and the [students’] work will be better. It blended into what I was doing already. I gave something to complement what I was doing’. (INT)

Therefore, toolkits can be part of a scaffolded process of teaching criticality where the acquisition of critical thinking skills is accessible, relevant and tailored to the specific teaching context and knowledge being investigated (Margolin and Hayden, 2015, p. 611).
Active and collaborative learning

Participants have experimented with active and collaborative instructional practices which are critical to teaching reasoning and evaluation (Bezanilla et al, 2019). Through reflecting on these experiences, they have identified the benefits and limitations of some of these approaches which is critical to advancing knowledge and practice about teaching criticality (Lu and Wang, 2021). The following examples support and extend some of the examples found in the literature.

Kai’s teaching episode illustrated Fink’s (2003) classification of active learning principles when he described a collaborative group task where students had to identify clinical sources, critique them and develop a formative essay plan together for presentation and feedback in class. Kai explained:

‘I think that co-production is a really solid way of doing it because students really value the thinking of somebody else. They learn a lot when they articulate that thinking.’ (PLC)

Evidence from this study suggests the utility of an active stepped approach to teaching critical thinking as detailed in Figure 10 below (Duron, Limbach and Waugh, 2006). This 5–Step Model for teaching critical thinking has been chosen because it relates to the structure of the lesson plans and observation forms which participants developed and used as part of their experiential teaching observations (see Appendix Five). Participants noted the specific critical thinking learning objectives of their session, any pre-class activities, which skills they were aiming to develop, how they assessed whether the learning outcomes had been met, evaluation and feedback and concluded with an action plan where learning from this session could be taken forward.
For example, Oti’s observation of Nina’s teaching (see Appendix Five for lesson plan) is used as an illustration. **Step One** involved identifying the learning objectives which were to,
'analyse existing strategies and recommend new strategies for your chosen brands for your own individual portfolio report. Apply learning to simulation decisions.'

(NPC)

Nina then proceeded to **Step Two and Three** to teach these concepts using a series of guided questions arising from the Case tool from the toolkit. She put students into groups to discuss their answers, and explained that,

‘through group discussion, students should analyse data from the case, show evidence of research, share with the class, and explain their viewpoints about their recommendations’. (NPC)

For **Step Four**, Oti observed that Nina provided students with an introduction and guidance to the activity and moved around the tables to answer students’ questions and provide feedback. Nina noted that this way of teaching critical thinking to students was very rewarding especially when students announced that they no longer needed her help because they had mastered the task. She said:

‘So it’s really taking them by the hand and taking them on a journey in understanding the data and making sense of it, it has to be progressive and that is the best of teaching when suddenly they say “ah now I get it” now let’s do our work in our team.’ (NPC)

Finally, for **Step Five**, Nina created a formative quiz to reinforce the concepts students had learnt. The structured guidance, input and feedback from Nina, as well as the opportunity to engage in active and collaborative activities, enabled critical thinking teaching to take place (Bezanilla *et al*, 2019).
Participants discussed online collaboration and the impact this had on teaching critical thinking. Participants valued learning and teaching tools like ‘Padlet’ and ‘Google Docs’ which supported their critical thinking teaching through collaborative learning environments (Lin et al, 2016). For example, Lily described a teaching episode where she supported students to evaluate the connections between theory and the real world. She designed an online storytelling activity which students used to discuss a new business trend called ‘reimagine the future of the business model’. She created a collaborative online space for this task. She produced a google doc template with a series of column which students had to collaboratively complete in breakout rooms by writing a story about what a business could look like in the future. Students then shared their stories back in the synchronous classroom. Lily explained:

‘I said “okay why don’t you implement what you have learned in class and fill out each column with his or her own story”. Because there is a story behind it, a story for the future. So it’s like science fiction.’ (PLC)

This is an interesting finding which links to the value of using real world examples to teach criticality (Bezanilla et al, 2019) while extending this to an online space. There appears to be little written about this so this could be an important addition to knowledge in this area.

There were a number of other examples of how educators were using chat features to provide feedback to students and to help gauge their level of engagement with activities designed to teach critical thinking. Nina reflected on her teaching observation of Oti’s session and likened the dialogue and feedback in Oti’s class to ‘a partnership journey and I thought this was very powerful’ (PLC).

Here, a student made a suggestion and received positive feedback about how this could be a new way of evaluating a concept. Nina felt that the online collaborative environment was an enabler and a safe space which was ‘very empowering for students because everyone was in the same boat and doing the same work’ (FG).
This could provide further support for critical thinking as a threshold concept which could be more easily facilitated in a more democratic space provided by the online environment and which could arguably be less intimidating than a face-to-face classroom. This could enable teachers to use critical thinking to support students to access new ways of thinking and knowledge in this collaborative online space (Meyer and Land, 2003). However, it is important to mention that there was contesting evidence in the findings which discussed some of the barriers of using technology. These will be discussed within Theme Four to follow.

To conclude this theme, there is evidence which adds to the literature about using dialogue to teach criticality by identifying the power of dialogic teaching principles and toolkits as scaffolds. Active and collaborative learning techniques, particularly in the online space, were identified as key enablers which adds to the field of literature. I now discuss the barriers to learning to teach critical thinking.

### 5.4 Theme Four: Resistance and Fragility

#### Tension between skills and content teaching

This study has provided an additional contribution to knowledge about the challenges of trying to embed critical thinking skills and competencies into existing curricula (Chan et al, 2017). First, there was no evidence to suggest that the research site did not recognize the importance of teaching critical thinking (Chan et al, 2017 p. 3). On the contrary, as discussed in Chapter One, the language of criticality is infused within key institutional documentation and within all programme and module learning outcomes of study.

However, participants highlighted the tensions between teaching critical thinking skills and teaching disciplinary content. Leyla explained:

‘It’s really hard to [teach criticality] in these types of lectures because of core content and it’s hard because you have a maximum amount of information to get across in a limited amount of time.’ (INT)
Hanna agreed and noted her teaching schedules were crammed with content with no articulation of how critical thinking skills would be taught. She also mentioned the impact of a modularized approach to teaching within her programme which meant colleagues often focused on delivering the module rather than programme learning outcomes. She said that this often resulted in colleagues seeing themselves ‘as an island, only focused on their own task and not their module within the grand scheme of things’ (INT).

She observed that this mentality often resulted in a lack of alignment of teaching criticality across the programme, and a lack of clarity about how it should be taught (Nicolas and Raider-Roth, 2016).

Furthermore, participants described their feelings of powerlessness when trying to align their teaching of criticality with approaches taken in other modules. Kai expressed his frustrations with the modularized system, and the fact that modules were often co-taught which fragmented the consistency of critical thinking teaching. He said that criticality ‘still needs to be much more embedded but what mechanisms can be put in place to foster that I don’t know’ (FG).

These findings highlight the barriers caused by a lack of an aligned approach to integrating criticality within disciplinary content (Nicholas and Raider-Roth, 2016).

A lack of a common understanding of what critical thinking teaching looks like could contribute to the tension between integrating content and criticality in the curriculum (Chan et al, 2017 p. 3). I have already established in Section 5.2, the relative nature of critical thinking teaching and how it cannot be divorced from the context within which it is taught (Moore, 2011). There is a lack of clarity amongst HE educators about how to define and teach criticality within their own teaching practice (Lloyd and Bahr, 2010). For example, Zola noted that when she talked to colleagues about integrating criticality within their content teaching they said ‘this [is a] whole new thing and I don’t know where to start with this and I don’t know what I am doing’ (FG).
Furthermore, Sami reflected on the barriers he had personally experienced trying to define criticality in his own practice. He said ‘I thought I had the theoretical understanding of critical thinking but the more I look at it, the more I realise I don’t know’ (INT).

Sami explained he currently viewed education through the lens of a professional educator. He said that to change the way he taught content and skills, he needed to change the lens through which he viewed his practice. Continuing with the lens metaphor, he suggested that teaching criticality needed to be much more explicit in the curriculum. He said:

‘It is currently in soft focus and is in the background at the moment. It needs to be in sharp focus and what people understand… as I have spent more time in education, my lenses have changed to varifocals and I sometimes look through the top of the lens, sometimes through the bottom and sometimes in the middle.’ (INT)

These examples suggest that to overcome the ‘troublesome nature’ of learning to teach critical thinking, educators could challenge their previous perspectives about their content teaching and engage in professional development to learn how to infuse the discourse of criticality within it (Meyer and Land, 2003). Through learning this new knowledge, educators could transform how they view their critical thinking teaching practice (Meyer and Land, 2003).

This resistance and pedagogic fragility is now explored further

**Academic resistance and fragility**

The tensions between teaching skills and content within disciplinary curricula discussed in the previous sub-theme could be related to the concept of ‘pedagogic frailty’ as detailed in Figure 11 below (Kinchin *et al*, 2016, p. 4). Pedagogic frailty is fully defined in Section 1.4. It is a concept which explains the impact of and relationship between the following
factors on educators’ motivation to enhance their pedagogic practice: how the curriculum is designed and regulated; tensions between content and skills’ teaching; the interrelationship between the status and rewards of research-led teaching; and the tensions between academic autonomy over teaching and the quality agenda (Kinchin et al., 2016). It has been chosen because it relates to the barriers which have been reported in Section 4.4. This study adds to knowledge about this concept by articulating specific examples of the fragilities experienced by educators as they adapted their learning and teaching practices to teach the ‘troublesome’ concept of critical thinking (Meyer and Land, 2003, p.2).

![Figure 11: Model of pedagogic frailty (Kinchin, 2016 et. al, p. 4)](image)

Tensions exist between the institutions’ pedagogic and disciplinary teaching approaches and the resulting impact on faculty motivation, skills and confidence to experiment with teaching criticality (Kinchin et al, 2016, p. 9). Despite the necessity of supporting HE teachers to explicitly teach criticality, many have rarely experienced training to support them to do so (Halx and Reybold, 2005). This fundamental adaptation to practice involves
a shift from a teaching-centred to a learner-centred paradigm (Schendel, 2016). However, participants mentioned that their disciplines often used didactic teaching approaches (Chan et al, 2017). For example, Zola and Leyla spoke of the unwillingness of colleagues to move out of their comfort zone of teaching didactically to a more student-centred dialogic approach. Leyla said that colleagues often ‘don’t encourage students to speak out, they just want to lecture’ (FG).

This barrier could mean that educators are reluctant to move to the student-centred, facilitative teaching approach which enhances criticality (Chan, 2012b). This needs a professional development programme which explains the rationale and practice of doing this, so that educators are aware of the work and resources involved (Tabulawa, 2013).

However, participants expressed frustration about not having the time to be able to attend training or to implement learning from professional development about teaching criticality. For example, Mia likened the ‘space for professional development to a privilege’ (PLC). She said that, in her experience, to follow up the implementation of professional learning needs ‘momentum, continued commitment, energy and space’ (PLC) which she stated she did not feel she had within her existing role. This provides another example of ‘pedagogic frailty’ (Kinchin et al, 2016) where HE lecturers felt they had no ‘locus of control’ due to competing demands posed by the pressures of time to prepare teaching materials. This could result in an acceptance that their work just had to be good enough.

However, Lily offered a counter perspective. She felt that academics often resisted taking part in professional learning to improve their teaching practice (Quinn, 2012, p. 69). She suggested the barrier to learning to teach criticality was because educators needed to clearly see the impact which engaging in professional development had on their career prospects. She questioned the benefits for time pressed, stressed educators engaging in professional development programmes about critical thinking skills instruction. She said:
“I think it’s not so much about how you are going to do the training, it’s about what they are going to gain out of it. What are the benefits, so they need to see some tangible benefits?’ (PLC)

Alina related this to the ‘locus of control’ pedagogic frailty discourse when she noted that educators often would resist attending any professional development sessions about critical thinking teaching because they were happy with their current practice and were reluctant to change it (Kinchin et al, 2016, p. 4). This could also relate to the tensions between delivering content over skills, as discussed above, where some educators view teaching as transmitting content rather than adopting the student-centred facilitative approach needed to develop criticality (Tabulawa, 2013). As Lily articulated, educators need to see some benefit or outcome to their own professionalisation or reward structures so that they are prepared to experiment with new teaching practices (Kinchin et al, 2016). This risk averse approach, while understandable, does provide significant barriers in terms of creatively developing new teaching approaches and to advance the scholarship of learning and teaching in critical thinking pedagogy (Winston and Millward, 2012). This suggests that an authentic, informal professional learning with accessible and relevant teaching resources could provide a solution which is further discussed in the final theme.

The barriers of teaching criticality could be linked to the changing role and function of the contemporary university within the era of marketisation, and the challenges this places on what institutions are there to teach (Chan et al, 2017). For example, Zola related this to the ‘KPI and transactional element of teaching’ (FG) which made it very challenging to incorporate skills within her content.

Alina mentioned the tendency of the research site to continually introduce new changes and ideas. This often resulted in distrust and resistance to adopt these changes because of a perception that these ideas may be replaced by a new set of initiatives. Alina’s example describes the pedagogic fragility educators might experience trying to keep up with these changes. This can result in the adoption of ‘safe’ pedagogic approaches and the avoidance of change (Canning, 2007). Alina explained:
‘We are all hugely busy and trying to build in something else and there is a view that the university tends to come up with hot new things every so often and this might be the next thing and then two years down the line it might be something else.’ (PLC)

Kai discussed his sense of helplessness over the lack of space to embed a pedagogy of critical thinking into existing teaching practice. He described the increasing stress placed on educators due to constantly having to review their curriculum and teaching, with increased teaching workloads and resource problems. He felt that introducing a new pedagogic approach for critical thinking could place additional stress on colleagues. The corresponding resistance to change clearly impacted on his department’s ability to experiment with the new critical thinking teaching techniques which Kai had learned about. Kai said:

‘People are literally heads down and focusing on what they need to do. I don’t think that the team are personally uninterested, it is just that it is low down the list of priorities.’ (FG)

This contributed to his feeling of isolation because he believed he was the only educator in his department who was explicitly teaching criticality to students. Collectively, these factors could impact on educators’ motivation and confidence to change their pedagogic practice to teach critical thinking (King and Bunce, 2020).

There were many comments about academic identity and how many educators perceived themselves to be teachers of disciplinary content. Furthermore, some participants articulated the scepticism about the role of the academic to teach critical thinking skills in the curriculum and the fact that it was not perceived to be their responsibility (Chan et al, 2017). Leyla mentioned the tensions between research and teaching responsibilities (Kinchin et al, 2016, p. 4). She said that some faculty colleagues felt that because they predominantly worked within the research domain and, despite the fact that teaching was still part of their contract, they did not want to engage with new pedagogic ideas. Leyla noted ‘it’s the culture and people switch off because that’s all about the pedagogues.. they see it as beneath them to teach it’ (INT).
However, there were different perspectives across disciplinary teaching contexts, with more discussion about this tension in the science and healthcare disciplines. This could be due to the expectations of professional bodies where a certain amount of knowledge had to be covered (Kinchin et al., 2016). Alina mentioned the accreditation demands of her professional body which explicitly specified their expectation of students over their three year degree. In addition to learning a large amount of context, her students needed to do 300 hours of practical which Alina felt impacted on her and her colleagues’ ability to infuse criticality in her teaching. She felt that this was a significant challenge as it involved a shift in mindsets. Alina noted:

‘I am not sure how easy it will be to change the mindset of the entire faculty or even just my department despite the fact that we have very good leaders who are encouraging us.’ (PLC)

So in contrast to the skepticism displayed by some colleagues, others simply felt that they lacked the agency discussed in the ‘locus of control’ to enable them to embed critical thinking teaching in their practice. These tensions illustrate the complexity of the interplay between the dimensions of pedagogic frailty and the resulting ambiguity when trying to implement a new pedagogic approach (Kinchin et al., 2016).

A final barrier mentioned by participants was a lack of confidence to learn to teach criticality. Oti suggested that some colleagues used a student and schools’ deficit discourse, blaming secondary schools for not teaching criticality sufficiently to students or blaming the students for not having learned these skills (D’Andrea and Gosling, 2005). She felt that colleagues used this as a smokescreen for their own skills’ shortcomings. She suggested:

‘They have to accept that they don’t know… I mean sometimes we make excuses, we do not say the real thing. If I feel confident in doing something then I would say yes okay I know how to do it.’ (INT)
This suggests that support is needed for educators to shift this negative perception of students’ knowledge about criticality when they enter university and draw on the benefits of their prior learning in order to develop accessible and inclusive critical thinking pedagogic approaches (Quinn, 2012). These perceptions about students’ prior learning, and fragility with regard to students using critical thinking, are now explored further.

**Student resistance and fragility**

There are challenges with influencing students about the importance of developing critical thinking skills within their disciplinary studies in HE (Chan et al, 2017). This study provides different contextual examples about how these barriers are experienced by staff who are trying to learn to teach critical thinking. Lily suggested that ‘students didn’t seem to have the exposure to critical thinking at secondary school’ (INT).

This impacted on her attempts to teach it. As discussed in the previous sub-theme, academics often made assumptions that students should know how to think critically when they enter university so do not need to be explicitly taught to do so. This was supported by Nadya, who noted the diverse backgrounds of her students regarding their prior learning. This often meant that varying levels of support were needed to help their critical thinking development. Nadya said ‘you have the international mix, different cultural and educational backgrounds. So some students need this more than others’ (PLC).

While these comments resonate with parts of Quinn’s ‘student/schools deficit discourse’ where teaching challenges are often blamed on the student (Quinn, 2012, p. 76), other findings did not suggest that it was students' lack of criticality that needed to be ‘fixed’ (Quinn, 2012, p. 77). On the contrary, Kai reflected on the importance of seeing this barrier from the student’s perspective because they have not previously been taught criticality. He said educators needed to support students by ‘making explicit all of these implicit rules that operate in HE around using evidence and things’ (PLC).

However, there was little evidence to suggest that this perspective was shared by the wider faculty. I reiterate Oti’s comment in the last subtheme that some of her colleagues
felt that students should know how to be critical and that they should not have to teach it. There is a danger that these misplaced assumptions, coupled with the fact that students have experienced different levels of exposure to criticality, could prevent equitable opportunities to learn criticality being made available (Halx and Reybold, 2005). This suggests that there needs to be an inclusive and accessible approach to teaching critical thinking. A shift in perspective from a deficit model of student capabilities is needed (D'Andrea and Gosling, 2005, p. 192). Educators ought to think critically about their teaching practice, their teaching mindsets and participate in professional development to help them teach criticality within their curriculum (Hoggan, 2016).

Consequently, findings from this study add to the debate about the impact of students’ prior learning experiences with critical thinking on how they subsequently use these skills in the tertiary curriculum. Hanna noted how her cohort were not making the connections between the various topics they were learning, nor thinking critically about how to apply this content to practical scenarios or complex problems. This could be because they lacked the confidence to know how to do this as it involved a big leap in their learning (Nicholas and Raider-Roth, 2016 p. 4). This lack of confidence could be explained by the priority given to academic outcomes in secondary education and college, and to a didactic rather than student led teaching approach (Moseley et al, 2005). As discussed in Chapter Two, there is little evidence which indicates that critical thinking is explicitly taught in the secondary school national curriculum in the UK (Ku, 2009).

Evidence from this study indicates that students are unlikely to have this critical mindset when they start their HE studies which can lead to feelings of discomfort and alienation when faced with having to learn and apply criticality in HE (Moon, 2008). This negative student perception of criticality being difficult provides promising evidence to support my main argument that critical thinking is a threshold teaching concept within disciplinary curricula which staff need to learn how to teach (Meyer and Land, 2003. The impact of the marketized student landscape on students’ motivation to be independent learners and to take a critical approach to their work was also referred to by Sarita as a potential barrier when she said:
‘I feel slightly annoyed that they somehow have been misled. Students arrive at university lacking the basic skills [because of the] spoonfeeding they experienced at school and college.’ (INT)

A transmission-based teaching approach could contribute to students’ conceptions of knowledge as absolute, where learning is about memorization of what is being taught by teachers who are seen as the experts (Magolda, 1996). Alina provided another example of this when she said:

‘A Level is renowned for marking students down if they don’t learn a particular phrase to answer a particular question, even if they might give a better answer.’ (INT)

Alina went on to talk about the frustration felt within the HE in response to this narrow approach to learning at secondary school which she felt inhibited students’ natural inquisitiveness and interest. It also made the transition to thinking critically at university a challenge. This is a good illustration of the next stage in Magdola’s (1996) continuum, where students start to question knowledge and accept that there is uncertainty surrounding it and that they need to take a position.

Finally, there is evidence in this study which indicates that confidence with using criticality is not limited to learning experiences prior to HE but can be apparent between levels of degree programmes. For example, the implications of not being able to search effectively for literature on students’ criticality have been illustrated by some of the teaching episodes in Chapter Four. For example, Sarita and Kamal explained that if students did not have the skills to search for literature, it hindered them from being able to critique the credibility of sources and the information within these sources. Oti mentioned that this also applied to some of her final year students. However, she was careful not to default to blaming the students for this gap in their knowledge (Quinn, 2012). Instead, she recognised that her students may not have been taught to do this or provided with feedback on their attempts to do so. She said that faculty had to take responsibility for explicitly teaching these skills,
perhaps by using the activities in the toolkit. Darya supported this point when she highlighted the difference between students who ‘have hit the ground running at level 5 [and others] have not mastered some of the level 4 skills of finding literature’ (FG).

She mentioned the challenges this posed for groupwork when students were working at different levels of criticality. In short, participants seemed to be in agreement that to counter this barrier, students need to be taught criticality explicitly in the curriculum, and teachers needed pedagogical methods and explicit training to support them (Schendel, 2015).

It will take effort and support for educators to help students to overcome their perceptions of the difficulties of thinking critically (Moon, 2008). Findings highlight that students often find the concept challenging. As discussed above, this is particularly evident when students enter university from secondary school or college. This could be explained in a number of ways. First, as discussed above, students could enter HE lacking confidence and competence to think critically, instead relying on a passive learning approach where they are provided with information to reproduce in their assessments (King and Bunce, 2020). Hanna recognised the importance of developing students’ dispositions to think critically but noted the barrier posed by the extrinsic motivations of some students who had ‘a sense of entitlement [and] want to get their qualification but they don’t seem to want to do the work to get it’ (INT).

Lily’s teaching example, discussed in Section 4.5, further highlights the impact of the marketized HE landscape where students perceive getting a degree as a pre-requisite to getting a job (Bunce, Baird and Jones, 2017). The student she described was very resistant to writing a critical reflection about his assessment and placement experiences because he ‘just wanted to go into the marketplace, do the job and take the grade’ (INT).

This student was unable to see the point of learning critical reflection because he felt that his module was about the practical aspects of business. These negative perceptions could potentially be a product of students being educated within a marketized HE educational environment and who take an instrumentalist approach to their learning (Tomlinson, 2017).
However, the pedagogic relationship is symbiotic. The motivations, attitudes and behaviours which students bring to the classroom can impact on the motivations, attitudes and teaching styles of educators (Pelletier, Séguin-Lévesque, and Legault, 2002). This was evidenced by Lily’s teaching episode, described above, when, in response to this student’s strong preference not to be taught criticality, she removed this element from future assessment. These examples illustrate the mismatch which can exist between student and educators’ perceptions of criticality which can impact on the learning and teaching experience (Danczak, Thompson and Overton, 2017). However, as discussed in Theme Three, there could be an opportunity to overcome students’ negative perceptions about critical thinking with an explicit pedagogic approach and the development of a common language. This approach would need a co-ordinated and collaborative effort on the part of educators as well as professional development and resources. It is further developed in the final theme in this discussion, as well as in Chapter Six.

Furthermore, Alina provided a particular example of a classroom activity where students were asked to evaluate an academic paper and establish whether the findings were correct. She explained that students struggled with the idea of disagreeing with the findings of an academic, perhaps due to their epistemological beliefs developed through their previous learning experiences (Moon, 2008). She noted that students ‘couldn’t make the connections between what they had read in the journal article and what they had learned so far’ (PLC).

This discomfort could be explained by the fact that this was their first time analysing academic material in this way which involved setting aside any previous beliefs and assumptions and challenging their current ways of thinking (Halx and Reybold, 2005). It illustrates the ‘epistemological obstacles’ which students can face when learning about a new and problematic idea, in this case, how to draw conclusions from academic literature (Meyer and Land 2003, p. 3).

However, Hanna provided another explanation for students’ discomfort about thinking critically. She explained how student perspectives about criticality can be situated within their cultural perspectives and backgrounds (Pithers and Soden, 2000). Hanna described a teaching episode where she was encouraging students to develop a critical stance within an ethical healthcare scenario about abortion. A student found her cultural beliefs about
this scenario were tested when providing her patient with advice. Her perspective originated from her own cultural background and made it difficult for her to understand the perspective of her patient. This experience enabled Hanna to discuss the challenges posed by differing cultural beliefs and perspectives. She explained to her student that ‘she didn’t have to change her personal beliefs [but could not] instil them on other people at work’ (INT). Working through this barrier provided a moment where both parties came to an understanding of how criticality could be demonstrated at work.

As evidenced in the teaching episodes discussed thus far, students find criticality difficult and the concept can be likened to ‘troublesome knowledge’ (Meyer and Land, 2003. p. 2). When faced with the difficult transition between being taught at school or college and then at university, students may struggle to see the benefit of critical thinking skills to their learning. Leyla tried to give students agency over their learning by teaching them how to find their own voice within their academic reading. She observed that her students ‘were not motivated or interested and that it was so far removed from whatever is going on with them’ (PLC). She reflected that perhaps she introduced the concept too early in the semester and needed to rethink the timing and approach to introducing this.

Critical reflection is a threshold concept within the social work discipline (Foote, 2013). Building on this study, a teaching framework to support students to think critically within their discipline could represent a ‘threshold concept’ within higher education. This pedagogic framework, supported by a common language of criticality, could help students to access subject knowledge which was previously difficult for them to master (Meyer and Land, 2003). Teaching episodes detailed in Theme Three support this suggestion. Participants used the language of dialogic teaching and teaching toolkits, to help students overcome the challenges of thinking critically about disciplinary topics (Meyer and Land, 2003). Participants adopted a student-centred, scaffolded teaching approach, which situated the language of criticality within the discourse and epistemology of the discipline. This helped students work through the ‘threshold’ (Meyer and Land, 2005, p. 384) to learn how to demonstrate criticality. However, in order to achieve this, educators need to be supported with professional development and resources.

To conclude, this theme highlighted the tensions between teaching skills and content in the curriculum. It outlined academic resistance to learning to teach criticality. This was
often caused by conflicts with research and other responsibilities, a lack of confidence to engage with learning and limited pedagogic support. I have explained the impact of the marketized educational landscape on educators’ willingness to learn to teach criticality. Furthermore, I have illustrated some of the barriers caused by misconceptions about students’ levels of prior knowledge about critical thinking and their own perceptions of its difficulty. These challenges could be addressed by authentic professional learning and accessible teaching resources which are discussed in the final theme.

5.6 Theme Five: Authentic Professional Learning

Authentic professional learning

Before discussing the evidence about authentic professional learning, it is important to refer back to the purpose of this study. This thesis has investigated the practice-based problem of how to support teachers to adapt their teaching practices to teach critical thinking. It has not evaluated the impact of specific critical thinking professional development programmes which participants have engaged with. To reiterate the narrative in Chapter Two, to the best of my knowledge there are very few studies about staff development programmes on critical thinking, and how to engage educators in these. Indeed, the importance of further research on how to support educators to teach it effectively has been identified (Bezanilla et al, 2019). Therefore, this discussion focuses on suggestions educators have made based on their own lived experiences about how their learning could be enhanced with resources and continuous professional development. It is through these findings that this study provides a contribution to the professional learning literature.

As discussed in Chapter Two, there is much scholarly discussion about the way in which professional learning for educators is conceptualized and delivered (Webster-Wright, 2009). The examples to follow endorse the argument that this support should be conceptualized, based on the notion of “authentic professional learning” (Webster-Wright, 2009, p. 703). This is summed up nicely by Oti in Section 4.6, when she said ‘professional development needs to be contextual, meaningful, practical and pragmatic’ (PLC).
Alina set the tone for how participants felt about learning to teach critical thinking when she said that she and her faculty colleagues ‘are not experts and we are swimming blind and trying our best’ (FG).

Lily supported this, saying that while there had been some professional development at the research site, she felt that the content and mode of delivery needed to be adjusted to be more applicable to practice. She recommended that ‘staff need some help about how to introduce critical thinking [which should be] more practical with some more examples and practical exercises’ (FG).

Oti agreed with Lily. She said she liked to keep abreast of pedagogical practices through self-directed learning. However, she noted that it was not enough to just acquire knowledge through reading about best practice. She felt that in order to develop skills and teaching behaviours for teaching criticality, she and her colleagues needed to try out these skills and build this learning into their daily activity (Knight, Tait and Yorke, 2006). While workshops could introduce the concept of teaching critical thinking, they should be supported by authentic learning activities which are part of educators’ everyday practice (Knight, Tait and Yorke, 2006). In this way, professional development could be viewed as an ongoing process of learning, which goes beyond simply mastering knowledge (Hodge, 2019). Oti also recommended that professional learning activities used practical teaching scenarios. She suggested that lecturers would work through these to see where and how they could embed critical thinking. Then they could try these out in practice and write them up as learning resources for themselves and to share with colleagues.

There is evidence to suggest that professional learning should be socially situated within participants’ working contexts (Webster-Wright, 2009). For example, Sami recommended that professional learning needed to be relevant and meaningful. He described his experiences of previous training where he was unable to see how it could be applied to his own teaching practice. He suggested that a professional learning programme for teaching critical thinking should contain case study examples and details about how these were used in practice which can be shared with others. He likened this process of modelling teaching to a character in a film he had watched,
'You know like that character in Jack Nicholson, you know you make me want to be a better man. It's a bit like that character. You make me want to be a better educator because I see other people are doing things better.' (INT)

Leyla agreed and described a professional development programme where she learned how to use a new virtual learning platform. The programme started with an introductory two-hour workshop which introduced the technology. Participants were provided with a book of activities to work through in the sessions and then try out in practice. These introductory workshops were followed by a series of lab-based sessions. In these, Leyla reflected on her teaching experiences, asked further questions, shared her practice and used this learning to enhance her activities for future use. This process of sequential guided learning over a period of time supported Leyla to learn the design skills needed to produce effective online resources to teach her module (Thurlings and den Brok, 2017).

This example suggests that an experiential model of learning, based on having a concrete teaching experience, reflecting on it both individually and with colleagues, and then experimenting with this new learning, could provide the basis for a critical thinking professional development programme (Kolb, 2015).

In fact, Leyla drew on this experience to provide her own recommendations about what this professional development programme could look like. She suggested a scaffolded guided approach where ‘the first session would go through what critical thinking is and how it is applicable to teaching’ (INT). She proposed using the toolkit as the workbook resource for educators because of how it could be contextualised to different disciplines, as discussed in Chapter Four. She advised that a range of exercises could be developed for educators to work through during a series of workshops. Leyla advocated designing a series of critical thinking activities based on what participants could try with their students, for example, a debate, a role play, a lab investigation. During a series of experiential learning sessions, educators could be supported to devise a ‘proforma’ for an activity to try in their class which would include pre and post session critical thinking activities. Leyla felt this approach would help to ‘elicit engagement and repartee in class and bring something alive for your students’ (PLC).
Leyla recommended that activities generated from this session and subsequently tried out in practice could be shared on a central repository for others to adapt and try out in their practice. This sequential form of learning could influence both the educators' knowledge, skills and attitudes towards critical thinking as well as their domain of practice where they experiment with teaching ideas (Clarke and Hollingsworth, 2002). It also relates to the first theme discussed in this study, learning from experience. Educators could participate in a critical thinking learning experience, try it out in their practice and then think critically about how to enhance it (Moon, 2008). The reflective element of Kolb’s cycle could happen both individually and also socially during the follow up learning sessions, and educators could move between the different modes of the learning cycle according to their own needs (Kolb, 2014).

Furthermore, as discussed in Theme Two, collaborations and connections, there is evidence to suggest that collaborative teacher professional development activities such as peer to peer observations, peer feedback, peer coaching and action learning sets could form the basis of a professional learning programme (Thurlings and den Brok, 2017). Participants recommended authentic professional development which involved masterclasses in critical thinking teaching so that they could see watch best practice. Mia proposed a process of buddying or consultancy where educators who had experience of teaching criticality buddied up with less experienced educators to review modules and provide them with a checklist to show where they could embed criticality in the curriculum.

**Authentic resources**

Kai suggested that a ‘teacher’s toolkit’ of contextualized and accessible instructors’ resources could be produced and used in professional development sessions. If captured, written up and shared, these resources could make tacit knowledge from teachers’ critical thinking teaching experiences explicit and thus help educators to understand the learning which is important to their own practice (Knight, Tait and Yorke, 2006). Kai suggested that each tool or activity could include a commentary on the purpose and value of the tool, and a description of how to embed it in teaching. Kai also recommended developing videos
and podcasts as part of the toolkit to increase its accessibility. He suggested podcasts would be useful for time pressed academics and they make learning more accessible. Kai said:

‘At your desk you could sit and listen to a 5 minute conversation with somebody in engineering about how they are using, for example the Argument Map. It makes it more accessible and you could build a library of these.’ (PLC)

These resources could be used by educators for their own professional learning and also as a teaching resource for their students. The design of the tools, and the techniques for teaching them should be flexible enough to be modified for different teaching situations and contexts (Mintzberg, 2004). Using these toolkits could create the disorienting dilemma which triggers educators to think differently about their teaching practice (Kroth and Cranton, 2014). As Sami said above, seeing how colleagues had used the toolkit to teach criticality had inspired him to be better at teaching criticality within his own practice.

Furthermore, Alina raised the lack of resources for developing powerful questions to use in her discipline and suggested that a moderator could facilitate the development of these questions in an action learning set. Colleagues would be prompted to ‘think critically about the question’ (PLC) and challenge themselves to consider whether the questions enhanced critical thinking or merely encouraged problem solving. Alina felt these could be developed into a teaching resource.

To conclude, evidence from this study suggests the ‘troublesome’ nature of the concept of teaching critical thinking as discussed in Themes One and Two (Meyers and Land, 2003, p.5). To reiterate, this study’s key argument in Section 1.5 is that critical thinking is ‘troublesome’ to define (Davies, 2013) and ‘troublesome’ to teach (Janssen et al, 2019) because professional development and resources are needed to support educators to do so (Bezanilla et al, 2019). The teaching episodes suggest that this threshold concept could be learned through the experience of teaching within disciplinary settings supported by reflection, guided professional development activities and experimentation. Mastering the skills and knowledge to do so, within a familiar setting, could trigger the transformative learning experience to enable staff to change their perspectives, understanding and behaviours about how to teach critical thinking (Hodge, 2019).
5.7 Conclusions

I explained in Section 1.6, Figure Two, that this study is situated within a pragmatic social constructivist framework, and guided by transformative and experiential learning, and threshold concepts’ theory. For ease I have included this framework again below:

![Diagram of Hybrid theoretical framework]

Social Constructivism and Pragmatism

**Figure Two: Hybrid theoretical framework**

Findings suggest that for continuous professional learning in teaching critical thinking to be successful, it could be embedded within a model of learning (Daley and Cervero, 2016). The data provides some evidence to suggest that transformative learning, threshold concepts and experiential learning could underpin the model of learning. Consequently, I have synthesised this study’s themes with Daley and Cervero’s model of continuous professional education (Daley and Cervero, 2016). The original model discussed in Section 2.6 is included below followed by the enhanced model with the changes indicated in red. I then discuss these developments which have been informed by the themes identified in this stu
Figure Six: A Model of Learning in CPE, adapted from (Daley and Cervero, 2016, p. 21)

Figure 12: A Framework for Learning to Teach Critical Thinking (added to Daley and Cervero’s Model of Learning in CPE 2016, p. 21)
Learning in Continuous Professional Education in Critical Thinking Teaching

The ‘Learning in Continuous Professional Education’ at the top of the model has been replaced with ‘Learning in Continuous Professional Education in Critical Thinking Teaching’. In Theme Five ‘Authentic Professional Learning’ participants discussed how they wanted continuous professional development to be authentic and accessible and based on informal learning approaches. For example, in Section 5.6, Oti said ‘professional development needs to be contextual, meaningful, practical and pragmatic’ (PLC).

In Chapter Six, there are recommendations for what this professional development could look like.

Critical Thinking Teaching Practice as a Threshold Concept

The ‘Knowledge’ box at the centre of the model has been replaced with ‘Critical Thinking Teaching Practices as a Threshold Concept’. As discussed in Theme Four, this study suggests that critical thinking teaching practices are a threshold concept (Meyer and Land, 2003). There is some evidence to support the ‘troublesome, alien’ nature of learning to teach criticality. This is perhaps best illustrated by Alina in Section 5.6 who likened her own learning process to swimming without being able to see where she was going. She said ‘she was swimming blind [because] she did not always really know what critical thinking is’ (FG).

However, there was also evidence to show that participants had acquired the knowledge, skills and behaviours to change their perspective about their learning and crossed the critical thinking teaching threshold, for example Nina’s teaching episode detailed in Section 5.2 where she persevered with a student who found critical thinking challenging. Consequently, threshold concepts delivered through transformative learning could be a useful lens to support educators to become aware of what critical thinking teaching is and how to teach it (Foote, 2013).
Figure 12 draws upon the ingredients from the hybrid theoretical framework outlined in Section 1.6. It synthesizes transformative learning (Mezirow, 2000), threshold concepts (Meyers and Land, 2003) and experiential learning (Kolb, 2015) as a mix of theories to support continuous professional learning in critical thinking teaching. The ‘Transformative Learning’ Box remains and is partially supported by evidence from Theme One. Transformative learning has been used as the lens through which to examine the beliefs, attitudes and behaviours of staff with regard to their critical thinking teaching practices in the classroom. There is some evidence in Section 5.2 of partial transformations where participants experienced different forms of ‘disorienting dilemmas’, for example Lily’s episode with an angry student which cause her to review her assessment design. This study has also provided new insights into the nature and definition of the ‘disorienting dilemma’ (Mezirow, 2000, p.22) which are discussed in Section 6.2

These ‘disorienting dilemmas’ when followed by a process of both individual and critical reflection have partially transformed staff perspectives and behaviours about learning to teach criticality. I therefore suggest that transformative learning can be used to support learning to teach critical thinking and could help staff identify what knowledge, skills, resources and developmental support they need to transform their critical thinking teaching practices (Jones, 2009). This is fully articulated in Chapter Six.

Teaching examples provide support for Mezirow’s early work about transformative learning theory which states that for educators learning to be transformative, participants needed to demonstrate a change in their perspective about their teaching methods (Mezirow, 1978). However, there was a variation in how participants experienced the linear stages of transformative learning within Mezirow’s original ten stage ‘perspective’ transformation process as detailed in Section 1.3 (Mezirow, 1978). Participants had a range of transformative learning outcomes, often depending on their particular learning contexts. Participants were beginning to understand and become aware of the importance of critical thinking teaching and were enhancing this metacognition through the challenges and dilemmas they articulated about these experiences. The process of participants’ perspective transformation involved practising and evolving their critical thinking teaching practice (Taylor, 1997).
Constructivist learning, disciplinary context and professional practice

The constructivist, disciplinary context and professional practice boxes remains the same in this adapted model. There are examples in the connections and collaborations theme in Section 5.3, of how participants have socially constructed their learning through professional dialogue which has helped them develop the professional capital needed to teach critical thinking (Fullan, 2016). A range of teaching episodes shows how participants’ learning has been situated in their disciplinary contexts, underpinned by the principles of experiential learning, critical reflection and experimentation (Kolb, 2015). For example, following her peer observation, Zola discussed how ‘it’s nice to get that positive feedback from somebody else who can see what I am doing at level 4 and say yes I can see that works’ (PLC).

In conclusion, the evidence from this study has been situated within the context of existing literature about adult learning, critical thinking teaching and continuous professional education and new contributions have been identified. I have offered a holistic picture of how participants have perceived their learning experiences as a process rather than an outcome, while they have tested and reflected on their cycles of learning to teach critical thinking (Kolb, 2015). The results sit well with the situated and experiential themes identified in the literature review, particularly that educators learning needs to be situated in practice with opportunities to reflect on and enhance this learning (Clarke and Hollingsworth, 2002).

Furthermore, findings could support studies which have found that educators’ individual reflections are enhanced through being based on their own everyday teaching practices, and through sharing knowledge about these experiences through collective collaborations (Kwakman, 2003). Through this collaborative reflection, participants have begun to collectively learn and share resources and examples of how they have experienced critical thinking teaching (Thayer-Bacon, 2000).

More detailed discussion about how educators learned, a summary of answers to the research questions, contributions to theory and implications for practice are discussed in the final chapter.
Chapter 6 Conclusions and Recommendations

6.1 Introduction

Chapter Six returns to my research questions and builds on the synthesis of themes with the literature in Chapter Five in order to provide a contribution to knowledge and practice. Finally, I reflect on the research process and its limitations and provide recommendations for future research.

6.2 Conclusions and Contribution to Theory

To reiterate, this practice-based study aimed to address a gap in the literature about how to support educators to adapt their teaching practice to teach critical thinking. This research has drawn on the pragmatic ingredients of my epistemology to provide a practical understanding of how educators are learning to teach critical thinking, what has helped and challenged them, and what professional development they need (Mackenzie and Knipe, 2006).

I have presented evidence from specific teaching episodes relative to different disciplinary teaching contexts to answer these questions. This is because critical thinking practices are best developed in the socio-cultural context in which educators find themselves (Vygotsky, 1978). Participants have socially constructed their learning from experimenting with teaching criticality within the multiple realities of these teaching contexts (Illeris, 2016). In doing so, I discuss the contribution made to learning theory. I refer again to the conceptual and theoretical framework in Figure Two which underpins this investigation. I will also use this to answer the overarching research question:

‘How can educators in HE learn to teach critical thinking?’
First, this study makes a contribution to transformative learning theory. Turning to the main research question, findings indicate that transformative learning could partially support participants to become aware of and learn to teach criticality. Evidence in Chapter 4 shows changes in how educators viewed their critical thinking teaching practices. Participants became more aware of how they were learning to teach critical thinking, by challenging their existing perspectives and changing how they teach (Calleja, 2014). They have also experimented with teaching resources and observed and shared these experiences with peers (Wenger, 2000). To my knowledge, this is the first study which has provided specific examples of perspective transformation relative to critical thinking teaching contexts (Mezirow, 2000).
Nonetheless, there is evidence of the nuanced and varied levels of this transformation. This was specifically highlighted through interactions in the professional learning conversations and focus groups (Calleja, 2014). For some participants, transformative learning experiences had started with a ‘disorienting dilemma’ (Mezirow, 2000, p.22). For example, Darya’s learning was triggered by using the toolkit which provided a catalyst for her to start to teach critical thinking. However, for others, there was no specific evidence of a ‘disorienting dilemma’ which started their process of transformative learning. Teaching episodes illustrate the relativist position of this study and the contextual and situated nature of participants’ learning (Webster-Wright, 2009). They may also suggest that the process of transformation could be disorienting but also iterative, and relate more closely to Kolb’s experiential learning cycle (Kolb, 2014).

Furthermore, these examples could illustrate the challenges associated with the core characteristics and typical phases of transformative learning (Nohl, 2015). My findings indicate that Mezirow’s ‘disorienting dilemma’ may not be an abrupt event, but the result of an iterative process (Mezirow, 1978). The teaching episodes described could cast doubt over the meaning of ‘disorienting’ and add weight to previous studies (e.g., Taylor, 1997, 2007) about the restricted scope of the sequential route through the Mezirow’s ten stage model (Mezirow, 2000).

‘Disorienting’ implies that participants could be thrown off balance or out of kilter by the event which triggers the process towards changing practice. Where participants were faced with a dilemma, there is little evidence to show that it threw them off course enough to make a sudden change to their teaching practice. Instead, the changes were incremental and perhaps not always immediately apparent. This could represent Nohl’s (2015, p. 39) ‘non determining start’ and provide evidence to advance current thinking about the types of learning outcomes which could be described as transformative (Hoggan, 2016).

**Experiential Learning Theory**

Secondly, this study makes a contribution to experiential learning theory. Participants have learned from their critical thinking teaching episodes which they reflected on both individually and jointly during the professional learning conversations (Kolb, 2014). These
reflections involved examining their teaching practices, assessing their assumptions about this practice and sharing these experiences with other educators (Mezirow, 2000). In response to these reflections, participants then discussed their plans for implementing new learning. In some cases, they discussed episodes where they had actually tried out some of this learning, as highlighted in Chapter Five (Kolb, 2014).

Furthermore, teaching episodes discussed in Chapter Five show how educators were also planning new critical thinking activities to try out, and use the new knowledge, skills, confidence and competence they had acquired as a result of experimenting and reflecting on their practice (Mezirow, 2000). However, as argued in the previous chapter, further research is needed to provide more evidence to support full engagement with either the experiential or the transformational learning cycle. Nevertheless, these collective learning experiences have provided a series of contextual critical thinking teaching examples which could contribute to professional practice. These are discussed later in this chapter.

By taking action to adapt and incorporate new practices within their teaching repertoires, educators have reflected on how this impacts on their identities as educators, and confidence and competence levels about their teaching. Their learning is situated within the norms, cultures and practices of their own teaching settings (Bruner, 1960). There is evidence from the participants that they learned to use classroom dialogue, explicit teaching frameworks, ‘scaffolding’, and the ‘spiral curriculum’ (see Section 1.4) as techniques to enable them to teach critical thinking. This adds weight to the considerable evidence available about different teaching techniques for criticality (e.g Bezanilla et al, 2021) but more specifically provides examples of how educators have experienced using them. Furthermore, it shows how they have contributed to changes in their skills, knowledge and teaching behaviours, thereby adding to the literature which has been less explored by others.

**Threshold Concepts**

Thirdly this study makes a contribution to threshold concepts’ studies, particularly the intersectionality with transformative learning. Critical thinking is a ‘threshold concept’ of
higher education which can help educators learn to teach it. There is evidence in Chapter Five about the ‘troublesome nature’ of teaching criticality (Meyer and Land, 2003 p. 10). Zola said her source of ‘troublesomeness’ was students’ prior learning experiences and their perceptions of their difficulty (Meyer and Land, 2003 p. 10). This could be likened to the ‘alien’ and ‘conceptually difficult’ knowledge which provided a barrier to Zola being able to cross the threshold and be able to teach critical thinking (Meyer and Land, 2003, p. 8-9).

However, as argued in Chapter One, for educators to teach critical thinking, they must be prepared to be critical thinkers themselves (Shpeizer, 2018). Furthermore, they need to develop a critical mindset and willingness to reflect on their practice (Moon, 2008). Through experiencing teaching criticality, there is evidence of how participants have transformed how they understand, interpret and view their critical thinking teaching (Meyer and Land, 2003, p.1). It is here that the intersection between threshold concepts, transformative learning and experiential learning becomes apparent. Participants have experienced a shift in their values, feelings and attitudes about their teaching. In short there is some evidence of a ‘perspective transformation’ (Mezirow, 1978). There are examples of this in Chapter Five, when Nadya came to realise that she had previously viewed criticality as ‘tacit knowledge’ and was not aware that she needed to explicitly teach it (Meyer and Land, 2003, p. 9). In addition, Leyla noted how her teaching practice had evolved from delivering prescriptive seminars about the toolkit, to teaching deductive reasoning in the lab, to setting up a journal club. She described a ‘light bulb moment’ when she was experimenting with teaching critical thinking online which she felt helped her teach in a less didactic and more personal way.

These examples illustrate how learning to think critically could be a threshold concept which helps educators to think differently about teaching within the changing pedagogical landscape (Meyer and Land, 2003). Furthermore, through learning to teach critical thinking within their own disciplinary content, educators could transform their own learning about their disciplinary knowledge (Hodge, 2019). Educators could develop their own criticality, practise this way of thinking inside their disciplinary content and therefore develop new ways of understanding it (Davies, 2006). This is fundamental to a critical thinking pedagogy.
Enablers

‘What are the enablers to support learning to teach critical thinking?’

Turning to research question two, educators identified a number of enablers. First, they suggested embedding the language of critical thinking into the daily disciplinary discourse, developing an instructional vocabulary and using the principles and repertoires of dialogic teaching (Alexander, 2020). Second, participants favoured using scaffolds, such as toolkits and frameworks, to support the development of a common language, particularly where they were used to signpost thinking within specific topics of disciplinary teaching (Larsson, 2021). These could also be used to support educators to connect and collaborate across the programme so that critical thinking was taught in a holistic and connected way (Margolin and Hayden, 2015). Third, setting active learning activities, which students work on collaboratively in groups using a scaffolded approach, and which link clearly to learning outcomes, also supported educators with teaching critical thinking (Bezanilla et al., 2019). This included using online collaborative tools and virtual learning spaces (Lin et al., 2016).

Barriers

‘What are the barriers which hinder learning to teach critical thinking?’

Turning to research question three, educators have experienced three key challenges as discussed in Chapter Five. Firstly, many students did not appear to have been taught to think critically, both prior to entering university and during progression through levels of study. They perceived critical thinking as difficult and feared finding and asserting their own academic voice in order to demonstrate criticality. This in turn challenged educators’ learning to teach critical thinking.

Secondly, the move to teaching criticality in a blended learning environment during the COVID-19 pandemic disrupted educator’s normal patterns of teaching delivery. It has challenged the translation of face-to-face critical thinking teaching to online instruction. An
additional challenge was posed by the gap in skills and knowledge in digital teaching and the additional workload needed to master this. This left educators feeling disempowered and lacking agency in the teaching process which impacted on their confidence to learn.

Thirdly, participants experienced varying levels of motivation and commitment to teaching critical thinking from colleagues. As discussed in Section 5.4, the content-driven curriculum and pedagogic approaches based on transmission of content hindered the development of criticality within the curriculum. For example, Zola said that academics often perceived teaching critical thinking as being outside their schemes of work and felt that it should be taught by other parts of the university. This lack of awareness impacted on their learning because educators did not feel that explicit critical thinking teaching was important. Furthermore, ‘pedagogic frailty’ was experienced with many competing demands and pressures on academics’ time which resulted in further resistance to learning new skills and practices (Kinchin et al, 2016). Findings also identified the lack of pedagogy and limited resources and training available to support educators to teach criticality (Bezanilla et al, 2019).

Conclusions from the final research question:

‘What professional development and resources are need to supporting learning to teach critical thinking?’

are now covered in the following subsection about contribution to professional practice.

6.3 Contribution to professional practice

This study makes six contributions to professional practice. I have synthesised the findings from the data with my understanding of the practicalities of teacher education due to my position in this research. I recognize that this is a practice-based study and discuss the time and resource implications relating to each of these contributions. These recommendations now follow.
Professional Learning Framework

The first contribution is that there should be a clear framework of professional development to support educators’ professional practice in teaching criticality and which is anchored in an appropriate adult learning theoretical context (Cranton and King, 2003). This framework responds to participants’ recognition of the importance of ‘authentic professional learning’ (Webster-Wright, 2009, p. 703).

This is suggested in ‘A Framework for Learning to Teach Critical Thinking’ in Figure 12 below. As discussed in Section 5.9, the framework evolves Daley and Cervero’s, Model of Learning in CPE (2016, p. 19) by incorporating the themes discussed in Chapter Five with the findings about transformative learning, experiential learning and threshold concepts which have informed this study as detailed in Figure Two. A full explanation of how this framework has been developed can be found in Section 5.7.

Figure 12: A Framework for Learning to Teach Critical Thinking (added to Daley and Cervero’s Model of Learning in CPE (2016, p. 1)
The framework recognises that learning should be situated within educators’ disciplinary contexts and linked to their professional practices. I recognize that educators will need time to build awareness of this framework and integrate it into their own continuous professional education. Teacher educators may also need instruction about how to incorporate this into their existing provision. This may take 12-18 months to implement. The recommendations which follow will support this framework and provide suggestions which can be more quickly introduced.

Frameworks and Resources

The second contribution supports the ‘constructivist learning’, ‘disciplinary context’ and ‘professional practice’ elements of the professional learning framework above. I was struck by how Leyla, Oti and Kai, all proposed developing a teachers’ toolkit which could be made available on a flexible and easily accessible central repository. Leyla recommended that this resource should be for educators who have already taught critical thinking and want to enhance their practice and those who are unclear how to do it.

Participants suggested that the toolkit should contain the following: a typology of transformative and experiential critical thinking teaching behaviours, frameworks and principles; a bank of accessible instructor resources; contextualised critical thinking teaching examples; bite size training workshops; authentic good practice examples; podcasts and videos. Leyla recommended that the instructor resources should contain a series of exercises with a proforma of how to implement the activity. In addition, a set of discipline-specific teaching scenarios which educators could work through and then design context-specific teaching activities could be included. Educators can test, reflect, learn and enhance these examples according to their own professional practices.

These resources could be developed by teacher educators, disciplinary teachers and technology enhanced specialists and could take six to twelve months to design and implement.
**Action Learning**

The third contribution supports the ‘constructivist learning’ and ‘transformative learning’ aspects of the professional learning framework. This study has identified the power of peer to peer and social learning to enhance professional practice. Mia recommended team level action learning sets where lesson plans, activities and assignments are designed, then tested with students in the classroom. Action learning sets provide educators with a space to co-construct lesson plans and activities which embed critical thinking in their own contexts (Jelas *et al.*, 2012). Educators could be provided with action learning set training and resources to support the implementation of this recommendation which could take three to six months to implement.

**Professional Learning Conversations**

The fourth contribution again supports the ‘constructivist learning’ and ‘transformative learning’ aspects of the professional learning framework and builds on Leyla’s suggestion in Section 5.8. She suggested that ‘Critical Thinking Communities of Practice’ or ‘Critical Thinking Learning Labs’ could be set up where educators can share their experiences using professional learning conversations. Moderated by an expert in critical thinking, participants could share lesson plans generated from the action learning sets discussed above and their subsequent use. This process could be linked to Kolb’s (2014) experiential learning cycle as it is a ubiquitous concept and is easier for educators to implement and understand in practice. Following a teaching episode, educators could critically reflect on it, evaluate and draw conclusions and translate these into actions for future teaching (Kolb, 2014). The value of peer-to-peer learning, was discussed in Section 5.4.

Professional learning conversations provide an opportunity for participants to critically reflect together, compare and contrast experiences and transform their perspectives and behaviours. These could be relatively easy to set up within a three to six month period. Kamal noted that educators often already had strong informal communities of practices, conversations and dialogues within their existing disciplinary contexts both in face to face and online contexts.
Dialogic Teaching

The fifth contribution again supports the ‘constructivist learning’, ‘disciplinary context’ and ‘professional practice’ elements of the professional learning framework above. I noted the need identified by participants in Chapter Five for educators to move beyond transmitting knowledge, to developing democratic pedagogical relationships, where critical discussion about this knowledge can take place (Schendel et al, 2020). I recalled Mia’s description of a teaching episode where she introduced a debate and used prompts and questions to encourage students to discuss their topic in more depth.

Alexander’s (2020) six principles of dialogic pedagogy could help educators to embed the discourse of criticality into the design of classroom discussions. This could precipitate a shift to a more facilitative teaching approach, where critical thinking skills are developed using purposeful, supportive, cumulative, reciprocal, deliberative and collective dialogic teaching principles (Alexander, 2020). Furthermore, the repertoires of questioning, discussion and argumentation could be developed as instructor resources and contextualised to different disciplinary teaching contexts (Alexander, 2020).

In Chapter Five, Alina raised a concern about the lack of resources available to help her develop questions to teach her science students how to think critically about their content. To address this, a resource containing a taxonomy of discipline-specific ‘powerful’ teaching questions, and reflective questions to use in classroom and online discussions could be produced. A set of ‘teacher talk’ language guides containing prompts to help educators to facilitate discussions using the language of criticality could be developed. These resources could be produced in a six to twelve month timeframe.

Collaborative Teaching Environment

Finally, as discussed in Section 5.4, participants suggested it is critical for university leaders to provide an environment where teachers feel they have sufficient autonomy and agency and can collaborate with colleagues to enhance their critical thinking teaching
practices. There is evidence, albeit from the school sector, that the more educators collaborate about their critical thinking instruction, the more they develop the skills and awareness of how to teach it (Lu and Wang, 2021). I remembered Mia’s observation which specifically highlighted the importance of creating space for this type of collaboration, supported by the time to design, implement, reflect and make changes to practice. I do not make this recommendation lightly and recognise that this may prove challenging in the current time pressured HE environment and involve a change to institutional culture and policy. However, this could be a worthy avenue to pursue to support a pedagogical approach to teaching this threshold concept which is so essential to the university (Barnett, 1997).

6.4 Reflections on the research process

This research has been emotionally and intellectually challenging but also incredibly rewarding. My positionality as an educational developer and my dual insider and outsider role has helped this study (Hellawell, 2006; Dwyer and Buckle, 2009). I have been able to access a range of perspectives about the complexity of learning to teach critical thinking.

I have discussed the significant disruptions and amendments I made to my study as a result of the COVID-19 pandemic (see Section 3.10). While I was collecting data, I was also supporting educators to change teaching practices in response to COVID-19. I saw first-hand the challenges my participants had to go through with their learning. I believe this has contributed to an even more authentic research experience and findings because participants were learning on the job, especially when moving their teaching online.

This ‘learning by doing’ fitted well with my hybrid theoretical framework discussed in Chapter Five, particularly Kolb’s model of experiential learning (Kolb, 2014). In addition, teaching critical thinking online is an underdeveloped area of the literature. This added an additional element to this thesis which would never have been present otherwise. Moving the peer-to-peer observations online has added a different dimension to transformative learning theory. It has enhanced Peel’s (2005) work further, highlighting the importance of using peer-to-peer observation as a learning tool within an online context.

However, I am aware that there are challenges to researching within your own institution. There are sensitivities around how this research is reported and disseminated. I needed to
be true to the findings while protecting participants’ identities and the research site’s reputation. On the one hand, there was the benefit of being able to recruit participants. This was helped by my insider knowledge of who was experimenting with critical thinking teaching.

Nonetheless, it could be argued that this limited the potential reach of the study. There may have been additional educators whose voices were missed. A questionnaire could have been distributed to initially diagnose who had experimented with teaching critical thinking. Respondents could then have been asked about their teaching experiences to provide a wider perspective. However, it would have limited the richness of the data. Furthermore, this would have been challenging with the workload and stress caused by the pandemic. Therefore, a pragmatic approach using convenience sampling was implemented.

I could have researched in another institution. However, I felt it was important to limit this to one case. This meant that I could provide more of an in-depth investigation to capture the complexity of this research problem (Simons, 2009). I could have used more than one toolkit. However, as discussed in Chapter Two, there are few toolkits which provide resources to teach critical thinking. Furthermore, as discussed in Chapter One, this study was not an evaluative study of the toolkit itself.

To provide a transparent, honest interpretation of the findings, participants were actively involved in checking the findings and their analysis. Time consuming as this was, I was keen to be true to the data and to the participants’ voices. Educators also used the outputs for their own professional development, for example as evidence in case studies for professionalisation schemes.

I adhered to a systematic, step by step design process so that readers could clearly track from the design of the research questions to the process for analysing the findings (Yin, 2009). The use of a case study design, as discussed in Section 3.5, has enabled multiple methods of data collection. The choice of and intersectionality of methods has added a different perspective to knowledge about case study research methodology.

However, the most seminal moment of this process was near the very end of this study. I had the privilege to have a mock viva carried out by an external examiner before final submission. This experience challenged me to deeply interrogate whether I had been true enough to my participants’ voices in the study, whether my own interpretative voice was
strong enough and how I was using my positionality within the study. Having now completed the process I believe even more strongly that,

‘by starting with my personal experience, I am ensuring that I am researching from a place that I understand to the best of my ability’ Moore (2005, p.77).

6.5 Limitations

Selection Process

There have been necessary limitations caused by the selection process of the sample for this study. As discussed in Section 6.4, convenience sampling was used to find participants I knew had already taught critical thinking. This provided rich and relevant data about the realities of learning to teach critical thinking and contributed to the quality of responses. However, this limited the reach of the participants. It missed those who may have tried critical thinking teaching in the past and did not carry on with it. It omitted those who actively chose to resist teaching critical thinking or who thought they were doing so but were doing it implicitly.

To counter this, participants were asked about academic resistance and barriers and what they felt the reasons for these were. Furthermore, the study has collected 50 hours’ worth of data from participants who had experience of teaching critical thinking. This provided a large amount of data to answer the research questions and offered a rich and diverse set of findings for this study.

Concept Mapping

Finally, the utility of using concept mapping to support the interviews was varied. When these were used in face-to-face settings, they provided a useful opportunity to co-construct the themes from participant answers, both during and after the interview. However, when the interviews moved online due to COVID-19, these maps did not work so effectively. It
was challenging to find an alternative online mechanism to replicate the map. Co-constructing it in the interview was challenging and often distracted from the data collection process. I stopped using them halfway through the interview process and instead relied only on the data collected from the questions.

6.6 Recommendations for future research

A true assessment of changes in participants’ ‘meaning perspectives’ and teaching behaviours (Mezirow, 1978, p.105) needs a study which examines this over time (Nohl, 2015). The importance of critical thinking is gaining traction within University A. This is because of concerns about gaps in student learning caused by the pandemic. Educators may need to develop the skills and knowledge to teach critical thinking to support student transition and attainment. A natural progression is to extend the breadth and depth of this case study research with University A. Detailed observation methods could be used where teaching sessions are recorded, transcribed and analysed, perhaps using discourse analysis or conversation analysis. A follow-up study could provide specific evidence of critical thinking teaching, particularly identifying language which could support this. Data collected in this way could be triangulated with data from students which investigates their perspectives about how they are currently taught critical thinking, what additional support they need and with data from their assessments. This could build a richer picture of evidence of critical thinking in practice.

Building on the discussion in Section 3.10, a second recommendation is for other researchers from institutions which face similar challenges to replicate this study. I have constructed a ‘chain of evidence’ for researchers to track each step of this case which could support its replication in other settings (Yin, 2009, p.41, 122-4). This chain includes the research steps detailed in Section 3.7, the storage of transcripts, field work notes indicating the time and place of this research, the Critical Thinking Skills Toolkit (Wason, 2016), the collaborative process to reviewing codes and themes (see Section 3.3) and my research journal.

The key output from further research could be the design of an effective continuous professional development programme for HE educators. This is where peer observations,
professional learning conversations and reflective practice could provide further depth to this study amongst a sample of the overall population. These techniques could examine whether learning is transformative and what impact it is having on their practice. Finally, more information about how staff in other settings are learning to teach critical thinking is recommended. This would help establish a greater degree of accuracy about professional learning and the barriers and enablers. This could take place in a post-92 institution and a Russell Group Institution which have a different profile of learners, in order to see if there are any differences between the two settings.

To conclude, the Dearing report emphasized that the role of the university was to teach rigour in thinking and stressed the value of continuous professional development for educators (NCIHE, 1997). The importance of teaching criticality continues to be recognised in policy (e.g., DBIS 2016; OECD, 2018). However, critical thinking is challenging to teach (Janssen et al, 2019) and educators still need support to do so (Bezanilla et al, 2019). If the debate about how to teach critical thinking is to be moved forward, educators need to be given the space and opportunity to experiment and reflect on their teaching practice, develop a connected teaching culture and holistic curriculum and have the investment made in professional development and resources to help them to do this.

This study has made some suggestions about how educators can learn to teach critical thinking. I have begun to disseminate some of my findings within and outside my own institution (see Appendix 14) and started to develop professional development support for educators to teach criticality. There is no use having a critical thinking teaching policy, if educators are not supported to realise it in their practice.
References


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Byrne, D. (2021) 'A worked example of Braun and Clarke’s approach to reflexive thematic analysis', Quality and Quantity, 1, pp. 1-23


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## Appendix One – Example of Thematic Analysis Grid Exemplar for Critical Thinking Teaching, Barriers and Enablers

<table>
<thead>
<tr>
<th>Author, Title, Journal &amp; Date</th>
<th>Type of Paper / Concept</th>
<th>Main Theme/Argument</th>
<th>Sub Themes</th>
<th>Subthemes</th>
<th>Discussion and Cross-over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schendel, R., McCowan, T., Rolleston, C., Adu-Yeboah C., Omingo, M., and Tabulawa, R. (2020) 'Pedagogies for critical thinking at universities in Kenya, Ghana and Botswana: the importance of a collective ‘teaching culture’, <em>Teaching in Higher Education</em>, pp.1-22.</td>
<td>Mixed methods case study approach across 3 Sub-Saharan African universities</td>
<td>Shared teaching philosophy and culture fosters CT learning - not enough to have a learner-centred pedagogy per se – it must be supported by consistent and collective teaching culture which emphasises this + a pedagogy which encourages students to socially construct their learning on an ongoing basis – actively construct new knowledge and learn to feel comfortable with disputes and contestations</td>
<td>Critical thinking within the discourse of the universities in this study have a practice based nonpolitical underpinning – it is not about emancipation or rebelling against the status quo – it is about how criticality is taught and used to enhance student learning</td>
<td>Teaching and assessment philosophy needs to be explicit and written – needs to be discussed regularly by staff and also introduced at inductions</td>
<td>Conceptual model based on the factors which impact on critical thinking development – this might be something I can enhance with my findings (p. 5)</td>
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<tr>
<td></td>
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<td></td>
<td>CT = skills + dispositions but there is a third debate (which you haven’t yet considered). Is CT a universal or just</td>
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<td></td>
<td></td>
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<td></td>
<td>While this study is in African it says that the findings correlate with many studies in other parts of the world and that there are similarities with the pedagogical models adopted</td>
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<td></td>
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<td></td>
<td>Agree with the conceptualisation of critical thinking as not having any political undercurrents – therefore you can recognise critical theory and critical pedagogy but</td>
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<tr>
<td>Author, Title, Journal &amp; Date</td>
<td>Type of Paper / Concept</td>
<td>Main Theme/Argument</td>
<td>Sub Themes</td>
<td>Subthemes</td>
<td>Discussion and Cross-over</td>
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<tr>
<td>Chan, C.K.Y. et al. (2017) 'A review of literature on challenges in the development and implementation of generic competencies in higher education curriculum', <em>International Journal of Educational Development</em>, 57 pp.1-10.</td>
<td>Literature review to address the question ‘what are the challenges involved in developing and effectively implementing generic competencies in Higher Education to enhance student learning in this area’</td>
<td>Challenges of aligning generic competency development with pedagogy, curriculum, teacher and student perceptions, HE missions, compliance – this misalignment can cause barriers for teaching generic skills</td>
<td>Learning culture needs to be communicated to students right at the start to support them to get over any discomfort with this</td>
<td>Staff need support not just with the methods of teaching but given the space to discuss and reflect on their new practice – just introducing new methods is not enough to drive change – it needs to be supported with this approach – need reflexive staff development programmes</td>
<td>discount it – Brookfield’s earlier work about dialogue and democratic classrooms has informed my thinking but not his later work where he brings in more of the thinking of the critical theorists, particularly with regards to transformative learning</td>
</tr>
</tbody>
</table>

1. Teachers and students perceptions of generic competency development: lack of common understanding of what generic competencies are (definitions) with both staff and students, resistance from teachers to do so

3. Conceptualisation, teaching pedagogy and assessment: ineffective teaching pedagogies, support units and resources to support generic competency development – to counter this need student centred active learning approach – well

Cross over with the Schendel discussion which focuses more specifically on challenges of teaching CT

Link to Barnett’s work on super complexity

Similarities with Bezanilla et al regarding the lack of training and support for educators
<table>
<thead>
<tr>
<th>Author, Title, Journal &amp; Date</th>
<th>Type of Paper / Concept</th>
<th>Main Theme/Argument</th>
<th>Sub Themes</th>
<th>Subthemes</th>
<th>Discussion and Cross-over</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(its not my job) – concern with losing control of teaching and the impact this may have on student feedback and therefore their own progression – reluctance to learn new pedagogical approaches which involve them undertaking further development – often viewed as compliance rather than enhancement</td>
<td>designed tasks for students to develop generic competencies and time and space in the curriculum for these. This is often impacted by the requirements of professional bodies. Competencies often not made explicit in the curriculum – students not always aware of what they are and how they are using them. They can also be challenging to assess; teachers often don’t know how to do so and there is debate about the utility of doing so</td>
<td>Lack of common language links also to CT (for e.g., Danzak et al paper) - also links to Jones (2007 and 2009) papers Active learning can enable this - link to (Kember et al, 2007) – an links to Bezanilla, Bellarea et al – shows similarities for pedagogies for teaching generic skills and those for critical thinking specifically Also cross over with learner- centred methods and teaching cultures in Schendel et al 2020</td>
<td>Both teachers and students need to have the motivation to teach and learn these – assessment could help – time is needed to enable proper embedding in the curriculum – alignment is critical – link to Schendel</td>
</tr>
<tr>
<td>Author, Title, Journal &amp; Date</td>
<td>Type of Paper / Concept</td>
<td>Main Theme/Argument</td>
<td>Sub Themes</td>
<td>Subthemes</td>
<td>Discussion and Cross-over</td>
</tr>
<tr>
<td>-------------------------------</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>resources to work on embedding skills in the curriculum – lack of frameworks to support teaching, and large class sizes hinder the development of the relationships needed to monitor students skills progress; lack of professional development for academic staff</td>
<td>Students often can’t see the point, are unclear what is expected and lack confidence to develop generic competencies</td>
<td>2020. Common understanding is necessary (links to common language and pedagogy theme in my findings).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case Study research multiple embedded case study design (Yin, 2009) at two institutions which investigates why students were not improving their CT skills during their degree</th>
<th>Teachers don’t understand need to change pedagogy to teach CT and are not motivated to make these changes – see them as too labour intensive</th>
<th>Pedagogies to support CT should be based on social constructivism but often resisted by the transmission model of teaching and teachers’ resistance to change</th>
<th>Lack of explicit pedagogy seemed to impact on students’ development of CT despite policies advocating the teaching of CT – teachers tended to adapt these policies to fit what they were already doing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two stage mixed method design</td>
<td>Different perceptions across the disciplines about what CT means. Students attitudes, engagement and motivations towards their education are very important for effective teaching of CT - deep v surface learning approaches – helped by active and collaborative learning</td>
<td>Pedagogical training and support for regular faculty development is needed to support educator to teach criticality – this needs to go beyond one off stand alone events Can’t assume that just because you have a policy that educators can automatically teach to it – they need support to adopt new teaching methods</td>
<td>Educators prefer to transmit rather than facilitate Students are not used to more facilitative and inquiry-based ways of teaching preferring getting their knowledge directly from their tutors – a change in approach when they get to uni can disorientate them (Moon 2008)</td>
</tr>
</tbody>
</table>

This supports a number of future studies for (example Bezanilla) in US/UK/Australia about educators needing support to teach criticality

Link to skills/dispositions/generic specifist debates!

Link to the learning model from professional development literature – CT teaching as a threshold concept AND developed through a social constructivist philosophy – links to the philosophical approach underpinning this investigation

Link to later Schendel paper about teaching culture and learner-centred pedagogy

Can’t just introduce a policy and expect results – need to consider lecturers values and approaches to their teaching – they need to understand why it is
| important in order to make the changes | Training needs to be carefully positioned so that staff don’t view themselves in deficit |
Appendix Two – Participants’ Profiles

Alina describes herself as an educator who encourages her students to use their critical thinking skills to overcome their perceptions that there is always right or wrong answer. She explains how she uses questioning techniques to scaffold and build students’ confidence in their ability to think critically about the application of concepts. She talks about the importance of explicitly embedding critical thinking in the language of everyday teaching so that students get into the habit of practising these skills. An avid user of the Critical Thinking Skills Toolkit, Alina describes how she shares and compares critical thinking teaching ideas with colleagues to build on her critical thinking teaching repertoire.

Darya describes how she is passionate about providing her students with the best possible learning experience, both academically and pastorally. She discusses how she views critical thinking teaching as a process which requires a supportive learning environment where students can freely articulate different perspectives and learn to use credible evidence to support their points. She articulates the importance of demystifying the terminology of critical thinking by using explicit and accessible language in assessment, feedback and in everyday teaching. She outlines how she uses the Critical Thinking Skills Toolkit as a roadmap to help scaffold and spiral skills throughout the curriculum and to make the critical thinking concept accessible to students at every stage of the studies.

Hanna describes herself as a diligent and creative educator with a number of years experience in practice and in teaching. She explains that a flexible and reflexive approach enables her to be student centred and to adapt her curricula to changing teaching environments, especially using blended learning approaches. Dialogue and reflective practice are integrated into her classroom. Collaboration and sharing good practice underpin her working ethos. She disseminates the benefits of using The Critical Thinking Skills toolkits to improve the student learning experience, advocating change and enhancement of colleagues’ practices.
Kai outlines his commitment to education and practice, and how he supports students to make the link between their academic learning and becoming a professional. He discusses his passion for putting students at the heart of the learning experience as well as using collaborative learning techniques. An active user of the Critical Thinking Skills Toolkit, Kai describes how he uses active learning to enhance the development of students’ critical thinking. Kai advocates building a common language of critical thinking amongst staff in order to build confidence and competence in teaching critical thinking to students.

Kamal talks about his belief in the importance of embedding information literacy within disciplinary teaching. He explains how he is a keen advocate of supporting students to actively use information and integrate their interpretations of this within their learning. Kamal notes the importance of helping students to critique the credibility and reliability of information for both academic success and for success in their everyday lives. He describes how he regularly uses the Critical Thinking Skills Toolkit for this purpose and shares this practice with colleagues.

Leyla calls herself a critical thinking enthusiast, particularly with her PhD supervision work. She describes her commitment to developing her students’ dispositions to be critical within their disciplinary learning, and advocates active learning approaches to teaching content, using questioning and dialogue, especially in large groups. She says she enjoys challenging and being challenged and uses this to build excellent rapport with her students. She outlines how critical thinking is systematically embedded within her modules and across the curricula and how she works with colleagues to instigate changes to their teaching approaches. She explains how she regularly shares her practice with her colleagues to build knowledge and awareness of the value and importance of teaching critical thinking within existing curricula.

Lily helps her students use critical thinking not just to enhance their education but also to help with experiential learning for their professional work. She describes how she embeds critical reflection in her curricula to support her students to enhance not just their own academic outcomes but also their skills and dispositions to think critically within teams. She discusses how she continually experiments, tests and enhances her use of the Critical Thinking Toolkit, aligning it carefully with the level of student, their prior learning experiences and the types of assignments they are working on. She notes the value of critical thinking to shape both the content and the structure of the curriculum, making both herself and her students more critically aware of their knowledge, skills and dispositions.
Mia explains her passion for the student experience and helping students to realise their potential. She says she enjoys working with colleagues, sharing practice and learning from others, especially in a cross disciplinary capacity. She describes her facilitative teaching style and enjoys using her coaching skills to support student learning. She is one of the founding contributors to the development of The Critical Thinking Skills Toolkit and experiments with different ways of teaching critical thinking. Mia outlines how she shares her own experiences with colleagues to help them embed critical thinking in their own teaching.

Nadya talks about her passion for her disciplinary research and embedding this knowledge in the classroom. She mentions her regular use of the Critical Thinking Skills Toolkit, and how she has experimented with a range of tools, and used them innovatively within her classroom delivery, immersing them within her assessment programme. She explains how she has steadily built up her confidence and competence about teaching critical thinking within her disciplinary content and admits to being able to use critical thinking tools flexibly, tailoring them to different learning and teaching contexts.

Nina describes how she supports students to use critical reflection to help their learning and to prepare for the world of work. She talks about how she advocates developing critical thinking as a skill for life and ensures that the discourse of critical thinking is embedded in her everyday teaching. Nina says she uses active learning to support students to analyse and interpret data, and embed simulations and regular discussions about the implications of different decisions on outcomes. She recommends a systematic approach to teaching critical thinking within a supportive learning environment. She explains how she is an active user of the Critical Thinking Skills Toolkit and regularly shares her experiences which colleagues value highly.

Oti notes her use of evidence based practice to enhance the outputs of her students. She talks about her highly structured approach to teaching critical thinking where students are clearly signposted to the types of learning activities they need to do to practise their critical thinking skills to support their assignment work. She describes her belief in life-long learning, and how she builds on her skills as a researcher to infuse critical thinking teaching in her curricula. She notes that she has learned different techniques to support this using the Critical Thinking Skills Toolkit. She discusses the transferability of critical
thinking skills learned and shares these examples with colleagues informally and at more formal continuous professional development events.

**Sarita** talks about how she has experienced the benefits of embedding information literacy and critical thinking into the curriculum on student outcomes. She describes how she works closely with academics to bridge disciplinary content teaching with information literacy and believes that to be meaningful to students, it is crucial to make CT skills explicit in teaching. She says she is a strong advocate of importance of authentic learning experiences to support educators to learn to teach critical thinking and to build up their confidence and competence. She notes her use of the Critical Thinking Skills toolkit, particularly The Source and Practitioner Insights, and how she has built up a repertoire of critical thinking teaching ideas from peers and her own continuous professional development which she regularly experiments with in her practice.

**Sami** outlines his academic and professional experience and how he advocates using critical thinking to help students make decisions in the workplace as well as to enhance their academic outputs. He explains his belief in the professionality of education and continually challenges his teaching to adapt to the ever-changing Higher Education landscape and the needs of students. He outlines his passion about peer learning and how he shares his critical thinking teaching practices with colleagues in order to deliver a connected curriculum which embeds critical thinking at every stage. The Critical Thinking Skills Toolkit has provided him with a framework to support critical thinking development in the classroom, online and in assessment.

**Zola** describes how she has pioneered using critical thinking to help her students analyse and use quantitative information to enhance their academic output. She notes her belief in scaffolding and active learning and how she has adapted, combined and repurposed a number of tools from the Critical Thinking Skills Toolkit to suit her teaching contexts and assessment requirements. She explains how her students are given in-class tasks each week, findings are discussed and formative feedback provided which link to summative assessed work. She mentions how skills are explicitly articulated and students are more confident and competent in using critical thinking to deepen their understanding of their disciplinary content.
Appendix Three—HREC Ethics Approval Documentation

Human Research Ethics Committee (HREC)

Project Registration and Risk Checklist

If you are planning to carry out any research project involving human participants, including data and/or biological samples, you need to complete and submit this checklist to Research-REC-Review@open.ac.uk, so the HREC Chair can assess the level of ethics review required. Please include anything related to your research proposal e.g., a questionnaire, consent form, participant information sheet, publicity leaflet and/or a draft bid or outline. FAQs offering advice and guidance on these are available on the Research Ethics website.

Once your checklist is submitted, you should receive a response within 7 working days as to whether your research will need a full HREC review, so please indicate if you require a more urgent decision. A full review can take up to a month, therefore when planning your research and ethics application you need to build in sufficient time to avoid any delays. Particularly when you are planning overseas travel or interviews with participants.

It is essential that no potential participants should be approached until you have received a response on whether a full HREC review will be required, and once this is complete, a formal HREC response. Please note that the titles of all research projects considered by the HREC (whether by HREC checklist or proforma), will be added to the Research Ethics website - http://www.open.ac.uk/research/ethics/human-research.

Section 1: Project Details

<table>
<thead>
<tr>
<th>Project title</th>
<th>Year 2 Main Study for Educational Doctoral HREC/3453/Wason Learning to Teach Critical Thinking In Higher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief description</td>
<td>This study will explore the experiences of educators at xxxxx about how they facilitate students’ critical thinking skills development within existing curricula. It will focus on educators who are already embedding critical thinking within their curricula and are willing to be interviewed and participate in peer observation. This small scale study will explore how they are making meaning of critical thinking, how they are learning to facilitate critical thinking development, what barriers and enablers they are experiencing and what type of ongoing continuous professional educational support they need. This study is being amended to allow for online rather than face to face peer observations and follow up professional learning conversations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is your research part of a previous or current application for external funding?</th>
<th>No</th>
<th>If yes, please provide name of funder and/or the Award Management System (AMS) reference number.</th>
<th>Funding body:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early date participants will be contacted: 25.11.19</td>
<td>Research project start/end dates: From: 25.11.19 To: 31.10.21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Principal Investigators have to discuss any project related risks with their department and will need to ensure that all the appropriate checks and permissions are in place prior to a research project commencing, including:

- **Student Research Project Panel** – research involving OU students or student data
Section 2: Applicant Details

<table>
<thead>
<tr>
<th>Name of Primary Investigator (or research student)</th>
<th>Hilary Wason</th>
<th>Status</th>
<th>Doctoral Researcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td></td>
<td>Academic unit/dept.</td>
<td>EdD Programme</td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
<td>Other researcher(s)</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
<td>14.7.20</td>
<td></td>
</tr>
</tbody>
</table>

Section 3: For students only

Please note your application cannot be processed without the inclusion of your supervisor’s signature or comments below (link to the directly registered research student ethics application process):

<table>
<thead>
<tr>
<th>Select your postgraduate research degree from the drop-down list.</th>
<th>EdD</th>
<th>Supervisor’s name</th>
<th>Professor Peter Lavender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor’s electronic signature (preferably primary supervisor)</td>
<td></td>
<td>Supervisor’s email</td>
<td></td>
</tr>
</tbody>
</table>

Supervisor’s supporting comments

This is a straightforward investigation in which colleagues will be asked about their responses to critical thinking skills facilitation within their curricula I support the approach and the methods.

Section 4: Risk Checklist

Please assess your research using the following questions and select ‘yes’ or ‘no’ as appropriate. If there is any possibility of risk please tick yes. Even if your list contains all ‘no’s you should still return your completed checklist to Research-REC-Review@open.ac.uk to ensure your proposed research is assessed and recorded by the HREC.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x</td>
</tr>
<tr>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
Gatekeeper approval at xxxxxx for initial study has already been approved but will be sought again under the amended terms of reference of this application as a matter of courtesy. For external sites, gatekeeper approval will be sought as appropriate.

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. covert observation of people in non-public places)</td>
<td>x</td>
</tr>
<tr>
<td>4</td>
<td>Will the study involve discussion of sensitive topics (e.g. sexual activity, drug use, or politics)?</td>
<td>x</td>
</tr>
<tr>
<td>5</td>
<td>Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?</td>
<td>x</td>
</tr>
<tr>
<td>6</td>
<td>Will the research involve the sharing of data or confidential information beyond the initial consent given?</td>
<td>x</td>
</tr>
<tr>
<td>7</td>
<td>Is pain or more than mild discomfort likely to result from the study?</td>
<td>x</td>
</tr>
<tr>
<td>8</td>
<td>Will the research involve administrative or secure data that requires permission from the appropriate authorities before use?</td>
<td>x</td>
</tr>
<tr>
<td>9</td>
<td>Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?</td>
<td>x</td>
</tr>
<tr>
<td>10</td>
<td>Will the study involve prolonged or repetitive testing?</td>
<td>x</td>
</tr>
<tr>
<td>11</td>
<td>Will the research take place outside the UK?</td>
<td>x</td>
</tr>
<tr>
<td>12</td>
<td>Does the research involve members of the public in a research capacity (participant research)?</td>
<td>x</td>
</tr>
<tr>
<td>13</td>
<td>Is there a possibility that the safety of the researcher may be in question? (e.g. in international research: locally employed research assistants)</td>
<td>x</td>
</tr>
<tr>
<td>14</td>
<td>Will financial recompense (other than reasonable expenses and compensation for time) be offered to participants?</td>
<td>x</td>
</tr>
<tr>
<td>15</td>
<td>Will the research involve participants responding via the internet or other visual/vocal methods where participants may be identified?</td>
<td>x</td>
</tr>
<tr>
<td>16</td>
<td>Will the study involve recruitment of patients or staff through the NHS or the use of NHS data?</td>
<td>x</td>
</tr>
<tr>
<td>17</td>
<td>Will tissue samples (including blood) or other human biological samples be obtained from participants or another source?</td>
<td>x</td>
</tr>
<tr>
<td>18</td>
<td>Does your research include consideration of extremism or terrorism related issues? If yes, please complete the Extremism and Terrorism-related registration which can be found at the following link - <a href="http://www.open.ac.uk/research/about/research-ethics/extremism-and-terrorism-related-research">http://www.open.ac.uk/research/about/research-ethics/extremism-and-terrorism-related-research</a></td>
<td>x</td>
</tr>
</tbody>
</table>
If you answered ‘yes’ to questions 16 or 17, you may have to submit an application to the Health Research Authority (HRA) Research Ethics Service, see Error! Hyperlink reference not valid. FAQ 3 for guidance.

Section 5: Supporting documents
Where relevant, please include as attachments or appendices, any documents related to your research proposal e.g. participant information sheets and consent forms. The HREC Chair needs as much information as possible in order to make a full assessment of your research proposal. Guidance can be found in FAQ 14 and FAQ 15 on the Research Ethics website.

Please provide a list below, for example:

| Consent form and information sheet (these can be separate or a combined document) | X |
| Interview questions, peer observation paperwork and questions, lesson plan | X |
| Project outline | X |
| Publicity leaflet | |

Please note that it is your responsibility to follow relevant academic or professional guidelines in the conduct of your study. In particular, the Open University’s Code of Practice for Research and the Ethics Principles for Research involving Human Participants which can be found on the Research Ethics website - www.open.ac.uk/research/ethics

Please return the completed form to Research-rec-review@open.ac.uk. Amendments will be reviewed by HREC and you will be notified of the outcome within 7 working days.

SECTION 1. PROJECT DETAILS

| Project Title: | Learning to Teach Critical Thinking In Higher Education |
| Applicant’s Name: | Hilary Wason |
| HREC Reference: | HREC 3453 |

SECTION 2. SUMMARY OF AMENDMENTS TO THE PROJECT
Please note any amendments to the study should be outlined and highlighted on the original application form and resubmitted with this amendment summary form.

Briefly summarise the main changes proposed in this amendment e.g. a change to the research methodology, inclusion of a new group of participants, a change in location or an addition to the content of the study in some way e.g. a new questionnaire for participants. Explain the purpose of the changes and their significance for the study.

<table>
<thead>
<tr>
<th>Changes to the project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modification to allow for change to peer observation to be synchronous online so that it can be conducted safely (impact of Covid 19)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Changes to the research team</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Changes to the proposed study end date</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

**SECTION 3. ETHICAL CONSIDERATIONS & DATA PROTECTION**

Are any ethical issues raised by the changes? If so, how will they be addressed?

N/A – observations will not be recorded. Documents will be stored using the same protocols. Observers will be introduced when they enter the online space.

Are any data issues raised by the changes? If so, how will they be addressed?

Please consider the data processing arrangements for any new data that will be collected, shared or stored as part of this amendment. Any changes to existing data collection methods/storage arrangements should also be summarised here.

**SECTION 4. SUPPORTING DOCUMENTS**

Please include any documents related to the proposed amendment as separate attachments and indicate which documents you are including below e.g. a consent form and participant information sheet for a new group of participants.

Where there is more than one group of participants, please provide separate consent forms and participant information sheets for each group.

<p>| Consent form and Participant information sheet – for each participant group | ☒ |
| Questionnaire (for online surveys please include either a Word version of the questions or a link to the survey online) | ☐ |
| Email or letter from the organisation agreeing that the research can take place | ☐ |
| Draft bid or project outline | ☒ |</p>
<table>
<thead>
<tr>
<th>Publicity leaflet</th>
<th>☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Management Plan</td>
<td>☐</td>
</tr>
<tr>
<td>Other – peer observation form and lesson plan</td>
<td>☒</td>
</tr>
</tbody>
</table>

Please continue to next page
SECTION 5. DECLARATION

I declare that:

- I understand that I must not implement any amendments to a previously approved study until I have received approval from HREC.

- The research will conform to the protocol outlined above and I will inform HREC of any subsequent amendments to the protocol of this study and have these agreed before they are implemented.

- I have read and will adhere to the following OU policies:
  - OU Code of Practice for Research – (see the Research Ethics Guidelines page)
  - OU Ethics Principles for Research with Human Participants – (see the Research Ethics Guidelines page)

Principal Investigator (Name): Hilary Wason

Principal Investigator (Signature):

Date ______ 14.7.20 ______________________________

FOR STUDENTS ONLY:

Please note that this amendment cannot be processed without your OU supervisor’s signature and supporting comments, which should be provided below.

<table>
<thead>
<tr>
<th>Postgraduate research degree</th>
<th>MPhil/PhD</th>
<th>EdD</th>
<th>DHSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Personal identifier</td>
<td>H5025799</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OU Supervisor’s name</td>
<td>xxxxxxxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OU Supervisor’s email address</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OU Supervisor’s electronic signature</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OU Supervisor’s supporting comments: I endorse this amendment which is necessary to enable peer observations to be undertaken safely and for the study to progress.

Jul 17, 2020, 1:49 PM

to me, Research-REC-Review
Dear Hilary,

This is all fine, thank you for contacting us. We will keep this email as a record.

Kind regards

xxxxxx Deputy Chair, HREC

From: Hilary Wason
Sent: 16 July 2020 10:37
To: Research-REC-Review <research-rec-review@open.ac.uk>
Cc: Subject: Re: HREC/3453/Wason: HREC Favourable Opinion

Dear xxxxx

Further to this email, please find attached the paperwork for the amendment to my study to allow for an online peer observation - including the signed amendment form. There are 6 documents in total - just for completeness!

Hope all is in order and look forward to hearing from you.

Many thanks and kind regards

Hilary Wason

On Fri, May 1, 2020 at 2:19 PM Research-REC-Review <research-rec-review@open.ac.uk> wrote:

Dear Hilary,

Thanks for your email. This would be classed as an amendment so will need to be approved. Please can you complete the amendment summary form which you can find on the Human Research Ethics website, and submit this along with your original application form and the new observation form.

Best wishes

xxxxx
Dear xxxxx

I hope you and your family are keeping well. I (like many others) are planning how to adapt my EdD fieldwork in light of COVID19. Interviews are fairly straightforward but the peer observation will need a bit more thought. It is likely to necessitate a change to the observation form which I have had approved which I am assuming I will need to run past the ethics committee?

Best wishes

Hilary
Learning to Teach Critical Thinking in Higher Education

This exploratory, small scale study will investigate the multiple working experiences of staff facilitating critical thinking skills development in their curricula and what staff development and resources they need to do so.

The overarching research questions are as follows:

1. How are staff learning to teach critical thinking?
2. What barriers and enablers are they experiencing?
3. What staff development and resources do they need to support critical thinking teaching?

I will capture, non-numerical data using a hybrid Phenomenological/Action Research methodology. The following methods are grounded in critically reflective practice so that staff can make meaning of these experiences rather than feeling that research is being imposed on them (Wlodarsky, 2020). Staff were asked to record their critical thinking teaching experiences in journals in the initial study. They indicated that they were not in the habit of regular reflection, were time pressed and therefore did not want to complete these (Hall and Smith, 2006). Consequently, the choice of instruments takes all of these factors into consideration.

The sample size will be 15-20 participants within the business, healthcare, science, academic support and professional services disciplines recruited from a sampling frame of staff with varied experiences of facilitating critical thinking skills. Research site is xxxxxxx. Pseudonyms will be allocated to these research sites to maintain confidentiality of the data. The identity of all participants will be kept confidential and this will be outlined in the consent form which participants will sign. All participants will be randomly allocated a participant reference number which will be used when transcribing and analysing (NB there will be no match between the name and this number to ensure anonymity). Thematic
analysis will be used to analyse the qualitative data in order to identify common patterns and identify key themes found in the data. For publication pseudonyms will be used with quotes.

There are three stages and procedures of data collection within this research as follows (Leech and Onwuegbuzie, 2009).

Stage One

Concept mapping research interviews (Kinchin, Streatfield and Hay, 2010)

Concept maps will be co-constructed during the interview conversations with participants based on a series of question prompts as detailed in the participant information sheets. These interviews will also be recorded and transcribed verbatim. Both concept map and interview transcripts will be shared with the participants and confidentiality and anonymity will be maintained (the latter by allocating each participant a unique reference number).

Open ended questions to provide more specific structured information on barriers and challenges and what type of continuous professional education could support staff with their critical thinking teaching endeavours will be administered as part of the interview process and during subsequent email correspondence with participants once interviews have been transcribed and more depth of answers may be needed.

Stage Two Peer to Peer Observations/Professional Learning Conversations

Online peer observation followed by professional learning conversations to share these learning experiences, to enhance their professional development and learning (Shuck, Aubusson and Buchanan, 2008) and to provide additional data and deeper insights to help answer the research question in this study. These observations will be conducted by educators within the research sample who will peer observe staff from other disciplines (data collected during the initial study highlighted the importance of peer learning to help staff learn how to facilitate students critical thinking development in their teaching).

I will run an online briefing session on the Microsoft Teams platform in August 2020 which will outline the collaborative nature of the peer observation process, how it will be run and how the observer should be introduced to students (Jones and Gallen, 2016). A recording of this briefing will also be made available to participants.

I will brief staff on the lesson plan for this observation and observation form (see attached). This lesson plan includes sections for observees to reflect on their experiences of
facilitating critical thinking skills development in their session. Professional Learning Conversations will be facilitated by Hilary Wason and jointly take place with the observer and observee.

**Stage Three**

Focus group to triangulate and validate the data once stage one and two above are complete and to share what participants have learned.

**Timeline**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi structured interviews</td>
<td>Jan-July</td>
</tr>
<tr>
<td>Modifications to Ethics approval sought (amendments only)</td>
<td>wc 13th July</td>
</tr>
<tr>
<td>Approval of ethics</td>
<td>wc 20th July</td>
</tr>
<tr>
<td>Send out modified participant info sheets and consent</td>
<td>wc 27th July</td>
</tr>
<tr>
<td>Peer Observation briefing session</td>
<td>August</td>
</tr>
<tr>
<td>Peer observations and Professional Learning Conversations</td>
<td>September -November</td>
</tr>
<tr>
<td>Send transcripts to staff for approval</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Approval of transcripts</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Final focus groups</td>
<td>December/January</td>
</tr>
<tr>
<td>Analysis: results anonymised and presented to staff face to face</td>
<td>31st April 2021</td>
</tr>
</tbody>
</table>
Appendix Four Participant Information

Information Sheet for Participants HREC/3453/Wason

Year 2 Main Study for Educational Doctorate

Learning to Teach Critical Thinking in Higher Education (note amends to these pages have been highlighted in yellow)

Project Overview
Thank you for taking the time to read this. I would like to ask you to participate in a research study for an Education Doctorate that I am undertaking with the Open University at xxxxxx. The aim of the study is to explore your experiences of how you are learning to facilitate the development of students’ critical thinking skills within your existing curricula. I would like to invite you to take part as participant in concept mapping interviews and peer to peer learning collaborations followed by professional learning conversations. This includes completing a lesson plan and a self-reflection about how you learn to facilitate the development of students’ critical thinking skills. The peer learning collaboration will involve an informal peer observation. This will be conducted online to provide easier access and to ensure the observation is conducted safely. The study will conclude with an online focus group interview which will provide an opportunity to jointly share reflections on critical thinking teaching experiences and for findings and analysis to date to be shared. I appreciate how busy you all are but your insights will really help me with my research. This may also be useful for your own professional development as an educator.

Why am I asking for participation?
You have been invited to participate because you have had involvement with the Critical Thinking Skills Toolkit project and/or are a member of CritTALK critical thinking community of practice xxxxxx. As this is a study for an educational doctorate I will conduct interviews, facilitate the professional learning conversations and focus groups myself and with your permission, record them. In addition the interviews and professional learning conversations following the peer observations will involve the co-construction of a concept map using the questions below. The peer observations will be carried out by other educators in the research sample as feedback from the initial study indicated that peer
learning is viewed as a supportive mechanism to help staff develop their critical thinking practices further. Since full transcripts are required for this study, if you do not wish to have the interview, professional learning conversations or focus groups recorded you will be unable to participate further in this study. Full details of the procedures involved are included in the project outline provided with this information sheet.

The concept mapping mediated interview will take place from January 2019. Its purpose is to explore how you make meaning about critical thinking in your learning and teaching practices, what barriers and enablers you have experienced, and what continuous professional education and supporting resources you would need to develop your facilitation of students’ critical thinking skills further. In addition to recording your responses you will have the opportunity to co-construct a concept map to visual depict your experiences.

The following research questions will guide this discussion:

1. Describe what critical thinking means within your disciplinary teaching.

2. Describe why you think it is important to facilitate the development of your students’ critical thinking skills within your existing learning and teaching practices? (when did you realise that this was important)

3. Describe a situation (s) where you facilitated the development of your students’ critical thinking skills within your existing teaching/learning support contexts?

Following from question 2

4. Describe what critical thinking skills you were developing (have Facione’s skills list available as a prompt)

5. Describe how you articulated these skills to students
6. Describe what enabled you to do this? What motivated you to do this?

7. Describe what hindered you from doing this?

8. Describe what impact this had on your teaching/learning support practices?

9. Describe what changes you have had to make to your teaching and learning practices in order to facilitate students’ critical thinking skills development (what impact have these experiences had on how you view your teaching, have you changed your perspective about teaching, your teaching habits and how you make meaning about your teaching)

10. Describe what else you could do to facilitate your students’ critical thinking skills development?

11. Describe how you have learned to facilitate your students’ critical thinking development (transformative critical thinking experiences – describe when you thought this happened, why it happened, what triggered this?)

12. What additional continuous professional education do you need to support you to develop your critical thinking practices further?

13. What resources would support you with facilitating the development of your students’ critical thinking skills within your existing teaching?

Other questions may arise during the conversation related to the topic above and clarification may be sought during the interview and when the transcripts are send to you for comment.

The second stage of this research (which may run concurrently depending on operational teaching requirements) will involve exploring the research questions in more depth within the context of a teaching or learning support session, online. It will involve completing a
lesson plan in advance of the session and sharing with your peer observer who is part of this research sample. See lesson plan attached. A briefing on the collaborative nature of this process and how the process will run will be provided in late August.

Observer’s comments should be recorded in the peer observation form attached.

**Follow up Professional Learning Conversation**

These will take place after the peer observations. You will take part in a professional learning conversation with your observer, facilitated by Hilary Wason. This will also involve the construction of a concept map. The following questions will guide the discussion.

1. What was your best experiences of facilitating students’ critical thinking skills in this session? More generally?
2. How did you feel about facilitating students critical thinking skills in your session?
3. Describe the experience of teaching critical thinking online? (How did it compare to teaching it face to face?)
4. What aspects of this experience could you use to inform future critical thinking skills facilitation sessions?
5. What were the enablers and barriers your experienced?
6. What impact has this had on how you teach?
7. What have your learned from this experience? How does this compare to other ways of teaching?
8. What learning can you build on to use in future critical thinking skills facilitation sessions?
9. What additional support do you need – continuous professional education and/resources?

Data from the lesson plans and peer observations will be anonymous and will be added to the findings from the interviews. This will provide more specific data on your experiences of facilitating critical thinking skills development and this data will be subject to the same protocols as the interviews. I will also use this opportunity to share work in progress about
the findings and analysis of the semi structured interviews, collaborative peer observations and professional learning conversations.

**Focus Group Interviews**

The final stage of the study will involve participating in a focus group to collectively share experiences of teaching critical thinking. The following questions will guide the discussion:

1. What was your best experiences of teaching critical thinking?
2. What have you learned about teaching critical thinking from participating in this project? (when did you realise it was important? What triggered this realisation?)
3. What impact has this have on how you teach?
4. What were the challenges of teaching critical thinking?
5. What were the enablers?
6. What learning can you build on to use in future teaching?
7. What changes have you made to your practice to embed critical thinking in your teaching?
8. What staff development do you need to enhance your critical thinking teaching practices even further?
9. What resources do you need to teach critical thinking?
Title of Project:  
**Year 2 Main Study for Educational Doctorate**

*Staff experiences of learning to facilitate the development of students' critical thinking skills within their existing criteria*

Name of Researcher:  **Hilary Wason**

<table>
<thead>
<tr>
<th></th>
<th>Please Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I confirm that I have read and understand the information sheet dated 14.7.20 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. I will keep a copy of this for my own records.</td>
</tr>
<tr>
<td>2.</td>
<td>I understand that my participation in this research study is voluntary. If for any reason I wish to withdraw during the period of this study, I am free to do so without providing any reason. If I withdraw within two weeks of receiving the transcript of my interviews, observations, professional learning conversations, <strong>focus groups</strong> I understand my details, observation sheets, concept maps, transcripts will be destroyed and not used in the study. After this time, I understand that my interview, observation and professional learning conversations, <strong>focus group</strong> data will be an integral part of the data collected for this study and my anonymity will be ensured. If my data remains in the study, I give consent for all my contributions to the interviews/professional learning conversations, <strong>focus group</strong> and observation data to be included and/or quoted in this study.</td>
</tr>
<tr>
<td>3.</td>
<td>I consent to the interview, professional learning conversations, <strong>focus groups</strong> being audio-taped.</td>
</tr>
<tr>
<td>4.</td>
<td>I understand that the information I provide will be used for a thesis and may be published. I understand that I have the right to review and comment on the information provided before the final submission.</td>
</tr>
</tbody>
</table>
5. I agree to take part in the above study.

Name of Participant: 
Signature: 
Date: 

### Appendix Five Peer Observation Forms

**Peer Observation Form: Observer’s Comments**

<table>
<thead>
<tr>
<th>Participant reference no :</th>
<th>Date:</th>
</tr>
</thead>
</table>

The breakdown of each category (in bullet points) is a guide for you as to aspects for comment and discussion and it meant as a prompt. It is not intended to be comprehensive and there may be other aspects that are worth noting during the observation. Different disciplines will have additional aspects to consider. As an alternative to completing the sections below during the session you may wish to write a narrative during the observation and then, within a couple of days, complete the form and send to the observee.

1. **Preparation**
   - Appropriateness and clarity of aims and learning outcomes relating to critical thinking skills. Were these clearly articulated to students?
   - Planning and structure of the session including choice and sequence of critical thinking teaching and learning methods
   - Pre and post session activities and resources linked to the session
   - Organisation of content which embeds critical thinking skills

2. **Delivery / Presentation**
   - What critical thinking activities did students participate in (e.g. group discussions/
debates, problem solving/ project based learning activities, flipped learning activities, active research, group work, simulations, guided questioning, other – please detail below)

- Clarity of explanation of **critical thinking** activity
- Pace
- Use of examples to explain
- Summary
- Effective use of question and answer techniques.

<table>
<thead>
<tr>
<th>3. Active Learning and Student Engagement in <strong>Critical Thinking</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Student contributions and participation encouraged in a positive atmosphere: <strong>how are they encouraged to be critical thinkers?</strong> What evidence can you record of critical thinking skills facilitation taking place?</td>
</tr>
<tr>
<td>• Attention and interest of students – were they engaged in the activity? How were they asked to demonstrate their learning? What enabled this learning? What hindered this learning?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. <strong>Strengths</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Please summarise any identified strengths that emerge from your comments above? Please focus specifically on <strong>critical thinking</strong> skills facilitation? Good practice examples of critical thinking teaching facilitation behaviours?</td>
</tr>
</tbody>
</table>
5. Areas for Development (observee)
Please summarise any suggestions for development based on your comments. What could be done differently next time? What continuous professional education and/or resources would help develop this practice further?

6. Areas for Development (observer)
What have you learned from this session which you can take forward to your own practice of facilitating critical thinking development within your own curricula? What continuous professional education and/or resources would help develop this practice further?

Thank you for your time! If you could fill this out and send to your observe that would be great. This will be followed up with a joint professional learning conversation with Hilary Wason where you and the observee will be able to jointly evaluate this experience according to the questions on the next page.

Follow up Professional Learning Conversation

10. What was your best experiences of facilitating students’ critical thinking skills in this session? More generally?
11. How do you feel about facilitating students critical thinking skills in this sessions?
12. Describe the experience of teaching critical thinking online? (How did it compare to teaching it face to face?)
13. What aspects of this experience could you use to inform future critical thinking skills facilitation sessions?
14. What were the enablers and barriers you experienced?
15. What impact has this had on how you teach?
16. What have you learned from this experience? How does this compare to other ways of teaching?
17. What learning can you build on to use in future critical thinking skills facilitation sessions?

18. What additional support do you need – continuous professional education and/resources

### Lesson Plan

**Lesson plan to incorporate Critical Thinking Skills facilitation: Synchronous Online Teaching (1 hour live session)**

<table>
<thead>
<tr>
<th>Reference Number</th>
<th>Date: xxxxx</th>
</tr>
</thead>
</table>

**Instructions for observer**

Please fill out the first five boxes of this lesson plan and send to your observer 24 hrs in advance of your peer observation.

Then as soon after the session as possible, jot down your own reflections in boxes 6, 7 and 8 about how you felt the session facilitated the development of students critical thinking skills? What were the barriers and enablers? What would do differently next time and what support would you need? Retain these reflections for subsequent learning conversations. This will also be used a data for this research project. Please note that you can use this for other sessions you use to facilitate critical thinking skills.

<table>
<thead>
<tr>
<th>1. Big Picture</th>
<th>2. Pre-class activities</th>
<th>4. Maximising learning using critical thinking?</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does this link to the previous/near session? How does this session fit in with the module/programme learning outcomes and assessment planning? Session subject is Pricing Strategies, the second among five ‘Implementing marketing strategies’ topics part of the whole marketing planning cycle. Refer to address the learning outcome of module hand book highlighted in yellow below.</td>
<td>What have you asked students to do in advance to facilitate the development of their critical thinking skills in class? For example, flipped learning, including online activities set to students, e.g. 1) Read Lecture notes and Core text book chapter 7 2) Prepare for IKEA case study discussion: - Read case study IKEA page 145 core text Wood. - Use The Case worksheet to prep notes for case study discussion</td>
<td>What activities have you planned to facilitate the development of critical thinking in this session? How have the skills been articulated? What CT tools will you use (if appropriate). How will you engage all learners? Any additional support needed? Please use and adapt the example below as appropriate. Use The Case worksheet tool (from tool kit) to analyse and discuss the IKEA case study. Start of IKEA discussion with quiz to start conversation to revise core mkg concepts studies in past.</td>
</tr>
</tbody>
</table>

- **3. Learning Outcomes**
  - On successful completion of the module, you will be able to:
    - evaluate market opportunities and develop and critically appraise marketing strategies or engage critical skills and competencies within planning, implementation and control of marketing actions.
    - identify the objectives of marketing and controlling marketing plans; and calculate and analyse marketing metrics as indicators of marketing performance.
  - Having learnt about Pricing Strategies, students should be able to:

- **4. Assessment for learning**
  - How will you know students have developed their critical thinking skills?
    - Formative/summative, formal/informal, crit, self and peer assessment etc.
  - Description: What happened during the activity? - what skills do you think developed?

- **5. Hoped for Critical Thinking Learning Outcomes**
  - List each outcome in a separate box
  - By the end I hope students will...
  - Through discussion of the IKEA, students should be develop skills as follows: analyse data from the case, show evidence of research (provide 1 fact about organisation) and present/share with class, explain their views points about recommendation they make for the 2 questions of case.

- **6. Assessment for learning**
  - How will you know students have developed their critical thinking skills?
    - Formative/summative, formal/informal, crit, self and peer assessment etc.
  - Description: What happened during the activity? - what skills do you think developed?

- **7. Evaluation and Feedback**
  - Feedback from and to students?
  - Critical reflection on your own performance?
  - Description: What happened during the activity? - what skills do you think developed?

- **8. Conclusion and Action Plan**
  - Conclusion – what else could you have done?

---

- **Analyze existing and recommend new pricing strategies for their own chosen brands/organization in their own Individual Portfolio report.**
  - Apply learning to Pharmacy simulation pricing decision.
  - Find one interesting/fun fact about IKEA to bring to class and share.
  - weeks (possibly led by IP retailer/ e-commerce group- TBC)
  - Ask students to share fact finding as icebreaker, group discussion. Use slides from lecture to reinforce learning of theory.
Appendix Six– Information Asset Register Entry and Data Management Plan

Information Asset Register entry form

Please contact your Information Governance Liaison Officer for assistance in entering details of the data you are collecting or using onto the Information Asset Register. You may wish to use this form to draft your entry.

If you are processing personal data, you need to ensure

- Your activity adheres to the data protection principles
- You are able to comply with individuals’ requests to exercise their rights as data subjects

See the end of this form for a summary of these.

For research and scholarship projects, please see the Research guidance. This details some exemptions to data subject rights in certain circumstances

Staff experiences of facilitating the development of students’ critical thinking skills within their existing curricula

<table>
<thead>
<tr>
<th>Team/ Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hilary Wason</td>
</tr>
</tbody>
</table>

**What is the purpose/ function the data is used for?** 2-3 words indicating the high level purpose of the data e.g. Payroll, Research, Student Exam Administration. Add the activity/ project title if necessary

Research into staff experiences of facilitating the development of students’ critical thinking skills within their existing curricula

**Description of the purpose/ function.** Brief description of the purpose of processing

Data from interviews, peer observations and written reflections will be transcribed by the author and analysed using thematic analysis in order to identify themes to answer the research questions of my thesis.

**Where/ how will information be stored?** What systems will be used (e.g. OU systems, external systems, or systems to be procured; include email and paper, if these are likely to be used.)
The audio recording of our interview/professional learning conversations will be transferred to a secure password-protected computer (on which all data is encrypted) as soon as possible after the interview and then removed from the mobile voice recorder. All recordings, transcript or notes of the interview will be encrypted, and kept electronically in a secure, private location until destroyed. Any data will only be accessed and analysed by me as part of my thesis.

**Notes on the data and how it is stored**

See above.

[An “additional location information” field exists on the register at the moment as data was transferred from previous spreadsheets. This shouldn’t be necessary for new entries]

**Who has edit access to the data?** *In principle, which teams/ roles?*. If you send it to other areas of the OU, see the later question on this.

Only the participants in the study will have edit access to the data.

**Who has read access to the data?** *In principle, which teams/ roles?*.

My supervisors and participants.

**What are the retention periods?** *What is your retention period? Have you identified a trigger after which you can destroy the data, or start calculating its destruction date? See the retention schedule for examples. You could anonymise the data instead of deleting it - but this means it is not possible to ever re-link the data back to the individual, even by using other data you have access to.*

All recordings, transcripts, concept maps and notes of interviews and peer observations will be destroyed no later than five years after my final thesis has been submitted and approved to allow for publication.

**Information security classification** [all personal data is Highly Confidential]

This is personal data so is Highly Confidential.

**What is the source of the data?** *Describe where you get the data from – e.g. direct from the data subject, extracted from another OU system, or from a third party*

Direct from the data subject.

**Any other compliance requirements?** *Eg HESA, Health and Safety regulations, financial regulations*

N/A

**Categories of individual** – *who are the data subjects? Students/ enquirers/ staff members/ applicants/ research subjects etc*

Educators from xxxxxxx about how they facilitate students’ critical thinking skills development within existing curricula. It will focus on educators who are already embedding critical thinking within their curricula and are willing to be interviewed and participate in peer observation. The sample will include library and learning services, academic skills advisers, and a range of disciplinary academics.

**categories of personal data?** *What kind of data are you using? (name, contact details, opinions, financial, education, work related, personal life etc.)*
I am not capturing any personal data from my data subjects. Each participant will be allocated a participant reference number. This will be used to identify each contribution when transcribing and analysing the data. Once the interview has been transcribed it will be held securely and identified only by the reference number. The file holding reference numbers and participant details will be separately held on a different file on the secure computer. The same procedure will apply to the peer observation procedure.

**Link to relevant privacy notice** [or research participant information sheet] You have to provide specific information about what you are doing with personal data at the point that you collect it – often in a privacy notice. One of the main OU notices may cover your activity, or you might need to create a specific privacy notice. See guidance on privacy notices.

Please see my approved research participant information sheet attached.

**Lawful basis for processing** [Legitimate interest/ public task/ contract/ legal obligation/ consent/ vital interest] - Use the lawful basis for processing help document to identify the correct one. You may want to contact your IGLO or the information rights team for help.

**Consent**

**Lawful basis notes:** If using consent, does your consent meet the standards required? (ICO guidance) describe how you will manage consent records, and how people can withdraw consent. If using legitimate interest – what is your legitimate interest? How does this balance against the individual’s rights and freedoms? How do you minimise impact on them?

Consent is positively sought using the information sheet and consent form attached. This has been given favourable opinion by HREC. Consent records will be scanned and separately held on a different file on the secure computer. I will tape record what participants are told when they are asked to provide consent and when this is reiterated at the point of beginning data collection. If people find talking about their experiences upsetting or change their mind once the data collection starts, participants will be offered the opportunity to take a break or the data collection will be stopped and the recordings will be destroyed and not used as part of this study.

Once data collection has taken place, participants will be given an electronic copy of the transcript of their interview/peer observation and a copy of the concept maps generated from the discussion. There will be a two-week window following receipt during which participants will have the opportunity to comment prior to analysis. If they wish to withdraw from the study within two weeks of receiving the transcript, then interview details and transcript and reflections will be destroyed and will not be used in the study. After this point, the data will remain in the study but anonymity will still be ensured.

Final results will be presented to participant face to face by April 2021.

**Categories of sensitive personal data** Does it include special category or criminal offence data? –religious belief, political opinion, health – including disability and mental health, sex life, trade union membership, genetic or biometric data

No

**Condition for processing special category personal data** If applicable –see guidance for choosing the correct condition. The Information Rights team can help if you are unsure.

N/A

**Do you send the data to anyone else within the OU?** - internal data flows

The transcripts may be shown to my supervisors and may be attached to drafts of analysis to show work in progress.

**What security measures are in place?** To protect against unauthorised access, use or destruction., relating to confidentiality, integrity & availability. Include links to IT information if helpful regarding access controls, backup etc. Will staff require specific training?
The data is stored securely and anonymously on password protected files which are encrypted. Each participant has a unique identifier which is stored separately to the data transcripts. In addition, hard copies of the transcriptions will be kept in a locked cabinet.

<table>
<thead>
<tr>
<th>Will you be sharing data with anyone external to the OU?</th>
<th>If you are using a supplier/contractor/consultant, you need an appropriate contract in place, signed by an authorised OU signatory. If you are sharing with a partner, you need a contract or data sharing agreement. See <a href="https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/key-definitions/controllers-and-processors/">https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/key-definitions/controllers-and-processors/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Only my supervisors will have access to the written transcripts as part of the progress report submission process at the OU.</td>
<td></td>
</tr>
<tr>
<td>Lawful basis for transferring the data</td>
<td>[Legitimate interest/public task/contract/legal obligation/consent/vital interest] - Use the <a href="https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/key-definitions/controllers-and-processors/">lawful basis for processing help document</a> to identify the correct one. For using a third party supplier, it’s likely to be in our legitimate interest (to operate cost effective and efficient services/activities)</td>
</tr>
<tr>
<td>Consent.</td>
<td></td>
</tr>
<tr>
<td>Where will the processing take place?</td>
<td>If using subcontractors or sharing with other organisations, where are they based? Will data be stored on servers in countries outside the UK? Where are the data subjects?</td>
</tr>
<tr>
<td>The data subjects are based atxxxxxx. Transcripts will be shared with participants only and not with other organisations either within or outside the UK. Data processing will take place at in a secure private locations separate from the research setting. The data is stored securely and anonymously on password protected files which are encrypted. Each participant has a unique identifier which is stored separately to the data transcripts.</td>
<td></td>
</tr>
<tr>
<td>How do you propose to safeguard any international transfers outside the EEA?</td>
<td>E.g model contract clauses, use of PrivacyShield. See <a href="https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/key-definitions/controllers-and-processors/">Information Commissioner’s Office guidance</a>, or contact <a href="mailto:data-protection@open.ac.uk">data-protection@open.ac.uk</a></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Any automated decision making?</td>
<td>Any decisions made without any human intervention? E.g Computer marked assignments, loan applications, eligibility for funding or support. Also any profiling – identifying characteristics of certain people in order to take particular actions, e.g. send them specific communications.</td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Any children’s data?</td>
<td>Any personal data relating to children under 16?</td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
Appendix: Data Protection Principles and Data Subject Rights

1. Lawful, fair and transparent processing
   - You must have a lawful basis for collecting and using personal data. See an overview of lawful bases at the OU, using the data must be necessary for the purpose (no real alternative) and you must tell people what you are doing.

2. Purpose limitation
   - You must only use personal data for the activities specified in the privacy notice.
   - If you want to do anything extra, you will need to tell people first (apart from in specific situations).
   - You should put measures in place to minimise the possibility of data being used for other purposes, e.g. “pseudonymisation” or strict security.

3. Data minimisation
   - You must only collect personal data that you need to carry out these activities – It must be adequate, relevant and limited to what is necessary.

4. Accuracy
   - Make sure that the data you collect and use is accurate, and, where necessary, kept up to date so it is fit for purpose.

5. Limitation of storage
   - You must not store personal data in a form that permits identification for any longer than you need to.
   - Delete personal data when you no longer need it, in line with the retention schedule. Your team or unit should have a process in place to regularly delete data.
   - You could, instead, “anonymise” data – so that it can never be linked back to the individual (“re-identified”).
   - You must avoid storing copies and duplicates. Having many copies of the same data in multiple locations (e.g. email boxes) is a compliance nightmare.
   - Good information management and email practices help with this.

6. Integrity and confidentiality (Security)
   - Only those who need to use personal data should have access to it.
   - We must have organisational and technical measures in place to protect personal data from unauthorised access, use and destruction.
   - We must protect data against malicious and accidental misuse.
   - This includes external threats, and protecting against malware/ransomware etc.
   - Information handling guidance.
Data Subject Rights

The following rights apply generally: [See guidance from the Information Commissioner’s Office for more details](#).

<table>
<thead>
<tr>
<th>The right to be informed</th>
<th>We must provide a privacy notice when we collect the personal data, detailing what we do with it as per GDPR stipulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>The right of access - Subject Access Requests</td>
<td>Individuals are entitled to have access to all the personal data an organisation holds about them (although there are some limited exemptions).</td>
</tr>
<tr>
<td>The right to restrict processing</td>
<td>Individuals can request us to ‘block’ or suppress the processing of their personal data, temporarily or permanently, if they have a valid reason. For example, someone may prefer that we restrict data rather than deleting it, or ask us to restrict data where they are disputing its accuracy.</td>
</tr>
<tr>
<td>The right to rectification</td>
<td>Individuals are entitled to request us to rectify personal data if it is inaccurate or incomplete; including data being processed by third parties on our behalf</td>
</tr>
<tr>
<td>The right not to be subject to automated decision-making</td>
<td>Individuals are entitled to request their personal data is not used for profiling activities where a potentially damaging decision with a legal or similarly significant effect is taken without human intervention. This type of automated decision making can only take place under contract, consent or if authorised by law.</td>
</tr>
</tbody>
</table>

The following rights will apply in certain situations, dependent on the legal basis for the processing that has been identified:

<table>
<thead>
<tr>
<th>The right to data portability</th>
<th>Individuals are entitled to a copy of their personal data in a format which can be transferred easily to another IT system, e.g. in another organisation.</th>
<th>Relevant legal bases: Consent and contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>The right to object</td>
<td>Individuals are entitled to object to the processing of their personal data based on legitimate interests or the performance of a task in the public interest/direct marketing; and we should stop using the data. If this right applies, you must tell data subjects explicitly on the first communication with them, eg that they can opt out.</td>
<td>Relevant legal bases: Public task/legitimate interest,</td>
</tr>
<tr>
<td>The right to erasure</td>
<td>Individuals are entitled to request the deletion or removal of their personal data where there is no compelling reason for its continued processing.</td>
<td>Relevant legal bases: Consent, contract, legitimate interest, and vital interest</td>
</tr>
</tbody>
</table>

| The right to withdraw consent | Individuals are entitled to withdraw consent at any time | Relevant legal bases: Consent |

Data subjects are also able to claim compensation for damage and distress caused by breaches.
Hilary Wason <hilarywason@gmail.com>  

to WELS-GDPR  

Thanks - data collection started September 2018 and will finish April 2021.

Hilary  

WELS-GDPR <WELS-GDPR@open.ac.uk>  

to me  

Thank you Hilary,  

I’ve updated the IAR.  

Kind regards,  

xxxx
Data Management Plan

(Use this is generic template if you have not been given a template or format to use, e.g. by a funder as part of bid)

Project Name: Investigating HE educators experiences of teaching critical thinking within their disciplinary teaching (changed to Learning to Teach Critical Thinking in Higher Education)

Principal Investigator / Researcher: Hilary Wason

Date: 28.9.20

Data Collection

What data will you collect or create?

Questions to consider:
- What type, format and volume of data?
- Do your chosen formats and software enable sharing and long-term access to the data?
- Are there any existing data that you can reuse?

I will collect the data myself so there are no issues of consistency across the team. The data is qualitative in two forms: verbal data from participants collected through semi-structured interviews, professional learning conversations and focus group interviews; written data in lesson plans and peer observation forms.

Recordings from interviews and professional learning conversations were downloaded as M4a and encrypted to compressed zip folders.

The transcriptions of interviews and professional learning conversations will be in word formats and again encrypted to compressed zip folders. The lesson plans and peer observations notes will be kept in word formats.

14 interviews with sound recordings of about 1 hour long. Each transcription is about 10 pages of text.
3 Focus group interviews of about 40 mins
8 professional learning conversations of about 1 hour long. Each transcription about 10 pages of text.

Documentation and metadata

Data will be stored and filed as follows:

EdDoc Year 3/Fieldwork Data Management and Storage:
- Completed Lesson Plans
- Completed Peer Observations
- Data Management
- Latest Approved Ethics and Documents
- Participant Interview Concept Maps
- Participant PLC Concept Maps
- Transcripts of Professional Learning Conversations
- Transcripts of Concept Mapping Interviews
Each participant will be given a unique identifier which is used to label every piece of data collected from them. The files are named as follows:

**Recordings of Concept Mapping Interviews:**
Unique Identifier_Recording_Concept Mapping Interview_Date e.g. 08_Recording_Concept Mapping Interview_May20

**Recordings of Professional Learning Conversations**
Unique Identifier_Recording_PLC_Date e.g. 01_02_Recording_PLC_March20

**Completed Lesson Plans:**
Unique Identifier_Completed Lesson Plan for PO_Date

Completed Peer Observations

**Transcripts of Professional Learning Conversations**
Unique Identifiers_PLC_Date e.g. 01_02_PLC_Feb20

**Concept Map of Professional Learning Conversations**
Unique Identifier_CM_PLC e.g. 01_02_CM_PLC_Feb20

**Transcripts of Interviews**
Unique Identifier_Interview_Transcript_Date e.g. 01_Interview_Transcript_Feb20

**Concept Maps of Interviews**
Unique Identifier_Concept Map of Interview_Date e.g. 13_Concept Map of Interview_Feb20

**How will the data be collected or created?**
*Questions to Consider:*
- What standards or methodologies will you use?
- How will you structure and name your folders and files?
- How will you handle versioning?
- What quality assurance processes will you adopt?

**Documentation and Metadata**

**What documentation and metadata will accompany the data?**
*Questions to consider:*
- What information is needed for the data to be to be read and interpreted in the future?
- How will you capture / create this documentation and metadata?
- What metadata standards will you use and why?

**Ethics and Legal Compliance**

**How will you manage any ethical issues?**
Questions to consider:
- Have you gained consent for data preservation and sharing?
- How will you protect the identity of participants if required? e.g. via anonymisation
- How will sensitive data be handled to ensure it is stored and transferred securely?

How will you manage copyright and Intellectual Property Rights (IPR) issues?
Questions to consider:
- Who owns the data?
- How will the data be licensed for reuse?
- Are there any restrictions on the reuse of third-party data?
- Will data sharing be postponed/restricted e.g. to publish or seek patents?

**Storage and Backup**

How will the data be stored and backed up during the research?
Questions to consider:
- Do you have sufficient storage or will you need to include charges for additional services?
- How will the data be backed up?
- Who will be responsible for backup and recovery?
- How will the data be recovered in the event of an incident?

How will you manage access and security?
Questions to consider:
- What are the risks to data security and how will these be managed?
- How will you control access to keep the data secure?
- How will you ensure that collaborators can access your data securely?
- If creating or collecting data in the field how will you ensure its safe transfer into your main secured systems?

**Selection and Preservation**

Which data should be retained, shared, and/or preserved?
Questions to consider:
- What data must be retained/destroyed for contractual, legal, or regulatory purposes?
- How will you decide what other data to keep?
- What are the foreseeable research uses for the data?
- How long will the data be retained and preserved?

What is the long-term preservation plan for the dataset?
Questions to consider:
- Where e.g. in which repository or archive will the data be held?
- What costs if any will your selected data repository or archive charge?
Data Sharing

**How will you share the data?**

*Questions to consider:*
- How will potential users find out about your data?
- With whom will you share the data, and under what conditions?
- Will you share data via a repository, handle requests directly or use another mechanism?
- When will you make the data available?
- Will you pursue getting a persistent identifier for your data?

Are any restrictions on data sharing required?

*Questions to consider:*
- What action will you take to overcome or minimise restrictions?
- For how long do you need exclusive use of the data and why?
- Will a data sharing agreement (or equivalent) be required?

Responsibilities and Resources

**Who will be responsible for data management?**

*Questions to consider:*
- Who is responsible for implementing the DMP, and ensuring it is reviewed and revised?
- Who will be responsible for each data management activity?
- How will responsibilities be split across partner sites in collaborative research projects?
- Will data ownership and responsibilities for RDM be part of any consortium agreement or contract agreed between partners?

**What resources will you require to deliver your plan?**

*Questions to consider:*
- Is additional specialist expertise (or training for existing staff) required?
- Do you require hardware or software which is additional or exceptional to existing institutional provision?
- Will charges be applied by data repositories?
## Appendix Seven – Question Schedule

### Overall Research Question: How Are Educators Learning to Teach Critical Thinking?

#### Semi structured Interviews

- Describe what critical thinking means in your disciplinary teaching
- Describe why you think it is important to teach critical thinking within your existing teaching practice (when did you realise that this was important?)
- Describe a situation where you taught critical thinking within your existing teaching context
- Describe what critical thinking skills you were developing
- Describe what changes you have had to make to your teaching to incorporate critical thinking
- Describe what impact this had on your teaching practice (how you view your teaching, any changes in perspective, your teaching habits)?
- Describe how you learned to teach critical thinking? (when you thought this happened, what triggered this?)

#### Peer Observation Lesson Plan

- What happened during the activity – what skills do you think students developed?
- What were you thinking and feeling?

#### Professional Learning Conversations

- What was your best experience of teaching critical thinking in this session (or more generally)?
- How did you feel about teaching critical thinking in this session?
- What aspects of this experience could you use to inform your future critical thinking teaching?
- Describe the experience of teaching critical thinking online? (How did it compare to teaching it face to face?)
• What impact has this experience had on how you teach?
• What have you learned from this experience? How does it compare to other ways of teaching?
• What learning can you build on for future critical thinking teaching?

Focus Group
• What were your best experiences of teaching critical thinking?
• What have you learned about teaching critical thinking from participating in this project? (when did you realise it was important? What triggered this realisation?)
• What impact has this had on how you teach?
• What learning can you build on to use in future teaching?
• What changes have you made to your practice to embed critical thinking in your teaching?

Research Question Two: What are the enablers to support learning to teach critical thinking?

Semi structured Interviews
• Describe what enabled you to do this

Peer Observation Lesson Plan
• What was good about the experience? (what enabled you to teach critical thinking )

Professional Learning Conversations
• What were the enablers you experienced?

Focus Group
• What were the enablers for teaching critical thinking?
Research Question Three: What are the barriers which hinder learning to teach critical thinking?

Semi structured Interviews
- Describe what hindered you from doing this

Peer Observation Lesson Plan
- What was bad about the experience – what stopped you teaching critical thinking?

Professional Learning Conversations
- What were the barriers you experienced?

Focus Group
- What were the challenges of teaching critical thinking?

Research Question Four: What professional development and resources do educators need to support them to teach critical thinking?

Semi Structured Interview
- What additional continuous professional development do you need to develop your critical thinking teaching further?
- What resources would support you with teaching critical thinking?

Peer Observation Lesson Plan
- What improvements would you make for next time?
- What support do you need to develop these practices on an ongoing basis (continuous professional development, supporting resources)?

Professional Learning Conversations
- What additional support do you need (continuous professional education and resources)?

Focus Group
• What staff development do you need to enhance your critical thinking teaching practices even further?
• What resources do you need to teach critical thinking?
## Appendix Eight - Mapping of Question Schedule to Transformative Learning, Experiential Learning and Threshold concepts

<table>
<thead>
<tr>
<th>Question Schedule</th>
<th>Element of Transformative Learning Theory, Threshold concepts and Experiential Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semi-structured interview</strong></td>
<td>• becoming aware of, developing understanding of, and finding ways of interpreting critical thinking learning experiences resulting in a change in perspective, way of being (Hoggan, 2016); critical thinking as a threshold concept due to its difficulty to learn to teach (Hodge, 2019)</td>
</tr>
<tr>
<td>• Describe what critical thinking means in your disciplinary teaching?</td>
<td>• disorienting dilemma, self examination of assumptions, critical reflection on assumptions, recognition of dissatisfaction, exploration of alternatives (Mezirow, 2000)</td>
</tr>
<tr>
<td>• Describe why you think it is important to teach critical thinking within your existing teaching practice (when did you realise that this was important?)</td>
<td>• Grounding making meaning about critical thinking teaching in educators actual teaching experiences, with a real world focus (Mackenzie and Knipe, 2006); becoming aware of, developing understanding of, and finding ways of</td>
</tr>
<tr>
<td>• Describe a situation where you taught critical thinking within your existing teaching context</td>
<td></td>
</tr>
</tbody>
</table>

### Notes
- Critical thinking is a threshold concept due to its difficulty to learn to teach (Hodge, 2019).
- Disorienting dilemma involves self-examination of assumptions, critical reflection on assumptions, recognition of dissatisfaction, and exploration of alternatives (Mezirow, 2000).
- Grounding making meaning about critical thinking teaching involves grounding making meaning in educators' actual teaching experiences with a real-world focus (Mackenzie and Knipe, 2006).
• Describe what critical thinking skills you were developing?

Professional Learning Conversation
• Describe the experience of teaching critical thinking online? (How did it compare to teaching it face to face?)

• What was your best experience of teaching critical thinking in this session (or more generally)? How did you feel about teaching critical thinking in this session?

Focus Group

• Grounding making meaning about critical thinking teaching in educators actual teaching experiences, with a real world focus (Mackenzie and Knipe, 2006); becoming aware of, developing understanding of, and finding ways of interpreting critical thinking learning experiences resulting in a change in perspective, way of being (Hoggan, 2016);

• Grounding making meaning about critical thinking teaching in educators actual teaching experiences, with a real world focus (Mackenzie and Knipe, 2006); becoming aware of, developing understanding of, and finding ways of interpreting critical thinking learning experiences resulting in a change in perspective, way of being (Hoggan, 2016);

• Grounding making meaning about critical thinking teaching in educators actual teaching experiences, with a real world focus (Mackenzie and Knipe, 2006); becoming aware of, developing understanding of, and finding ways of interpreting critical thinking learning experiences resulting in a change in perspective, way of being (Hoggan, 2016);

• Interpreting critical thinking learning experiences resulting in a change in perspective, way of being (Hoggan, 2016); becoming aware of, developing understanding of, and finding ways of interpreting critical thinking learning experiences (Hoggan, 2016);
<table>
<thead>
<tr>
<th>Peer Observation Lesson Plan</th>
<th>Professional Learning Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>What were your best experiences of teaching critical thinking?</td>
<td>What aspects of this experience could you use to inform your future critical thinking teaching?</td>
</tr>
<tr>
<td>Grounding making meaning about critical thinking teaching in educators actual teaching experiences, with a real world focus (Mackenzie and Knipe, 2006); becoming aware of, developing understanding of, and finding ways of interpreting critical thinking learning experiences resulting in a change in perspective, way of being (Hoggan, 2016)</td>
<td>Becoming empowered within experience of learning to teach critical thinking, building confidence and competence (experimentation with roles, building competence and self-confidence in new roles and relationships, development of particular attributes (Hoggan, 2016)</td>
</tr>
<tr>
<td>What happened during the activity – what skills do you think students developed?</td>
<td>What have you learned from this experience? How does it compare to other ways of teaching?</td>
</tr>
<tr>
<td>What were you thinking and feeling?</td>
<td></td>
</tr>
<tr>
<td>Becoming empowered within experience of learning to teach critical thinking, building confidence and competence (experimentation with roles, building</td>
<td></td>
</tr>
<tr>
<td>Grounding making meaning about critical thinking teaching in educators actual teaching experiences, with a real world focus (Mackenzie and Knipe, 2006); becoming aware of, developing understanding of, and finding ways of interpreting critical thinking learning experiences resulting in a change in perspective, way of being (Hoggan, 2016)</td>
<td></td>
</tr>
</tbody>
</table>

256
• What learning can you build on for future critical thinking teaching?

Focus Group
• What impact has this had on how you teach?
• What have you learned about teaching critical thinking from participating in this project? (when did you realise it was important? What triggered this realisation)

• Building competence and self-confidence in new roles and relationships (Mezirow, 2000)

• Becoming empowered within experience of learning to teach critical thinking, building confidence and competence (experimentation with roles, building competence and self-confidence in new roles and relationships, development of particular attributes (Hoggan, 2016)

Focus Group
• What learning can you build on to use in future teaching?

• integration of critical thinking teaching into future practice on the basis of this learning; exploration of alternatives (Mezirow, 2000)
<table>
<thead>
<tr>
<th><strong>What changes have you made to your practice to embed critical thinking in your teaching?</strong></th>
<th><strong>Becoming empowered within experience of learning to teach critical thinking, building confidence and competence (experimentation with roles, building competence and self-confidence in new roles and relationships, development of particular attributes (Hoggan, 2016); integration of critical thinking teaching into future practice on the basis of this learning; exploration of alternatives (Mezirow, 2000)</strong></th>
</tr>
</thead>
</table>
| **Semi Structured Interview**  
- Describe what hindered you from doing this | **disorienting dilemma, self examination of assumptions, critical reflection on assumptions, recognition of dissatisfaction, exploration of alternatives (Mezirow, 2000); critical thinking as a threshold concept due to its difficulty to learn to teach (Hodge, 2019)** |
| **Peer Observation Lesson Plan**  
- What was bad about the experience – what stopped you teaching critical thinking? | **disorienting dilemma, self examination of assumptions, critical reflection on assumptions, recognition of dissatisfaction, exploration of alternatives (Mezirow, 2000); critical thinking as a threshold concept due to its difficulty to learn to teach (Hodge, 2019); Grounding making meaning about critical thinking teaching in educators actual teaching experiences, with a real world focus (Mackenzie and Knipe, 2006)** |
| **Professional Learning Conversations**  
- What were the barriers you experienced? |  |
Focus Group

- What were the challenges of teaching critical thinking?

- disorienting dilemma, self-examination of assumptions, critical reflection on assumptions, recognition of dissatisfaction, exploration of alternatives (Mezirow, 2000); critical thinking as a threshold concept due to its difficulty to learn to teach (Hodge, 2019); Grounding making meaning about critical thinking teaching in educators actual teaching experiences, with a real world focus (Mackenzie and Knipe, 2006)
## Appendix Nine – Initial Coding by Research Question

<table>
<thead>
<tr>
<th>RQ1 Codes</th>
<th>RQ2 Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• becoming aware of critical thinking within existing teaching practice</td>
<td>• Dialogic teaching and repertoires: discussion; questioning; argumentation; feedback</td>
</tr>
<tr>
<td>(developing metacognition)</td>
<td>• Critical thinking language</td>
</tr>
<tr>
<td>• critical examination of assumptions about critical thinking teaching</td>
<td>• common language</td>
</tr>
<tr>
<td>practices</td>
<td>• explicit teaching</td>
</tr>
<tr>
<td>• recognising dissatisfaction with current critical thinking teaching</td>
<td>• signposting</td>
</tr>
<tr>
<td>practices</td>
<td></td>
</tr>
<tr>
<td>• learning through exploring alternative methods of teaching</td>
<td>• scaffolded, systematic approach to teaching activities</td>
</tr>
<tr>
<td>• learning through planning new ways of teaching</td>
<td>• becoming a habit, regularity</td>
</tr>
<tr>
<td>• learning new knowledge and skills about how to teach critical thinking</td>
<td>• active learning exercises, collaborative learning</td>
</tr>
<tr>
<td>• building confidence, competence and capacity in new critical thinking</td>
<td>• critical thinking toolkit to frame critical thinking activities</td>
</tr>
<tr>
<td>teaching practices</td>
<td>• critical thinking embedded in curriculum content</td>
</tr>
<tr>
<td>• enacting new critical thinking practices within teaching</td>
<td>• spiral curriculum of skills</td>
</tr>
<tr>
<td>• peer observations</td>
<td>• constructive alignment with assessment</td>
</tr>
<tr>
<td>• learning through this study</td>
<td>• collaboration with colleagues with critical thinking teaching</td>
</tr>
<tr>
<td>• co-teaching with peers</td>
<td></td>
</tr>
<tr>
<td>• collaborative learning with colleagues</td>
<td></td>
</tr>
<tr>
<td>• professional learning conversations</td>
<td></td>
</tr>
<tr>
<td>• interdisciplinary learning</td>
<td></td>
</tr>
<tr>
<td>• communities of practice</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RQ3 Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• didactic content driven curriculum</td>
</tr>
<tr>
<td>• no space in the curriculum for teaching critical thinking</td>
</tr>
<tr>
<td>• perceived as a bolt on</td>
</tr>
<tr>
<td>• CT hidden in the curriculum</td>
</tr>
<tr>
<td>• didactic teaching styles</td>
</tr>
<tr>
<td>• dept/silo culture</td>
</tr>
<tr>
<td>• misconceptions of what critical thinking teaching looks like (its implicit in the curriculum)</td>
</tr>
<tr>
<td>Perception Challenges</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>• perception that CT is hard to teach</td>
</tr>
<tr>
<td>• lack of confidence and skills in the discourse of teaching critical thinking</td>
</tr>
<tr>
<td>• imposter syndrome</td>
</tr>
<tr>
<td>• what’s in it for me</td>
</tr>
<tr>
<td>• it’s not my job</td>
</tr>
<tr>
<td>• threat to way of being</td>
</tr>
<tr>
<td>• conflicting academic priorities</td>
</tr>
<tr>
<td>• assumptions that students should already know how to think critically</td>
</tr>
<tr>
<td>• lack of CT pedagogy</td>
</tr>
<tr>
<td>• lack of time and space to develop critical thinking pedagogy</td>
</tr>
<tr>
<td>• unfamiliarity with meaning of critical thinking</td>
</tr>
<tr>
<td>• lack of understanding of how to demonstrate critical thinking</td>
</tr>
<tr>
<td>• what’s the point of CT?</td>
</tr>
<tr>
<td>• it’s rude or disrespectful to be critical</td>
</tr>
<tr>
<td>• competing distractions</td>
</tr>
<tr>
<td>• gaps in skills and knowledge for this modality</td>
</tr>
<tr>
<td>• student motivation to engage with CT</td>
</tr>
<tr>
<td>• uncertainty</td>
</tr>
<tr>
<td>• workload</td>
</tr>
<tr>
<td>• loss of visual cues</td>
</tr>
<tr>
<td>• visibility of learning process</td>
</tr>
<tr>
<td>• visibility of teaching process</td>
</tr>
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<td></td>
</tr>
</tbody>
</table>
Main Research Question: How Are Staff Learning to Teach Critical Thinking?

<table>
<thead>
<tr>
<th>Theme</th>
<th>Subthemes</th>
<th>Codes</th>
</tr>
</thead>
</table>
| Learning through the experience of teaching Critical Thinking | • critical reflection  
  Combined this with experimentation to make one subtheme called ‘critical reflection and experimentation’ | • becoming aware of critical thinking within existing teaching practice (developing metacognition)  
  • critical examination of assumptions about critical thinking teaching practices  
  • recognising dissatisfaction with current critical thinking teaching practices |
| Shortened to ‘learning through experience’ | • experimentation  
  Combined this with critical reflection to make one subtheme called ‘critical reflection and experimentation’ | • learning through exploring alternative methods of teaching  
  • learning through planning new ways of teaching |
| | • knowledge and skills development  
  Changed to ‘developing the knowledge and skills’ | • learning new knowledge and skills about how to teach critical thinking |
| | • confidence and competence  
  Changed to ‘building confidence and capacity’ | • building confidence, competence and capacity in new critical thinking teaching practices |
<table>
<thead>
<tr>
<th>Research Question 1: What are the enablers to support learning to teach critical thinking?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theme</strong></td>
</tr>
</tbody>
</table>
| Pedagogy and Common Language | COMMON LANGUAGE  
- classroom dialogue of critical thinking, explicit teaching practices and signposting  
Renamed to 'a common language of critical thinking' |  
- Dialogic teaching and repertoires: discussion; questioning; argumentation; feedback  
- Critical thinking language  
- common language  
- explicit teaching  
- signposting |
| Learning Through Collaboration with Peers |  
- peer to peer learning  
Combined this subtheme with profesional dialogue and renamed to ‘peer to peer learning and professional dialogue’ |  
- peer observations  
- learning through this study  
- co-teaching with peers  
|  
- professional dialogue  
Combined this subtheme with peer to peer learning and renamed to ‘peer to peer learning and professional dialogue’ |  
- collaborative learning with colleagues  
- professional learning conversations  
- interdisciplinary learning  
- communities of practice |
<table>
<thead>
<tr>
<th>A holistic and connected curriculum</th>
<th>• active learning exercises, collaborative learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merged with ‘learning through collaboration with peers’ to make a new theme ‘collaborations and connections’</td>
<td>• teaching frameworks and toolkits</td>
</tr>
<tr>
<td></td>
<td>• critical thinking toolkit to frame critical thinking activities</td>
</tr>
<tr>
<td></td>
<td>• critical thinking embedded in curriculum content</td>
</tr>
<tr>
<td></td>
<td>• spiral curriculum of skills</td>
</tr>
<tr>
<td></td>
<td>• constructive alignment with assessment</td>
</tr>
<tr>
<td></td>
<td>• collaboration with colleagues with critical thinking teaching</td>
</tr>
<tr>
<td></td>
<td>• research question 2: What are the barriers which hinder learning to teach critical thinking?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme</th>
<th>Subthemes</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A holistic and connected curriculum</td>
<td>• active learning exercises, collaborative learning</td>
<td></td>
</tr>
<tr>
<td>Merged with ‘learning through collaboration with peers’ to make a new theme ‘collaborations and connections’</td>
<td>• teaching frameworks and toolkits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• critical thinking toolkit to frame critical thinking activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• critical thinking embedded in curriculum content</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• spiral curriculum of skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• constructive alignment with assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• collaboration with colleagues with critical thinking teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• research question 2: What are the barriers which hinder learning to teach critical thinking?</td>
<td></td>
</tr>
</tbody>
</table>

Research Question 2: What are the barriers which hinder learning to teach critical thinking?
| Pedagogic fragility and academic resistance | Content driven curriculum
Renamed as ‘Tension between content and skills teaching’ | didactic content driven curriculum
- no space in the curriculum for teaching critical thinking
- perceived as a bolt on
- CT hidden in the curriculum
- didactic teaching styles
- dept/silo culture
- misconceptions of what critical thinking teaching looks like (its implicit in the curriculum) |
|-------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Combined with ‘Student experiences and perceptions of critical thinking’ and renamed to *resistance and fragility* | Learner fragility
Come back to this when look at theme 4 | perception that CT is hard to teach
- lack of confidence and skills in the discourse of teaching critical thinking
- imposter syndrome
- what’s in it for me
- it’s not my job
- threat to way of being
- conflicting academic priorities
- assumptions that students should already know how to think critically |
| lack of training and resources | lack of CT pedagogy
- lack of time and space to develop critical thinking pedagogy |
| Student experiences and perceptions of critical thinking |  |  |
|--------------------------------------------------------|---------------------------------------------------------------|
| Combined with ‘Pedagogic fragility and academic resistance’ and named to ‘resistance and fragility’ | • not taught at school or college | • unfamiliarity with meaning of critical thinking |
|  | • perceived as negative/difficult | • lack of understanding of how to demonstrate critical thinking |
|  | • fear of academic assertiveness | • what’s the point of CT? |
|  |  | • it’s rude or disrespectful to be critical |
|  |  | • scared of using their academic voice |
| Pivot to online learning |  |  |
| Decided this wasn’t a theme in its own right and did not relate enough to the research questions. Description of theme was also unclear. | • lack of student engagement in online learning, | • competing distractions |
|  |  | • gaps in skills and knowledge for this modality |
|  |  | • student motivation to engage with CT |
|  | • gaps in skills and knowledge to teach critical thinking online | • uncertainty |
|  | This was clustered with the academic fragility in theme four. | • workload |
|  |  | • loss of visual cues |
|  |  | • visibility of learning process |
|  |  | • visibility of teaching process |
|  | • feelings of loss of teaching agency | This was clustered with the academic fragility in theme four. |
|  | This was clustered with the academic fragility in theme four. |  |
|  | • the translation of critical thinking to online modality. |  |
|  | This was clustered with the academic fragility in theme four. |  |

**Research Question 4: What professional development and resources are needed to support critical thinking teaching?**
<table>
<thead>
<tr>
<th>Theme</th>
<th>Subthemes</th>
<th>Codes</th>
</tr>
</thead>
</table>
| Authentic Professional Development and Resources | • Peer to peer learning (or situated learning?) | • peer to peer observations  
| Changed theme name to ‘authentic professional development’ | | • ambassadors and champions  
| | | • buddying and mentorship  
| | | • masterclasses  
| | • Professional dialogue and collaborative practices (or social learning ?) | • professional learning conversations  
| | | • communities of practice  
| | | • action learning sets  
| | | • sharing good practice examples  
| | • Bank of authentic teaching resources and examples | • contextual and relevant teaching examples  
| | | • bite size and accessible student learning resources  
| | | • teacher toolkits with instructor resources and examples  
| | | • rigorous, authentic and flexible  
| | | • scaffolded, bite size training and resources |
## Appendix 11 – Final Summary of Themes, Subthemes By Research Question

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Related Theme</th>
<th>Related Subthemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>How are staff learning to teach critical thinking?</td>
<td>Learning Through Experience</td>
<td>Critical Reflection and Experimentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developing Knowledge and Skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Building confidence and capacity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New perspectives and behaviours</td>
</tr>
<tr>
<td>What enables learning to teach critical thinking?</td>
<td>Connections and collaborations</td>
<td>Peer to peer learning and professional dialogue</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Embedding and alignment in the curriculum</td>
</tr>
<tr>
<td>What hinders learning to teach critical thinking?</td>
<td>Resistance and Fragility</td>
<td>Tension between content and skills teaching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic resistance and fragility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student resistance and fragility</td>
</tr>
<tr>
<td>What professional development and resources do educators need to teach critical thinking?</td>
<td>Authentic professional development</td>
<td>Authentic professional development and accessible resources</td>
</tr>
</tbody>
</table>
Appendix 12 - Examples of Coded Data Item

Transcript of Professional Learning Conversation 13.11.20

Participants 02 and 03

03 session was an introduction to the critical thinking skills toolkit for level 4 students in international business – also was a face to face class with a recording sent to 03.

02 session was for level 5 students introducing them on how to critically appraise academic evidence for healthcare disciplines

What was the experience of teaching critical thinking in this session like
(prompts: what was the best bit and why)

03 Nadya It's not the first time that I have done that session that was recorded and sent to Kai and you. That was the second time. So I kind of felt a lot more confident in introducing the toolkit. Because, you know, as the years have gone past, you know I have now for the last two or three years I have used some of the tools, like the Source and Practitioner Insights in my classes. Initially I went into it probably too heavy, trying to get the students to you know, lets say for example, for their assignments, to complete 10 worksheets instead of just the one. So they just felt stressed and overwhelmed. But over the last few years I have gone back a bit and simplified things and so I think I have got better at introducing it, incrementally and making it look less daunting. But also in the session that was recorded, I think it was better paced. You know allowing people time to reflect on the questions a bit more and it was very useful also because you obviously yourself had prepared the slides which I used. And that was really helpful for me. Because it was coming from a professional person who would already have had much more in-depth insight into how to introduce the toolkit. And I think the slides are really clear and

Wason, Hilary
Learning through the experience of teaching critical thinking
Knowledge and skills development – learning new knowledge and skills about how to teach critical thinking

Wason, Hilary
Learning through the experience of teaching critical thinking
Building confidence, competence and capacity in new critical thinking teaching practices

Wason, Hilary
Learning through the experience of teaching critical thinking
Critical examination of assumptions about critical thinking teaching practices

Wason, Hilary
Learning through collaboration with peers
Professional dialogue
Collaborative learning with colleagues

Wason, Hilary
Teaching a holistic and connected curriculum
Spiral curriculum of skills
Appendix 13 – Extracts from Reflective Journal

p.97

Interview, p.79

“Interview that again we're trying to be golden. Indeed perhaps. To do this one to learn today. What are the bane of the point? They have to have a very clear, clear point. And see the benefits of this. And to see the point beyond just teaching. They have to be some critical thinkers themselves and look at their practice and they're difficult. They have to be critical thinkers. So that staff often don't want to do this. Certainly. Peers often develop the skills of staff don't feel confident to do this. They have to feel confident. It's about the need to look at the life of the classroom and what teaching they need where. Really up to CPD and then change. Your model in good standing and make sure that you have learned.”
Interview... inhibitory factors

Teachers

Supportive - number of students, flexibility, helpfulness, patience

Enable

Put us with ROI

Almost seems to be learning with her students

She provides her students with feedback and assistance.

Learning outcomes of students are tied to her teaching skills.

Debate... learning what we have learned in modules and discussions in small groups

Feedback - real-life scenarios - aligning the academic and real-world curricula

Language again - explanatory (the new curriculum)

Small groups - difficult things
Space your experience
- self - audit
- make progress
- what's not gone well
- what's could be improved

So as reflection what am I going to do is use the above as a way to frame it. Be very careful to be specific with your questions as to avoid the jargon and random data!

On reflection from the focus group this morning, regarding the sessions it was interesting to see how the focus had shifted with this particular dataset and they talked about how they were almost transformer so they didn't always see the benefits and felt confidence and confidence to ‘talk about things’ were included.

17-12 PM Focus Group Notes

Applying to their project based modules
Applying every week
Lot to a colleague to the toolbar
I am proud about what I have done this weekend:
- finished the PC
- transcribed 21 mins of interview
- written... cigarette...

Just a thought: can we compare across the data sets and draw conclusions about CT teaching has evolved over the period of the research? Why? Because some teachers with her examples...

I also explicitly discuss the interview in her learning journey with the teacher as a catalyst. As I am happy the critical thinking toolkit can change their view of... and how she did manage to weave it online and the outcome of this becomes her perspective changed (often can then be linked to transformational learning). You can see the comparison of doing an intervention mine with others, or else... evidence of the two perhaps?

Again I see a pattern between the different data sets - again the initial interview gave some ideas but in the observation the learning code... appears to be extended and some staff of course become more deeply effective and explicit about learning... what they have done... perhaps development... behaviors can make changes in part of the process - is evidenced from another angle? So it provides validity to the findings but also perhaps some evidence. A review cognitive development and learning by... are... comparisons of, fair to fair to mine... a different
17.1 I am proud about what I have done this weekend:
- reviewed [redacted] file
- transcribed 21 mins of [redacted] interview
- written [redacted] cigarette

Just a thought: can we compare across the data sets and draw conclusions about CT teaching has evolved over the period of the research study?
- Nathalie's becomes more focused on her examples.
- [redacted] also explicitly discusses the importance of her learning journey with the tool kit as a catalyst.

(100)

(100)

Again there seems another pattern between the different data sets and the initial interviews. Some ideas about the broader nature of the learning participant become more clearly defined and explicit about what they have done, perhaps developing to a more transformative learning process. It is also possible that this provided evidence to the researcher but also perhaps some evidence of cognitive development and learning by producing an idea the comparison of face to face training - a difference
by [ and some others]. The brains of the secondary science curriculum not he teachers who simply follow the's curriculum which encourages role play and is to form the exam

- Teacher covers up fail as a frame - his content is powerful the activities are very helpful.

A support needed by the event: perhaps every day activity - in the classroom and to develop a language and to engage.

- support: online hierarchy
- support: work towards blended CPd and an online.

Feedback: work towards blended CPd as well as blended teaching. Ingredients of course were step by step.

- what at CT - how to extend e.g. LO - worksheet based workbooks - staff should know of this.

- XX - case study to help XX - XXX - Fokus about critical reflection on a lot of her own critical reflection. Perceptions and assumptions that can be made about course content - XXX has undertaken critical reflection about how she can change. Staff reluctance to change and coming up with adoption and diffusion. Pedagogical practice coming up line of sight from a gymnast and can't see the importance of (remember the gymnast XX mentioned in her office).

- The field concept is come up here - challenge of remember if course content - the "unseen curriculum" theme -

- XXX: what an extension exchange and coming the content. (source 19 and an another exchange of 10 - blended opportunity and not all imagined to look twice up [XX format]. Easter like minded comes - peer discussions) informed learning to chart up again. A bit about transformative learning and coming to learn. Current course up here's the role at the university. To turn out good citizens. But all the other processes in the an
I want them rabbit holes - esp with OT interview - but then a lot of this discussion when you look at it again you can infer quite a lot about - barriers and challenges of trying to keep up with this and more I think is key to this. There were a lot of identity and role coming into the interview of her experience as a Year Head. Often she talks about what could happen in the ideal world and this seems to come from reflecting on the experiences they had and I think this is where it comes...

I am now looking at no 7 interview and think the participant has answered the question. There is a heavy emphasis on the barriers and challenges of trying to keep up with the cultural challenges of the working environment. There is some discussion about how the interviewees made many of critical thinking within the context but she is often distracted away from answering the question specifically by talking about the teaching problems and challenges the interviewee is interviewing and I wonder how I can link this to some of the Theory about phenomenology. There was a lot about feeling and affective states coming in within the discussion and again inferentially there was a feeling of empowerment of a kind like - when new things are tried - feeling between colleagues and a lack of open to try new things. You could argue that this is a more macro level interview and we could drill down into the detail of the narrative a bit later. Perhaps try to set up the PLC soonish (but be careful). Conceptually - I think there was a lot of underlying conceptual shifts coming through in this interview: lots about the barriers...
and some others]. The burden of the secondary science curriculum not the teachers who simply show follow this curriculum which encourages role-learning and help to pass the exam.

- teacher comes up again as a 'theme'. The content of the curriculum are very helpful.
- A support needed for the more matured ones who already in the classroom and to develop a language with student support: online presentation -
- further ask why the online support more towards blended old as well as the teaching - ingredients of course over step by step enter - what is CT - how to embed CT - wonder.
- based where staff relate to fill out like the personal development workload] - actually X no additional this example. XXX Talks about critical reflection can a lot her on critical reflection - Parkinson and warranties that can be made about course content XXX has undertaken critical reflection about this in his course - staff reluctance to change into more up early adoption + diffusion. Pedagogic reality comes up. Sue draft see from a gimmick and could see the importance of remembering the gimmick X mentioned in his office.

The fold concept is come up here: challenge of receiving a reviewed body - the "pasted curriculum" because of carry the context @campus is as an ecclectic exchange.

CD - blended learning is carry out many need to look a round.

Finally, the mobile cohort (individuals) informal learning to come up again. A bit about transformative learning and come to learn.

Barrett comes up here - the role of the university. To turn out good citizens but all the other pressures on the oth
Sunday 1st March

Cray on reflection I am starting to see lots of similarities with what participants are telling me.

- Regarding equency critical thinking teaching, a lot of these are talking about very easy and academically productive tasks: discussions, questioning, debate. On first sight they did articulate the types of discussions in the EYFS framework =) Inquiry, building, challenge. It's really worth looking at this and the EYFS framework further. Scenarios were also discussed and modelling, as well as many lots of real world examples.

- Agreement about the importance of really being explicit with students and encouraging them to open minded and for educators to display open-mindedness themselves. Thinking about more teacher language and modeling.

- Agreement about the importance of learning from each other. Peer based learning, showcase, CPE to have a clear clear infrastructure and tracking on use of resources to be very explicit, well structured in a step by step format =) I am thinking of lesson plans...

- Same agreement that staff don't really seem to understand how to use the toolkit CPE and that it is "overload". They really need someone to sit down and go through it with them or a Step by step guide (like the Coaching guide). I wonder if some more assumptions have been made here about staff learning and there has been an overindulgence that staff know how to teach and apply critical thinking. The toolkit has been a useful starting point for this but staff did feel that more explicit CPE is needed and clearer step by step resources. (P.114)

- Professional identity came up a lot during the discussion.
Structure - they had to sketch out clear questions - they had to do something - translate plus into paper.
- groups - template in the break-out rooms
- prompt questions
- final year: confidence and the evidence
- in my plan: level 6 sadness in January
- started early

Reactions:
- given me lots of ideas
- wider the perspective
- more identities + confidence and loneliness
- fields

- given me confidence to do within the module - fully invested & the module in the activities - within activity is a module - helped the confidence - levelling + context - quick & read a paper
- more mindful

- flower got space - this feeling has changed - how to embrace or
- by observing or act on it
- back of heavy activities
- thank menu - push and more
- shiny + keep revising
Sunday 1st March

I am starting to see lots of similarities
with what participants are telling me.
- Regularly explicit in their teaching
- Lots of them are talking about the many and academically
productive talk: discussions, questioning, debate
- Some seem to lack articulation of types of
discussions in the CPA framework: unfairly, building,
challenge. It’s really worth looking at this and the
CPA framework further. Scenarios were also discussed and
modelling. As well as many lots of real world examples.

Agreement about the importance of really being
explicit with students and encouraging them to be
openly watched and for educators to display open-ended behaviour.
Themselves thinking about their teaching language and making

Agreement about the importance of learning from each other:
Peer-based learning, showcasings. CE to have a
broader open infrastructure and training on use of resources
be very explicit, well supported in a step by step
fashion. I am thinking of lesson plans...

Some agreement that staff don’t really seem to
understand how to use the toolkit CE and
that it is “overload”. They really need someone to
show and go through it with them or a step by step
guide (like the Teaching guide). I wonder if some more
acknowledges have been made here about staff learning
and there has been an over reliance that staff know
how to teach and apply without training. The toolkit
has been a useful starting point for this but staff did feel
that more explicit CE is needed and clearer step by
step resources.

Professional identity came up a lot during the discussions:
I have approved the PLC + documents for the website.

more, especially in the focus group. Particularly
pinning on her idea of a moderated discussion-
collaborative reflection and generation of ideas.

She has approved the transcript and the website.

Refraction on Past Lessons

Actually on reflection, I am thinking that one
of the themes which keeps coming up is informed
learning. Staff are talking a lot about learning from
each other, sharing examples, seeing what other people
are doing but at the same time having someone who
is available as an expert to bounce ideas off, to
moderate the discussion, to set them on track. I
think this could be a key theme from the literature.

Dad's: nothing the expert within groups to move
again. Grew in your own backyard: perhaps
answer came up here: novice = expert. Peer
learning is coming up = another link possibly to
Fullan's work again. Unreleased capital, social
capital = professional capital or something like that.

So I think the answer I need to read again are DAD's: Fullan and some of the ones you found
on informed learning. Toolkit is also coming up a
lot as a resource enabler and I think you should
revisit this again. Alas Wright's work on authentic
learning.

 EQ 2: I think Bruce & really coming out on
this study, there is a lot to talk about difficultly
difficultly knowing how to learn it, not having
a reference, point difficulty knowing exactly
what it is they are teaching, difficulty knowing
specifically how to integrate it in the day to day
teaching - hard it unpacking to admit don't know
how to do it // pedagogic practice //
You will need to deal with the move to online somewhere perhaps this is something which will come up in the discussion - you can buy in a lot of the new literature here perhaps. Challenges of the etiquette of online learning. Students don't know how to behave? Lack of human interaction feedback could be a barrier.

- More difficult to build and develop learning relationships and.
- Would be good to look at some of this literature again. Developing a social presence online could be the barrier - do you go back to Garrison's model here? Or the teaching etiquette. I actually think this could be quite a big theme - switching to an online environment. Did you put the peer assessment literature back in the literature review and refer to this in the discussion? I think this will most certainly have to change.
- It might be worth thinking about this again quite soon.

You really need to look at the teaching tools in the literature again.

Peer learning literature - look at this again.

Read some of the CT Twitter handles, how can I get them to talk about this.

Send interview + decision + website for approval.

Next: Final interview.
"I received a phone call from a team - a group of people!!

Reflections on Interview - feedback language self-ref.

GB - I think you might need to go back to barriers and challenges again. I think before you were looking quite broadly at the barriers and challenges of any new element of teaching what we face in addision. I think you might need to look at some of the challenges of actual teaching it. These are two slightly different things, it talks a lot about the deficit in students who don't have the skills when they come to uni' so they are not taught this in school or college but also the fear that she took to it quite quickly because of her background as a researcher but her experience is that other staff don't feel the same way - perhaps this might help to what was saying about computer syndrome.

[Redacted]

Some barriers to

Teacher or student comes across

Systematic -

- often students' understanding of language at

- lack of student skills development and lack of support for teaching.

- students/teachers find it difficult and avoid it.

- students/teachers need tools for learning.

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help to aligning and break down more complex tasks early, and systematically for students.
- establish discussion learning by doing
- continue alignment with the antecedents and real word learning
- discussion
- The tools and framework is really working here.

Teach staff to use it in the same way as students - experiential learning.
- Early on, come up with examples. Here to what was wrong about conventional
- textbook examples and guided practice - tailored to context and
- mentorship is key - try to explain to me what really needs to change here? (Could this be a way of
- running a CT toolkit workshop?)
- Am I going back to the different innovation here? When for scale size
- looking at CT differently: authentic experience, building on this: advice and experiential: not
- passive: look at the literature again here.
- Has really made me think about this
Several constructs appear to learn with both again to my literature review and
the literature you have found.
Students finding it difficult - not wanting to do it - student motivation. Are we talking about threshold concepts here? It talks about students not always wanting to do it. They do not like to do it. It's a fundamental, as important, taking from knowledge and experience and day to day. Also students come from previous so prior experiences.

The tool: "Sent from the gods" 4 theoretical examples. Students could work on it at the end. Start holding step by step again.
I learned a lot!


- The PLC + demographic are not meeting in the network.
- More, especially at the focus group. Particularly
  pick up on her idea of a moderated discussion: collective reflection and generation of ideas.
  The two asked for the transcript and the website.

**Letters on COST Theory**

Actually on reflection I am thinking that one of the themes which keeps coming up is informal learning. Staff are talking a lot about learning from one another. Many examples: say that one person is doing something at the same time and someone who is available as an expert to bounce ideas off, to moderate the discussion, to set them on track. I think this could be a key theme from the literature.

Lastly, nailing the expert within things to mind again. Grow in your own backyard perhaps.

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EGO 1 think barriers really come out in this study. There is a lot of talk about difficulty, difficulty knowing how to learn it, not having a reference point, difficulty knowing exactly what it is. They are teaching difficulty knowing specifically how to integrate it in the day-to-day teaching. I am talking willingness to admit don't know how to do it or a pedagogy really to teaching.
Appendix 14 – Conferences and Publications


Southall, J., Wason H., and Avery B. (2016), `Non-traditional, commuter students and their transition to Higher Education - a synthesis of recent literature to enhance understanding of their needs', Student Engagement and Experience Journal 5(1) pp 1-15


In review

Heron, M., and Wason H (2022) ‘Developing dialogic stance through professional development workshops’, Australian Journal of Teacher Education
Critical Thinking Skills Toolkit

Business Programmes
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This toolkit has been developed through collaboration with students, staff and employers at xxxxxxxxxxxxxxxxxxxxx and with the support of an OfS Catalyst Fund Innovations in Learning and Teaching, and Addressing Barriers to Student Success. It is underpinned by the work of Bruner (1960) Facione (1992) and Abrami et al. (2015) and was awarded funding from Office for Students in 2017. It is currently being used by a range of institutions throughout the HE and FE sector.
Introduction

Welcome to the Critical Thinking Skills Toolkit! We are committed to providing you with the best possible teaching and learning support throughout your time with us. Critical Thinking (CT) skills are essential both for your academic achievement and for your future professional employment. This toolkit has been developed with your tutors and employers to ensure that you leave university with outstanding qualifications, ready for work and able to transfer the critical thinking skills you have acquired to your future working environment. Being at university may involve a slightly different way of learning. Rather than just using the knowledge you are given, you will build on this and take it further to develop your understanding. This is exciting but also involves a change in focus in how you approach your learning. This toolkit will help you develop the necessary skills and confidence to do so. It will guide you every step of the way and really help you achieve academic success!

How does it support my learning?

The toolkit provides you with fourteen branded learning and teaching tools containing activities and guided worksheets to help you develop CT skills. The tools have been informed by research and expertise in the critical thinking field and can be specifically used in your degree programme. They can also support the feedback you receive on your assignments, enabling you to practise and improve.

The toolkit explains each of the main CT skills and how to practise them in learning sessions at the University and during independent study. You will be introduced to all of these skills at the start of your degree and build on them through regular practice with the support of academic staff. By the time you finish university, you will be confident enough to use these skills independently! Each tool is branded with a name and logo. It will make explicit which particular CT skill or range of skills you will be developing during the activity.

You will find each tool within different parts of this toolkit. Each one has a detailed explanation of how to use it, a worksheet which you can download and use within your modules. There are also examples to help you.
What is Critical Thinking?

At university, you will learn what to think about (i.e. the subject matter of your different modules), and how to think about it (such as analysing information, evaluating data, drawing conclusions and developing insights). This is critical thinking. During your studies, you will become a thoughtful, objective and reasoned thinker. You will use objective reasoning to evaluate and analyse complex information from a wide range of sources and explain the results you have produced using purposeful and reflective judgement. This will help you tackle assignments confidently, understand marking criteria, use evidence, take a reasoned approach, make structured arguments and engage with other points of view. You will develop the following skills: how to find credible and relevant information (information seeking), how to make sense of it (interpretation), how to recognise assumptions and bias, identify and examine different types of data in detail (analysis), how to evaluate the credibility of claims and arguments, (evaluation), how to query evidence, read between the lines to draw conclusions and use deductive reasoning (inference). Finally, you will learn how to present and explain the results of your findings, develop your argument and make sure you and others understand it (explanation).

Critical thinking skills help you perform well academically. They will help you explore, understand and apply the subject matter of every module of your degree in the most efficient way possible. Critical thinking is also valued highly by employers who want you to have skills to understand complex information and solve problems.

Meeting Employer Demands for Critical Thinking

As part of our research we have talked to employers from a range of sectors to ensure that we are meeting their needs for developing your critical thinking abilities. They all agreed, given the pace of change in the workplace, that employees need to be able to use the skills covered within this toolkit in order to solve complex business problems. Specifically, they highlighted the need to be able to: seek out credible, relevant information; understand, interpret and explain it; consider how it affects projects and make decisions based upon it. In addition, the ability to recognise what is missing and to be able to deduce and draw conclusions from this is also important. Critical reflection, being able to consider and learn from past performance, was also seen as key, as businesses seek to develop a culture of self-reflection and feedback so that they can improve and learn. The employers we spoke to were impressed with the range of tools we have developed to help you enhance your critical thinking skills. They were pleased that the skills will be explicitly taught and practised within your degree programme. This means that you will be well prepared and equipped to deal with the range of scenarios you will face in the workplace.
The Critical Thinking Skills Toolkit

The Critical Thinking Skills Toolkit contains 14 learning and teaching tools to be used in university learning sessions and during independent study. Each tool is identified with a specific logo which will be used to indicate which skills you will be using when working on a task. You will use it progressively during your degree, building and improving your competence in critical thinking until you are able to demonstrate every skill confidently and independently. You will be provided with the opportunity to use these skills in different contexts and at different levels of complexity across your learning journey using a spiral curriculum approach (Bruner 1960) to learning as detailed below.

**Spiral Curriculum**

**Skills Development**

**Level 6**

Students should consolidate use of all skills

In levels 4 and 5 as appropriate.

Focus on explanation using *The Critical Reflection* and *Critical Write* and the *Critically Reflective Discussion*.

**Level 5**

Students should feel more confident with **information seeking, analysis, interpretation** – continue to consolidate and practise using the above tools.

Focus on **evaluation and inference** using *The Critique* initially then the *Thematic Analysis Grid* and *The Argument Map*.

**Level 4**

Introduce **all skills** to build awareness and understanding of skills needed upon graduation (*The Case* as appropriate to discipline).

Focus on **information seeking** (The Source), **analysis**, interpretation and **evaluation** (Read Right / Practitioner Insights, Critically Listen). Introduce **explanation** with *Critically Speak*
At **level 4**, you will be introduced to all of these skills with specific development of and focus on **information seeking, analysis and interpretation**.

At **level 5**, these skills will be consolidated with more focus on **evaluation, inference, explanation** and reflective judgement.

At **level 6**, the skills you learned at **levels 4 and 5** will be covered, with a heavy focus on **inference, explanation** and reflective judgement.

A summary of The Critical Thinking Skills Toolkit and how you will use it throughout your student journey can be found on the following page, followed by the individual tools, worksheets and in some cases, completed examples to show you how to use them. All of these are also available on the VLE. A diary can be found at the end for you to log the skills you have learned to help you in your assignment.

You will have plenty of opportunities to practise all of these skills using a variety of exercises contained in The Critical Thinking Skills Toolkit.
How good is your critical thinking at the moment?

Developing good critical thinking skills can be developed with practice. You can use the frameworks in this toolkit to approach information in a structured and methodical way. Use this short questionnaire to analyse your current skill level. It will help you identify which skills you need more help with and which ones are most likely to be used within your degree subject. Be as honest as you can when you are completing it. Score each skill as directed and then add up the numbers to find a total for each one. The ones with the highest numbers are the ones you should focus on. Revisit this questionnaire on a regular basis as you start to use the tools more to chart your progress.

**Current skill level** - 1 = Excellent, 2 = Good, 3 = OK, 4 = Poor, 5 = No Experience  
**Importance of this skills in your subject area** - 1 = Not used, 2 = Important, 3 = Essential  
**Total** - Add the numbers in both columns together for each skill

<table>
<thead>
<tr>
<th>Critical Thinking Skills</th>
<th>Current skill level</th>
<th>Importance of this skill in your subject area.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information seeking</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- finding credible and relevant information and data to support your studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interpretation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- making sense of information and data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- identifying and examining different types of data in detail and drawing out conclusions from it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- evaluating the credibility of claims and arguments. Being able to</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
recognise potential bias and assumptions.

**Inference** - querying evidence, reading between the lines to draw conclusions and using deductive reasoning.

**Explanation** - presenting and explaining the results of your findings. Developing your argument and ensuring you and others understand it.

**Reflection** - the ability to think through past events and experiences in a logical and detailed way so as to be able to draw conclusions and learn from them.

Now you have an idea which skills you need to focus on, you need to work out which tools you can use to help you develop your skills. Your tutors will also guide you with this and are also likely to set specific tasks for you to complete using the tools.

The following table introduces each of the thirteen tools and shows you what they aim to do. Following this, each tool is presented in detail with a blank worksheet for you to copy, amend as necessary and use.
## Critical Thinking Skills Toolkit – Summary (Wason, 2016)

<table>
<thead>
<tr>
<th>Critical Thinking Tool</th>
<th>Aim of tool and Level Achieved</th>
<th>Skills and Attributes</th>
</tr>
</thead>
</table>
| Critically Listen      | To develop your active listening skills, identify and interpret key concepts and theories from your lectures, seminars and tutorials and make connections between this and your reading. **Level 4** | Critical Thinking Skills:  
  - Interpretation  
  - Evaluation  
  Graduate Attributes:  
  - Thoughtful  
  - Creative  
  - Professional |
| Critically Speak       | To develop your academic and professional oracy skills and empower you to contribute effectively to your academic and professional learning. **Level 4** | Critical Thinking Skills:  
  - Interpretation  
  - Analysis  
  - Evaluation  
  - Inference  
  - Explanation  
  Graduate Attributes:  
  - Thoughtful  
  - Globally aware  
  - Creative  
  - Resilient  
  - Proactive  
  - Professional |
| The Source             | To make you aware of agenda and bias, belief v fact. Develop search terms, find, and critique and reference materials whilst considering credibility, reliability and appropriateness. Discriminate between sources, use valid information. **Level 4** | Critical Thinking Skills:  
  - Information seeking  
  Graduate Attributes:  
  - Thoughtful  
  - Globally aware  
  - Professional |
<table>
<thead>
<tr>
<th>Critical Thinking Tool</th>
<th>Aim of tool and Level Achieved</th>
<th>Skills and Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Read Right</strong></td>
<td>To help read in a systematic way, understand and make notes about information/data contained in course text books. <strong>Level 4</strong></td>
<td><strong>Critical Thinking Skills:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Interpretation</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Graduate Attributes:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Thoughtful</td>
</tr>
<tr>
<td><strong>Practitioner / Professional Insights</strong></td>
<td>To interpret, analyse, and assess the quality of information and data in practitioner materials trade journals and professional sources. Recognise assumptions. <strong>Level 4</strong></td>
<td><strong>Critical Thinking Skills:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Interpretation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Analysis</td>
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<td></td>
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<td>• Evaluation</td>
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<tr>
<td></td>
<td></td>
<td><strong>Graduate Attributes:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Thoughtful</td>
</tr>
<tr>
<td><strong>The Argument</strong></td>
<td>To develop the technique of objective reasoning and argument creation: identify, understand and interpret data accurately. Query evidence, assess claims, draw conclusions, use deductive reasoning. <strong>Level 4</strong></td>
<td><strong>Critical Thinking Skills:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Interpretation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Evaluation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Explanation</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Graduate Attributes:</strong></td>
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<tr>
<td></td>
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<td>• Thoughtful</td>
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<td>• Creative</td>
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<td>• Proactive</td>
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<tr>
<td></td>
<td></td>
<td>• Resilient</td>
</tr>
<tr>
<td>Critical Thinking Tool</td>
<td>Aim of tool and Level Achieved</td>
<td>Skills and Attributes</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------</td>
<td>----------------------</td>
</tr>
</tbody>
</table>
| **The Case**           | To develop the CT skills needed when approaching a case study: recognise assumptions, analyse, interpret and assess quality of information, use deductive reasoning, draw conclusions. **Level 5** | CT Skills:  
- Interpretation  
- Analysis  
- Evaluation  
- Inference  
- Explanation  
Graduate Attributes:  
- Thoughtful  
- Globally aware  
- Creative  
- Resilient  
- Professional |
| **The Critique**       | To identify and interpret key themes within academic papers. Analyse and assess credibility of arguments, recognise assumptions, consider alternatives, use deductive reasoning. **Level 5** | Critical Thinking Skills:  
- Interpretation  
- Analysis  
- Evaluation  
- Inference  
Graduate Attributes:  
- Thoughtful  
- Creative  
- Resilient |
| **Thematic Analysis Grid** | To record themes within academic papers in order to be able to compare and contrast themes, query evidence, draw conclusions, and use deductive reasoning. **Level 6** | Critical Thinking Skills:  
- Interpretation  
- Analysis  
- Evaluation  
- Inference  
Graduate Attributes:  
- Thoughtful  
- Creative  
- Resilient |
<table>
<thead>
<tr>
<th>Critical Thinking Tool</th>
<th>Aim of tool and Level Achieved</th>
<th>Skills and Attributes</th>
</tr>
</thead>
</table>
| **The Argument Map**   | An alternative method of recording themes within a set of academic papers in order to be able to compare and contrast themes, query evidence, draw conclusions, use deductive reasoning. **Level 6** | Critical Thinking Skills:  
• Interpretation  
• Analysis  
• Evaluation  
• Inference  
Graduate Attributes:  
• Thoughtful  
• Creative  
• Resilient |
| **The Critical Reflection** | To develop your critical reflection skills using academic literature, professional literature, debates, educational and professional experiences. It involves reflecting on action and explaining the impact on your learning, perspective and actions. **Level 6** | Critical Thinking Skills:  
• Interpretation  
• Analysis  
• Evaluation  
• Inference  
Graduate Attributes:  
• Thoughtful  
• Creative  
• Resilient |
| **The Critically Reflective Discussion** | To develop critical reflection in action e.g. during live scenario based learning activities. To orally reflect on discussions, draw on knowledge in the moment, provide a debrief and recommendations. **Level 6** | Critical Thinking Skills:  
• Interpretation  
• Analysis  
• Evaluation  
• Inference  
• Explanation  
Graduate Attributes:  
• Thoughtful  
• Creative  
• Resilient  
• Professional |
<table>
<thead>
<tr>
<th>Critical Thinking Tool</th>
<th>Aim of tool and Level Achieved</th>
<th>Skills and Attributes</th>
</tr>
</thead>
</table>
| Critically Write       | To apply all of the above tools to write a critical review of literature, whether it is academic or practitioner/professionally based. Use well-reasoned, unbiased, justified arguments. Level 6 | Critical Thinking Skills:  
  • Evaluation  
  • Inference  
  • Explanation  

Graduate Attributes:  
  • Thoughtful  
  • Creative  
  • Professional |
| Critically Connect     | To make connections between each of the CT tools and use them together as appropriate in different learning contexts. Provide ways of applying critical thinking to enhance graduate outcomes. Level 6 | Critical Thinking Skills:  
  • Information seeking  
  • Interpretation, Analysis  
  • Evaluation  
  • Inference  
  • Explanation  

Graduate Attributes:  
  • Globally Aware  
  • Resilient  
  • Proactive  
  • Thoughtful  
  • Creative  
  • Professional |
Critically Listen

During your university studies you will be exposed to many different types of language. The first is your disciplinary language. During your lectures, seminars and tutorials you will need to interpret and evaluate the concepts and theories which your lecturer is teaching you and be able to explain these in order to evidence your learning. Your lecturers will also make reference to your assessments during these sessions and you may need to make notes about how your learning links to the assessment and how you will be graded. Active listening and effective note taking are therefore crucial.

Critically Listen aims to enhance your critical listening skills and active participation in your learning at university whether online or in face to face teaching. This tool will provide a framework to help you actively listen, identify and interpret key concepts and theories from your lectures, seminars and tutorials and enable you to make connections with your reading and learning in other learning environments. It will help you develop your CT skills of interpretation, analysis and evaluation. It will also help you critically reflect on what you are hearing and make notes of any questions about your learning that you may want to subsequently check with your tutors. It should be used in conjunction with the Critically Write tool in this toolkit which has an excellent glossary of academic terms which are also really helpful to refer to. For ease these are also summarised at the end of this guide.

The Critically Listen Framework

- What do I know about this topic already?
- What are the key concepts, theories being discussed?
- What is the disciplinary terminology and what does this mean?
- What are the key questions this session is answering?
- What have I learned from today?
- What is important? What do I need to remember?
- How does this link to my other learning? (e.g. in labs, lecturers, tutorials?)
- How does this link to my assessment?
- What questions do I have about the session?

You can record this information on the worksheet attached either as a word file or a concept map - whichever suit your style of learning best!
Glossary of Academic Terms

Please use this template as a guide to the different terms you will come across during your studies and refer back to these when you have to produce an assignment or for your exam revision. Feel free to add additional terms you come across!

<table>
<thead>
<tr>
<th>Academic Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>A theory is a specific explanation of a particular subject or group of facts: e.g. Einstein’s Theory of Relativity, or Maslow’s Hierarchy of Needs.</td>
</tr>
<tr>
<td>Concept</td>
<td>A concept is less specific than a theory and can refer to an idea or belief. Ideas can change, be proved or be disproved. While you will probably refer to a theory in your work, you are more likely to challenge a concept as it is less definite.</td>
</tr>
<tr>
<td>Evidence</td>
<td>Evidence is what you provide to support your ideas, concepts or beliefs. This is where your reading comes in. You should cite (i.e. quote or paraphrase) the academic articles or journals you have read to strengthen and reinforce the point you are making (your argument).</td>
</tr>
<tr>
<td>Literature Review</td>
<td>A literature review will summarise, compare and weigh up the literature on the topic you are discussing. It will show the current thinking on the topic and can also be where you identify any gaps in the area. Gaps are useful as they can give you something new to discuss!</td>
</tr>
<tr>
<td>Systematic Review</td>
<td>A systematic review is a review of several studies, such as clinical or controlled trials, to provide a summary of current evidence. Perhaps some found that an intervention was successful, but others found that it was not. By reviewing all the trials together, systematic reviews can propose whether or not, or in what circumstances, the intervention should be used.</td>
</tr>
<tr>
<td>Empirical Study</td>
<td>Empirical means something that is based on evidence, not just theory. So if your study and results are based on interviews you have carried out or first-hand experience, then it is empirical.</td>
</tr>
<tr>
<td><strong>Inferential connections</strong></td>
<td>Something that is inferred is something that is not directly stated: you will work out for yourself, basically by ‘reading between the lines’. An inference therefore is a conclusion that is based on logical analysis of the evidence. When you begin to see a pattern emerge, based on what you have inferred, you will start making inferential connections.</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Synthesise arguments</strong></td>
<td>To synthesise arguments means to bring them together. The word argument doesn't mean the various points of view have to contradict each other (although they may). It really means you should identify the relationship between them and draw conclusions accordingly.</td>
</tr>
<tr>
<td><strong>Use a range of evidence</strong></td>
<td>A range of evidence means not relying solely on your course textbook, but on books, journals, professional sources. Just make sure these ‘sources’ are suitably academic or relevant. If you have a question about this, you can check with an advisor in the library.</td>
</tr>
<tr>
<td><strong>Demonstrate a critical ability</strong></td>
<td>A critical ability doesn’t just mean you can criticise something. It means that you can make a judgement about it. It also means that you don’t accept things at face value but can weigh up and consider what is being said and, with the help of the reading and research you have done, draw your own conclusions.</td>
</tr>
<tr>
<td><strong>Critically Evaluate</strong></td>
<td>You will use your critical ability (see above) to weigh up a statement, or findings or research and say whether or not you agree with them. To do so, you will need to provide evidence from a range of sources (see evidence).</td>
</tr>
<tr>
<td><strong>Descriptive Writing</strong></td>
<td>Descriptive writing does just that: it describes what happened but without analysing or evaluating it. The majority of academic writing is ‘critical’ and you should assume it is unless specifically told to ‘describe’ a situation, event, test etc.</td>
</tr>
<tr>
<td><strong>Theme</strong></td>
<td>A theme is the underlying idea or topic which is discussed within an academic paper e.g. data privacy, cultural identity. Authors can have different perspectives on this theme which is why claims and counterclaims are developed within different papers. Themes are often linked to theories and concepts.</td>
</tr>
<tr>
<td><strong>Claim</strong></td>
<td>An argument with supporting evidence to back up.</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>Counterclaim</strong></td>
<td>An opposing view based on a sound argument.</td>
</tr>
<tr>
<td><strong>Rebuttal</strong></td>
<td>A response to a counterclaim.</td>
</tr>
<tr>
<td><strong>Refute</strong></td>
<td>To prove an argument wrong.</td>
</tr>
<tr>
<td><strong>Qualify</strong></td>
<td>To party agree with a claim and partly agree with a counterclaim.</td>
</tr>
</tbody>
</table>
Critical Note Taking when listening to online lectures or tutorials or when participating in these face to face or online. Use this worksheet to interpret and evaluate what is being taught in lectures, seminars, labs.

<table>
<thead>
<tr>
<th><strong>Topic</strong></th>
<th><strong>Date</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>What do I know about this topic already?</td>
<td></td>
</tr>
<tr>
<td>What are the key concepts, theories being discussed?</td>
<td></td>
</tr>
<tr>
<td>What is the disciplinary terminology and what does this mean?</td>
<td></td>
</tr>
<tr>
<td>What are the key questions this session is answering?</td>
<td></td>
</tr>
<tr>
<td>What have I learned from today?</td>
<td></td>
</tr>
<tr>
<td>What is important? What do I need to remember?</td>
<td></td>
</tr>
<tr>
<td>How does this link to my other learning? (e.g. in labs, lecturers, tutorials?)</td>
<td></td>
</tr>
<tr>
<td>How does this link to my assessment?</td>
<td></td>
</tr>
<tr>
<td>What questions do I have?</td>
<td></td>
</tr>
</tbody>
</table>

This is adapted from the Cornell Note taking method.
Critically Speak

Being at university involves actively participating in a wide range of different learning environments, both face to face and online. This involves thinking critically about your disciplinary content as well as being able to clarify, explain and demonstrate this learning in a wide range of different contexts. For example, you may have lectures in large lecture halls where concepts and theories will be presented using PowerPoint slides. You may attend laboratories where you will carry out experiments and discuss your findings. You could participate in workshops where you discuss and apply what you have learned, or in skills based classrooms where you practice simulated skills based learning scenarios. Group work is also an important way of discussing your learning and build ideas. And don’t forget that work and placements provide you with the opportunity to apply and practice what you have learned in real life scenarios! For example you may have to participate in a professional conversation with clients or patients, or take part in an interview for a job.

In all of these learning situations you will need to use your critical thinking skills- to actively listen in order to interpret what is being said and to evaluate how you are going to use and apply this knowledge. You will also need to be able to ask relevant questions, discuss your learning with your tutors and colleagues, express evidence based arguments and cooperate with the ideas of others.

These skills are also very relevant in more informal learning environments. For example when you are discussing group work in the library, the coffee shop, on the telephone or when you make an appointment to see your tutor or other support staff outside the class or in a online session. In addition you may be participating in a range of oral assessments to demonstrate your learning, for example a poster presentation, a group or individual presentation, a guided learning conversation. All of these learning scenarios involve using oracy skills (listening and speaking skills) which require use the critical thinking skills of interpretation, analysis, evaluation, inference, reasoning and explanation.

Critically Speak is designed to help you develop these skills so that you can critically listen and communicate your learning in a wide range of academic and professional contexts. It should be used alongside the Critically Listen tool which contains tips about how to interpret and make notes about your learning during lectures, seminars, labs.

Critically Speak can help support your participation in academically and professionally productive learning conversations. It is underpinned by the principles of dialogic teaching (Alexander, 2008) where your talk has an educational purpose and is linked to and structured within the overall learning objectives.
The following framework can help you think about the different features of talk necessary for an educationally productive dialogue with tutors and peers.

<table>
<thead>
<tr>
<th>Collective</th>
<th>You collectively address learning tasks set by your tutors or in placement together with your fellow students or co-workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reciprocal</td>
<td>You listen to each other, share ideas and consider other viewpoints</td>
</tr>
<tr>
<td>Supportive</td>
<td>You express your ideas freely in a supportive learning environment, where your contributions are valued and listened to help each other reach common understandings</td>
</tr>
<tr>
<td>Cumulative</td>
<td>You build on each other’s contributions, critiquing and constructing knowledge and link these together</td>
</tr>
<tr>
<td>Purposeful</td>
<td>Your dialogue with others has an educational or a professional purpose (i.e. more than just a conversation or chat)</td>
</tr>
</tbody>
</table>

There is a lot of evidence to show that practising academically productive talk in your learning environments can really help you achieve your learning goals, including preparing to write critically. Productive discussions empower you to draw up arguments based on evidence. You will learn to respect the views of your peers while strengthening your own ideas. You can practice being good orators, participating in a positive manner. It is also a good idea to establish some ground rules for productive discussions with your peers for example treating everyone with respect, being prepared to accept challenges and to challenge others, encourage contributions from everyone in the group, discuss alternatives before making a decision, sharing relevant information and asking for reasons for decisions. These are just some ideas which you can build on for your own discussions!

**Language Tips**

The following language tips can be useful to get you started with your academic discussions and to help you develop and contribute productively. During your teaching, lecturers may ask questions like ‘Why do you think that?’ ‘Can you explain what you mean?’, ‘Where did you find that idea?’, ‘Can anyone build on that idea?’.
Indeed, some of your sessions may involve more in depth discussions around certain concepts or problems, using a technique called Socratic Questioning. These types of questions might be used by your tutors to explore more complex ideas and to think more deeply about topics. The following table give you examples of these types of questions. It is worth familiarising yourself with these so you can contribute effectively in these types of discussions.

<table>
<thead>
<tr>
<th>Clarifying Thinking and Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Can give me an example?</td>
</tr>
<tr>
<td>• Could you explain further?</td>
</tr>
<tr>
<td>• Are you saying?</td>
</tr>
<tr>
<td>• What is the problem you are trying to solve?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Challenging Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Is that always the case?</td>
</tr>
<tr>
<td>• Are you assuming?</td>
</tr>
<tr>
<td>• How could you verify or disprove that?</td>
</tr>
<tr>
<td>• What would happen if?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examining Evidence and Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Why do you say that?</td>
</tr>
<tr>
<td>• How do you know?</td>
</tr>
<tr>
<td>• Why?</td>
</tr>
<tr>
<td>• What evidence is there that supports?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Considering Alternative Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Are there any alternatives?</td>
</tr>
<tr>
<td>• What is the other side of the argument?</td>
</tr>
<tr>
<td>• What makes your view point better?</td>
</tr>
<tr>
<td>• Who would be affected and what would they think?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Considering Implications and Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What are the implications/consequences of?</td>
</tr>
<tr>
<td>• How does that affect?</td>
</tr>
<tr>
<td>• What if you are wrong?</td>
</tr>
<tr>
<td>• What does our experience tell us will happen?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Meta Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Why do you think I asked that question?</td>
</tr>
<tr>
<td>• What does ….. mean?</td>
</tr>
<tr>
<td>• What is the point of the question?</td>
</tr>
<tr>
<td>• What else might I ask?</td>
</tr>
</tbody>
</table>

It can be really helpful to develop a repertoire of language tips to help you respond to these questions and engage in a productive dialogue. Some phrases to get you started and help you share your thinking and your reasoning are below:
• ‘I think…’
• ‘I believe…’
• ‘It also makes me think of…’
• ‘That’s interesting but, …’
• ‘What about…?’
• ‘Can you explain what you mean by…?’
• ‘Why don’t we…?’
• ‘What do you think…?’
• ‘Do you agree with xxx… ?’

There are some more examples on the worksheets to follow! It is also worth referring to the linking words within the Critically Write Tool in this toolkit which can help guide and link your thinking and writing. Some of these phrases can be equally helpful for oral discussions, especially with cumulative dialogue when you are building on previous points and perhaps showing agreement or presenting a different viewpoint. Here are some examples.

<table>
<thead>
<tr>
<th>To show agreement and support the previous reference</th>
<th>To show disagreement and present a different point of view than the previous reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likewise</td>
<td>However</td>
</tr>
<tr>
<td>Similarly</td>
<td>Alternatively</td>
</tr>
<tr>
<td>In addition</td>
<td>In contrast</td>
</tr>
<tr>
<td>Furthermore</td>
<td>As opposed to</td>
</tr>
</tbody>
</table>

Critically Speak can also support you with undertaking formal oral presentations and other oral assessments. Often your lectures may be looking for the strength of an argument in a presentation, the quality of evidence used, being able to summarise an argument, actively listen, and answer questions. So practising these skills through your classroom talk will really help with these types of assessments. Don’t forget to use the range of tools in the toolkit to record the findings of your research and preparation. These can be really useful to refer to when you are having a discussion about a topic in class and can help you articulate the evidence you have found to make your points!
How to link your points to develop your argument and create your own voice

<table>
<thead>
<tr>
<th>Linking Word</th>
<th>Example</th>
</tr>
</thead>
</table>
| Listing            | • First, second, third  
|                    | • Furthermore  
|                    | • Finally to begin  
|                    | • To conclude next  
| Reinforcement      | • Also  
|                    | • Furthermore  
|                    | • Moreover  
|                    | • What is more  
|                    | • In addition  
|                    | • Besides above all  
|                    | • As well (as)  
|                    | • In the same way not only ... but also  
| Summary            | • In conclusion  
|                    | • To conclude  
|                    | • In brief  
|                    | • To summarise  
|                    | • Overall  
|                    | • Therefore  
| Contrast           | • Instead  
|                    | • Conversely  
|                    | • On the contrary  
|                    | • In contrast  
|                    | • In comparison  
| Similarity         | • Equally  
|                    | • Likewise  
|                    | • Similarly  
|                    | • Correspondingly  
|                    | • In the same way  
| Stating the obvious| • Clearly  
|                    | • As can be expected  
|                    | • Surely  
|                    | • After all  


| **Giving examples**                        | • For example  
• For instance  
• As follows:  
• That is  
• In this case  
• Namely  
• In other words |
| **Expressing an alternative**              | • Alternatively,  
• Rather the alternative is  
• Another possibility would be |
| **Result/consequence**                     | • So  
• Therefore as a result  
• Consequence  
• Accordingly  
• Consequently  
• Because of this / that  
• Thus / hence  
• For this/that reason  
• So that / in that case  
• Under these circumstances |
| **Concession, something unexpected**       | • However  
• Even though  
• However much  
• Nevertheless still  
• Yet |
| **Reformulation**                          | • In other words  
• Rather  
• To put it more simply |
| **Generalising**                           | • In general  
• Generally  
• On the whole  
• As a rule  
• For the most part  
• In most cases, usually |
| **Highlighting**                           | • In particular  
• Particularly  
• Especially  
• Mainly |
| Deduction                  | • Then   
|                           | • In other words   
|                           | • In that case   
|                           | • Otherwise   
|                           | • This implies that   
|                           | • Is so/not   |
| Transition to new point   | • Now as far as x is concerned with regard/reference to   
|                           | • As for ...   
|                           | • It follows that   
|                           | • Turning to   |

Acknowledgements

**Dr. Marion Heron from University of Surrey**

Critically Speak - Worksheet

Use these sentence stems to help you construct a conversation about the topic you are using in class.

<table>
<thead>
<tr>
<th>I believe …, because…</th>
<th>I don’t think so because …</th>
</tr>
</thead>
<tbody>
<tr>
<td>That’s a good idea because …</td>
<td>I agree to a certain extent but …</td>
</tr>
<tr>
<td>I agree because …</td>
<td>You have a point, but …</td>
</tr>
<tr>
<td>On page X it says …, so …</td>
<td>Could you clarify what you mean?</td>
</tr>
<tr>
<td>Have you got any evidence for that?</td>
<td>Why do you think so?</td>
</tr>
<tr>
<td>In my experience …</td>
<td>I am really interested in what you are saying. Can you elaborate?</td>
</tr>
<tr>
<td>I like your idea. Can you say more?</td>
<td>What do other people think?</td>
</tr>
</tbody>
</table>
The Source

Research is a critical part of your studies and involves finding and using the right type of information in order to answer the types of questions you will have to address throughout your degree.

**The Source** is designed to help you develop the CT skill of **information seeking**. You will need to develop search terms then find, critique and reference information from a wide range of practitioner and academic sources, learning how to discriminate between these. You will use this technique progressively throughout your degree as you are exposed to a wider and more complex range of sources depending on your year of study, and the specific task and/or assignment you are set.

It is good practice to continually develop your awareness of what are good sources of information, using everyday examples from the wider news environment. This is increasingly important with the prevalence of ‘fake news’ and ‘alternative realities’, and the increasing reliance on social media where stories are often shared without understanding of the accuracy of the original source. The BBC have set up a reality check website which interrogates shared stories on social media (e.g. [https://inews.co.uk/essentials/bbc-reality-check-team-expose-facebook-fake-news](https://inews.co.uk/essentials/bbc-reality-check-team-expose-facebook-fake-news)) and investigates the truth behind claims made, clarifying and re-reporting the story with the correct information as appropriate.

**The Source 5 Step Framework**

This **5 Step Framework** has been designed to help you find and assess a variety of sources of information using a step-by-step process. It should be used with The Source Worksheet which should be printed and completed during your information search so that you can record your findings for easy future reference.

- Step 1: Research Question
- Step 2: Resource Type (Understand the type of source you will be using)
- Step 3: Source Relevance
- Step 4: Source Recency
- Step 5: Source Credibility
Step 1: Research Question

Your first step is to be clear about the question you are trying to answer. Sometimes the brief is quite specific with the question, sometimes you have to develop your own research question. In the latter case, it is important that you do not have a broad research question, otherwise your search will throw up a large number of sources many of which may be irrelevant to your project and make your assignment seem dauntingly large. The skill of identifying relevant sources involves critically analysing your assignment brief, identifying your question or questions and then identifying key words to narrow down your search and break it into manageable units. Reading your course text book can be a useful support for your search as it will help you identify and understand key concepts and terminology. Make sure though not to rely too heavily on your course book and to have a variety of evidence –based sources.

Step 2: Resource Type (Understand the type of source you will be using)

There are two main sources types used throughout your degrees: professional (often practitioner) and academic sources.

Practitioner sources

These will vary depending on which degree you are studying and which module you are undertaking.

Trade journals, e.g. Marketing Week, HR Magazine, Accountancy, People Management. These are written mostly by professionals within the relevant industries and provide expert opinion and practitioner insights on a particular topic or area. They tend to be written in a more journalistic style.

Trade reports e.g. Mintel, Fame, Passport, Deloitte Research Studies, Oxford Economics are types of practitioner sources which specialists use. Trade reports are written by researchers who have collected and collated a range of qualitative and quantitative data on a specific area and therefore provide an in-depth evaluation. In the real world, they are used and paid for by practitioners who want to understand current trends. You can use them for free. Paramedic science and healthcare practitioners use a range of trade reports too.
More advanced practitioner sources include case studies and commentaries written by experts, e.g. The World Advertising Research Council (WARC) and the Harvard Business Review which creates general business case studies too.

**Academic sources**

Your course textbooks and academic articles from academic journals are both academic sources.

**Course textbooks** are written by academic specialists and cover a range of theories and concepts, explain terminology and provide a range of case studies and real-life examples with questions to help assess your understanding. They are detailed on the reading list provided as part of your module.

**Academic journals** contain a collection of academic articles, each one written by academics and reviewed by other academics (peers) in depth before publication to check their validity and credibility. This is called the peer-review process. Successful articles will then appear in peer-reviewed journals e.g. *Journal of Marketing, Journal of Advertising Research, The British Journal of Nursing, Business Communication Quarterly, and The British Accounting Review*. The articles are based on research conducted by academics in a specific theoretical area and look at the topic in depth e.g. the effect of social media on consumer behaviour in the beauty industry; history taking and physical assessment in holistic palliative care; or the changing use of email in inter-office communication. They are written for the academic/research community and aim to add to the theory and understanding of the topic in question, either by conducting an up-to-date literature review or by carrying out original research and reporting on findings (an empirical study or a mixture of both.) In summary, this is where academic theory is tested and developed and where new knowledge is created.

**Other sources**

There are a wide range of other sources of information. Traditional media sources e.g. radio, newspapers are not based on theory but can provide a credible, if sometimes biased, view on a particular issue.
New media sources, for example social media, are a non-traditional source in academic writing. These can be harder to evaluate for credibility but can provide very useful examples (e.g. examples of advertising campaigns using social media tools) and insights from experts/practitioners e.g. writing in a personal capacity on Twitter or in blogs. Information taken from these sources should be selected carefully, and, wherever possible, checked against other sources of information to check its accuracy, credibility and the credentials of the author (French, 2015).

Practitioner and academic sources can be accessed via databases such as iCAT.

Please note that these databases are NOT the source of the information but the vehicle for accessing it. Full details of how to source information will be explained during your library induction session and you can always ask for help in the library at other times.

**Step 3: Source Relevance**

Once you have found a number of sources, you need to check that they are relevant. You must look back at the topic you are trying to find information on and make sure you use related search terms. Consider widening or narrowing your search if you do not feel that the sources you have found are relevant to your topic. Show that you have also explored the most up-to-date research and that you have read the major and important texts in your topic. An easy way to identify the major standard texts in your field is to check reference lists to see which texts are frequently cited.

**Step 4: Source Recency**

Source the most up-to-date information you can as change happens very fast. Practitioner sources tend to reflect the most current thinking in a subject area, so limit your search to the last 3 years. With academic material, you should focus on the last 10 years, as many topics have been affected by the ever-changing environment. An important qualification is with key authors in the particular field, in which case you may refer to older sources.

**Step 5: Source Credibility**

Before you undertake any analysis, assess the credibility of the source.

**Academic journals** need to be peer reviewed, and it is important that they are from a credible journal. The credibility of the author is also important and you will find that many academics have published a lot of work in a particular area so are highly credible.
For **practitioner sources**, the credibility of the author is the first step. For example, Professor Mark Ritson writes for *Marketing Week* but he also produces blogs and posts on social media, so these will be equally credible. Make sure you quote from reputable trade reports and trade magazines. ‘Quality’ newspapers can be reputable but be aware that they can be biased! It can be useful to check the author via Google to find out a bit more about them before you use their information.

Finally, the type and variety of sources you use will be tailored to your subject, your level of study and specific assignment type. A wider range of sources will be introduced as you progress through your degree or course. Remember, your tutors, your Academic Success Centres and subject librarians provide useful face to face support. If you are unclear about any of these points, please ask!
# The Source – Worksheet

Once you have found a source, complete this worksheet to help you decide whether to use it or not and to make referencing it easier.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Details of your source</th>
</tr>
</thead>
<tbody>
<tr>
<td>What question does the source aim to answer?</td>
<td></td>
</tr>
<tr>
<td>What type of source is it?</td>
<td>Include the full Harvard reference</td>
</tr>
<tr>
<td>• Academic?</td>
<td></td>
</tr>
<tr>
<td>• Practitioner?</td>
<td></td>
</tr>
<tr>
<td>• Other?</td>
<td></td>
</tr>
<tr>
<td>How is this source relevant?</td>
<td></td>
</tr>
<tr>
<td>How recent is this source?</td>
<td></td>
</tr>
<tr>
<td>How credible is this source?</td>
<td></td>
</tr>
<tr>
<td>Will you use this source?</td>
<td>YES or NO</td>
</tr>
<tr>
<td><strong>Why?</strong> Provide an explanation.</td>
<td></td>
</tr>
</tbody>
</table>
Read Right

Read Right is a tool you should use to support your reading of core textbooks in your modules. It will support you with the early stages of reading around your subject, when you need to familiarise yourself with the facts, concepts, frameworks and theories of your academic discipline, introducing you to the CT skill of interpretation.

Read Right aims to help you read with a purpose, using a systematic approach to understand the material and make appropriate notes. Reading at university is more than sitting with a book and reading from start to finish. It is finding and using parts of books and other resources to add to and develop your knowledge, for example the contents page, the index, the glossary of terms, and the online support resources. Before you start, think about the purpose of your reading. Is it to clarify something you did not understand in lectures? Is it to add to and broaden your understanding of what was discussed in lectures? Is it to help you to produce an assignment or learn for an exam? Whatever the purpose, it is important that you take notes of this reading and document them carefully, so that you can refer to them at a later date and add to them as necessary.

The Process

Stage One: Read the title of the book. Does it appear to be relevant to the topic you are studying or to your assignment brief? Jot down some of the key words you are looking for, or the assignment question. Use the contents page at the start to find out what is included as well as the titles of the chapters. Then use the index at the end of the book to search for specific models, theories or concepts that you need to know about in detail. Please use the glossary within this toolkit to clarify any terms you do not understand and also to note down any terms you are not familiar with.

Stage Two: "Top and tail" the chapter, article or paper you decide meets your needs. Read the title, the introduction, the first paragraph, to get a quick synopsis of what it is about. Check that it appears to be covering material that you want or need to know about.

Stage Three: How is the material broken down into smaller chunks? Are there sections and sub-sections? If so, what headings are used, does this help you see what material you need to read and how the material will develop?
Stage Four: Use the following key headings to help you make notes, understand and remember as you work through the material. It can also be helpful to use a mind map or concept map to help record this information.

- What are the key model, theories or concepts that the material refers to?
- Who developed them and when (where applicable)?
- What do these models help you to understand?
- What examples does it use to illustrate these models, theories or concepts?
- Make a note of any items of vocabulary you do not understand and look these up in a dictionary. Use the glossary at the back of the toolkit
- Summarise the main points in note form – you will need to remember when making notes that when you write these up for an assignment they will need to be in your own words

Make notes and record all the details you will need as you may want to reference this material in an assignment and trying to find it again at a later date can be difficult. This includes the author/s’ name/s, title, year and page numbers. Depending on the type of source, you will need different information (see the Harvard Referencing Guide for Business Students available on MyKingston.)

Keep an open mind and do not panic! If there are concepts you do not understand, note them down and ask your tutor, or use a search engine and see if you can find some clearer explanations on-line. If you are struggling with writing style, see if there is another book or article that you find easier to understand. Sometimes, reading more from other sources makes a topic easier to grasp. If there are words you don’t know, look in the glossary (often at the back of the book). If it is not listed, find a dictionary and make sure you keep a note of what you learn.
Read Right – Worksheet

Select and read a chapter from a relevant text book.
Then complete the read right process below

| **Stage One:** Read the title. | Note title and authors here, plus all the details needed for referencing |
| Does it appear to be relevant to the topic you are studying? |

| **Stage Two:** ‘Top and tail’ the chapter, article, paper or section which you decide meets your needs | Note here what it is generally about |

| **Stage Three:** How is the material broken down into smaller chunks? |

<table>
<thead>
<tr>
<th><strong>Stage Four:</strong> Use the following key headings to help you make notes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What are the key models, theories or concepts being discussed?</td>
</tr>
<tr>
<td>• Who developed them and when (where applicable)?</td>
</tr>
<tr>
<td>• What examples are used to illustrate these models, theories or concepts?</td>
</tr>
<tr>
<td>• What does this text/article help you to understand?</td>
</tr>
<tr>
<td>• Is there any terminology or language you need to note down and look up?</td>
</tr>
</tbody>
</table>

**Summarise the main points using your own words.**
Practitioner Insights

This tool will provide you with a framework to gain insights from practitioner literature and will develop your CT Skills of analysis, interpretation, and evaluation. It will help you analyse and critique a range of practitioner sources e.g. practitioner-based articles in journals, the trade press and electronic sources of information. It will help you progress to more complex sources as you continue your studies, such as academic journals. This guide should be read in conjunction with The Source.

The Practitioner Insights Framework

Practitioner Articles

During your first year, you may be provided with a series of practitioner papers sourced by your tutor and made available via Canvas, or you may be asked to source your own from a variety of relevant practitioner focussed journals. These will probably relate to a theoretical topic you are working on in class.

The following checklist should be used to help you to read and critically reflect on the content using a guided reading process. During your reading, make sure that you keep an open mind and apply the standards needed for a proper critical evaluation, i.e.

- Be clear and accurate with your assessment
- Pick out the relevant points: to do this try looking for key words and phrases – e.g. this article suggests/proposes/argues/discusses
- Fully evaluate the depth and breadth of the discussion so you do not leave any points out i.e.
  - What is the purpose of the article?
  - What concepts, theories or research are discussed?
  - Is any specific terminology used?
  - Are any companies mentioned? If so, can you identify which theories are being applied?
  - Is there any new thinking highlighted?
- Assess the quality of the article: is it logical? Is it well written and clear? Can you find flaws in the arguments or information presented? Are there any contradictions? Is evidence well used to back up points? What is your opinion of the content?
You may be encouraged during class time to work in pairs and swap your analysis with a colleague to compare and discuss each of the key elements, but more importantly to discuss your opinion on what has been written. Your tutor may act as a facilitator if this is required. You may then be encouraged to reflect on these discussions and add to your original notes with the output of your peer discussions. You can do this with a friend if it is not required for you to do it in a taught session. Discussing things with someone else is always helpful.

As the academic year progresses, you may be encouraged to source interesting practitioner articles independently, carry out reviews, and bring these to class to discuss your opinion of them.

**Practitioner Guidelines, Research and Trade Reports (used in mainly in marketing modules)**

In the first year, you will be directed to a number of different professional resources and guidelines. You will be expected to find and explore the research and acknowledge how such information is relevant to your subject. This will increase in complexity in the second and final years where, in the case of marketing, you will be expected to include a wide range of trade sources.

Trade Reports e.g. Mintel and Keynote contain a summary which outlines the key findings from the report and contains key data on the market, the micro and macro marketing environments, a SWOT analysis, along with financial data. You will need to analyse and interpret this information according to the specific brief you have been given. You will also be able to use this information to apply some of the analytical techniques which you have learned in your marketing information sessions - trend analysis, presentation of data, correlations, and/or scatter diagrams etc.

For all types of practitioner sources, you will be encouraged to question and challenge the findings from your analysis, and not to take them at face value. Do you agree with the findings? Do you think there is there any information missing? Are there any contradictions? How does it compare with any other information collected?
Analyse and interpret the practitioner article according to the Practitioner Insights framework below, then staple it to the top of your article.

Full Harvard reference: ____________________________________________

<table>
<thead>
<tr>
<th>Professional Insights Framework</th>
<th>Your Analysis and Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the purpose of the source?</td>
<td></td>
</tr>
<tr>
<td>Look for key words in the text – this article proposes, argues, states, will demonstrate etc.</td>
<td></td>
</tr>
<tr>
<td>Summarise the key findings/challenges/recommendations</td>
<td></td>
</tr>
<tr>
<td>Is any specific terminology used?</td>
<td></td>
</tr>
<tr>
<td>• Are there any models, theories or concepts discussed?</td>
<td></td>
</tr>
<tr>
<td>Which companies are discussed – if any? What theories or concepts can you identify in the approach they have taken?</td>
<td></td>
</tr>
<tr>
<td>Is any new thinking highlighted? If so, note details.</td>
<td></td>
</tr>
<tr>
<td>Article quality</td>
<td></td>
</tr>
<tr>
<td>• Logical?</td>
<td></td>
</tr>
<tr>
<td>• Well written?</td>
<td></td>
</tr>
<tr>
<td>• Clear?</td>
<td></td>
</tr>
<tr>
<td>• Any bias?</td>
<td></td>
</tr>
</tbody>
</table>
Practitioner Insights – Marketing Trade Reports

Analyse and interpret the trade report according to the Practitioner Insights framework below, then staple to the top of your article.

Full Harvard reference: Practitioner Insights Framework

<table>
<thead>
<tr>
<th>Practitioner Insights Framework</th>
<th>Your Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantitative Data Analysis:</strong></td>
<td></td>
</tr>
<tr>
<td>• Volume of market</td>
<td></td>
</tr>
<tr>
<td>• Value of market</td>
<td></td>
</tr>
<tr>
<td>• Individual brand shares</td>
<td></td>
</tr>
<tr>
<td>• Competitor brand shares</td>
<td></td>
</tr>
<tr>
<td>• Growth rates</td>
<td></td>
</tr>
</tbody>
</table>

Which tools could you use from your degree course to help you interpret and present this information?

<table>
<thead>
<tr>
<th>PESTLE Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trend analysis</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consumer Insights</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Companies discussed – Can you identify the theories or concepts that underpin the company’s approach?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Is any new marketing thinking highlighted?</td>
<td></td>
</tr>
</tbody>
</table>

| **Evaluation:** What is your opinion of this data? Do you agree with the findings? Is there any information missing? Are there any contradictions? How does it compare with any other information collected? |               |


Practitioner Insights – Journal Articles - Exemplar

Analyse and interpret the practitioner article according to the Practitioner Insights framework below, then staple it to the top of your article.

**Full Harvard reference:** Roderick, L. (2016) 'Coca Cola Life sales plunge as “One Brand” strategy fails to provide pop', *Marketing Week*, 25th July, p.30

<table>
<thead>
<tr>
<th>Professional Insights Framework</th>
<th>Your Analysis and Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of article?</td>
<td>To talk about the decline of Coke Life</td>
</tr>
<tr>
<td>Summary of key points.</td>
<td>Sales have dropped but it is a niche product – Coke Zero is the focus and Coke now have many variants to appeal to different consumers. Having a master brand with variants means the brand is boosted even if people move on to another version.</td>
</tr>
<tr>
<td>Marketing terminology?</td>
<td>One Brand/Master brand – variants to entice people to try others and so boost the brand. Rather than buy another product – try a different one from the same family</td>
</tr>
<tr>
<td>Marketing concepts?</td>
<td>Strategy</td>
</tr>
<tr>
<td></td>
<td>Slogan / campaign – taste the feeling</td>
</tr>
<tr>
<td></td>
<td>Niche brand promotion</td>
</tr>
<tr>
<td>Companies discussed –Can you identify the theories or concepts that underpin the company’s approach?</td>
<td>Coco Cola – used to discuss the theory of Master brand strategy – pulling all the brand variants together</td>
</tr>
<tr>
<td>Any new marketing thinking highlighted?</td>
<td>Putting one variant of the whole brand at the centre of a major sponsorship campaign – It was not Coca Cola at the centre but Coke Zero</td>
</tr>
<tr>
<td></td>
<td>Quotes from key staff</td>
</tr>
<tr>
<td></td>
<td>Somewhat biased as it is about Coke – rivals are not compared</td>
</tr>
</tbody>
</table>
Coca-Cola Life sales plunge as ‘One Brand’ strategy fails to provide pop

Coca-Cola Life sales more than halved in the first six months of 2016, but Coca-Cola insists the variant “was never intended to be more than a niche”.

By Leonie Roderick on 25 Jul 2016
https://www.marketingweek.com/author/lroderick/


Coca-Cola Life sales dropped by more than 50% in the first six months of 2016, just over a year since Coca-Cola’s ‘One Brand’ strategy was launched in the UK, which seeks to encourage more people to try the brand’s different variants.

Figures by Nielsen show UK Coca-Cola Life value sales for the six months ending 2 July 2016 were £5.6m, down 54.5% on the same period last year. In comparison, total UK Coca-Cola sales for the same period were £521m, 7.6% down on last year.

Coca-Cola Life was originally launched in 2014 to offer a lower calorie option for more health-conscious consumers. It is the brand’s first cola sweetened from a blend of sugar and stevia plant extract and contains 45% less sugar and calories than the original Coca-Cola variant.

At the time of the launch, Coca-Cola Europe’s president James Quincey said: “[Coca-Cola Life] complements our existing brands and is well positioned to meet changing lifestyle trends, providing people with a great tasting, lower calorie cola sweetened from natural sources.”

However, it faced criticism from some quarters over its positioning as a ‘healthy’ product, with Marketing Week columnist Mark Ritson going even further by stating the launch “spells the start of the end of Coca-Cola”

Late last year, IRI figures showed that since the introduction of the new product in August 2014, the Life brand had grown into a £28.9m business, with analysts saying it has attracted a “small but loyal following”- https://www.marketingweek.com/2015/10/13/coke-life-one-year-on-sales-success-or-marketing-gimmick/.

Sales peaked in October 2014 after a period of heavy promotion, with value sales hitting £4.1m for the four weeks to 11 October.
Coca-Cola hopes that the ‘Taste the feeling’ campaign will make consumers more aware of its lower or no sugar options.

‘Not more than a niche’

Although Nielsen’s figures do not provide an indication of volume sales or levels of promotion, they suggest the value of the brand to Coca-Cola has declined dramatically.

Yet when questioned on Coca-Cola Life earlier this month, the brand’s marketing director for the UK and Ireland Bobby Brittain insisted the variant was never meant to be “more than a niche” and that Coca-Cola’s focus is on Coca-Cola Zero Sugar. [Link to article](https://www.marketingweek.com/2016/07/07/coca-cola-coke-zero-sugar-wont-affect-coke-life-but-reinvigorate-the-category/)

“Coke Life has carved itself out a very nice little niche. It was never intended to be more than that niche. Our COO James Quincey said in January that the ambition for Coke Life shouldn’t be overstated,” he told Marketing Week.

“The ambition for Coke Zero Sugar is a different dimension, as that’s where we’re investing and where we see our growth coming from. The adrenaline shot for the whole sector is coming through Coke Zero Sugar. We have never invested as much in the last decade. That’s a very bold statement of intent.”

In order to fight declining sales, Coca-Cola launched its ‘One Brand’ strategy globally in January after piloting it in the UK the year before. The strategy sees its four variants – Coca-Cola, Diet Coke, Coca-Cola Zero Sugar and Coca-Cola Life – marketed as part of the Coca-Cola ‘master brand’. It seeks to encourage people to try the different variants and thereby boost the brand.

The company also launched a new campaign and slogan, ‘Taste the Feeling’. Nielsen’s figures show, however, that the strategy has not lifted sales for the Coca-Cola Life variant or the overall brand.

Since its launch, Coca-Coca Life has not been backed by any individual advertising campaigns – unlike some of the other variants. For example, during the Rugby World Cup tournament in September and October last year, Coca-Cola placed Coca-Cola Zero front and centre of its sponsorship.

At the time, Brittain told Marketing Week: “It’s unique in the sense that the One brand strategy frees up all of the individual variants to have their own time in the sun. For the first time people are seeing Coke Zero as the face of Coca-Cola. This is definitely Coke Zero’s time to shine”.

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The Argument

This tool is designed to introduce the technique and language of developing arguments, which, in Critical Thinking terms, is simply the main point or focus of a discussion, assignment or paper. Throughout your studies you will be required to use evidence from your reading and research to support the argument you make in your assignments. In developing an argument, you will be using the Critical Thinking skills of interpretation, analysis, evaluation, inference and explanation. You will use and develop these skills throughout your degree and by using other tools in the toolkit: The Critique, the Thematic Analysis Grid, the Argument Map and Critically Write.

The Argument will help you understand the difference between arguing and persuading and will demonstrate the importance of using valid, relevant and reliable evidence to back up your points. It will introduce you to the language of argumentation and help you begin to construct your own arguments and develop your own point of view. Finally, it will help you participate fully in class discussions and debates, think of reasons for and against various statements and start to build confidence in your own perspective on a topic.

What is an argument?

Arguing is something you will do in your everyday life! According to the Oxford English Dictionary, an argument is a logical and reasoned way of stating your point of view and ensuring that it is valid. You use arguments to encourage people to see things from your perspective, believe it is true and to try to change their point of view. It is very important that you have a rationale to back up your arguments so that you appear credible. When arguing you also need to be able to identify flaws in other people’s arguments by drawing on your own knowledge and be able to challenge assumptions or opinions that are presented without any supporting evidence.

Persuasion on the other hand, is likely to be based on opinion not fact, often relies on emotional appeal or on the credentials of the transmitter of the message rather than the merits of the argument (Taylor Swift said it is amazing, so it must be true!)

What is the language of argumentation?

A claim is an idea which someone says is true. You will see claims used in advertising. For example, ‘Flowery Daisy guarantees to clean better than any other washing powder’.

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Strong arguments are made up of claims based on valid, factual evidence which is directly related to the question under discussion. An argument convinces the audience through its merits, and the quality of the evidence used to back up claims. Therefore, to make this a strong and valid argument, Flowery Daisy will need to have a reason for this claim and some good evidence to back it up. This is called support. For example, ‘Flowery Daisy gets ketchup stains off after only one wash at 60 degrees’. You then have to decide if this evidence is strong enough to make it believable!

An opposing point of view based on sound argument is a counterclaim. In the example above, an alternative washing powder brand could state it is even better at removing stains and can do it at only 40 degrees! A response to a counterclaim is a rebuttal. This involves disagreeing with the points made in the counterclaim due to them not being valid, for example maybe the second brand isn’t as effective on a ‘quick wash cycle’. The rebuttal may also be that the counterclaim is not persuasive, is insufficiently important, lacks credible evidence or is not directly related to the claim, thereby demonstrating that your claim is stronger and that the opposing view is weaker. To prove an argument is wrong is to refute. If you partly agree with your claim and partly with a counterclaim, then you qualify your view.

It is important that you are able to distinguish between a strong and a weak argument. An argument may appear to be strong and compelling but it might not answer the question set, or only a minor part of the question. This weakens the argument. For an argument to have strength it needs to be credible, valid and almost most importantly answer the question! It is therefore crucial that you really think about how questions are phrased and use your inferential skills and powers of deduction to understand what the question is really asking.

How to Practise

The following types of activities can help you develop your argumentation skills. This is not too onerous as you can practise these during your everyday life. Adverts and news stories are rich sources of arguments. Practise analysing adverts to identify claims, counterclaims, and to see where they use persuasion rather than fact. Think about credibility and relevance, and the importance of the source of information. Review newspaper ads, testimonials/infomercials on You Tube or TV ads and make notes to identify the claims, counterclaims, support for offers, and any qualifications stated. Think about the current controversy surrounding ‘fake’ news. Be aware of this and think about the types of evidence needed to make news ‘real’. Use your powers of deduction to read between the lines and determine its validity.
Think about developing an argument about a current issue in the news, for example ‘Leaving the EU is good for Great Britain’. Write down the main points of your argument and give three reasons which would convince someone of it. Now write three facts or examples to support each of these reasons. Conclude with a summary of the most important points from your argument and state again why your audience should believe you.

**Academic Arguments**

During your degree you will need to learn how to develop an academic argument (sometimes called a *thesis statement*). This simply is the main point or focus of your assignment which you will develop based on your reading and research. A *hypothesis* (an idea that has yet to be proved) tends to be used when you are starting to develop an academic argument. You have limited evidence at this point and need to find more to back up your point and turn it into an argument. If one hypothesis does not seem to have much merit or is not ‘meaty’ enough to develop into an argument, do not waste time on it but try another one! This is when research comes in and when you seek out academic and practitioner literature as support, pull together arguments (synthesize them) and draw a conclusion. To practise this, fully participate in class discussions and debates about some of the theories and concepts you are covering. Do not be afraid of speaking in class: the more often you do it, the easier it becomes! Review your lecture notes and develop and extend by reading on a regular basis. See if you can identify examples of arguments used by academics. There will generally be one somewhere in the introduction or near the beginning of the paper.

Don’t panic! You will develop these skills more as you progress through university using the wide range of tools in this toolkit as support.
The Argument – Exemplar

**Claim**
Legalising cannabis will raise money for the government and reduce crime

**Main Theme**
Cannabis should be legalised

**Counter Claim**
Cannabis is harmful to health and legalising will not reduce crime

**Evidence to support claim**
Government could raise £400-£900m in taxes (ISER 2013)

**Evidence to support counter claim**
Health issues for brain, lungs, heart and can create mental health issues (Hollister, 1986)

**Evidence which introduces a counterclaim**
In Amsterdam: muggings and hard drug use have increased, so increased costs (debating EU)

**More evidence to support counter claim above**
The number of users will increase (ISER, 2013)

**Rebuttal - Evidence which contradicts**
Can treat glaucoma, prevent epilepsy, ease MS (Powell, Pacula, Jacobson, 2015)

**Evidence to support claim above**
If regulated, average potency will fall (ISER, 2013)

**More evidence to support claim above**
Highest cannabis user rate is not the Netherlands but UK (Hall and Pacula, 2003)

**More evidence to support counter claim above**
General agreement, not enough research done on use and long term effects (all articles)
The Case

Teaching and assessments that use case studies are a key way of helping you apply the theory you are learning to real life situations. As well as being a very enjoyable way of learning, they provide an excellent way of developing your critical thinking skills of interpretation, analysis, evaluation, inference and explanation as you will be exposed to scenarios and data which involve making judgements and decisions.

You may be introduced to a range of different types of case studies as you go through your degree which will vary in complexity from ones in your course textbook to bespoke cases from e.g. the Harvard Business School. You will build up your skills of critiquing cases as you progress throughout your studies. The cases will be chosen by your tutor based on what concepts you are covering in your degree, what learning objectives are being covered and how ‘fresh’ and relevant the case topic is. Some cases are short, providing examples of a particular issue; some involve more detailed evaluation and you will build up your skills progressively with practice. They will be written in an objective, concise, manner, containing a mixture of different types of data and evidence, often comparing and contrasting different situations and presenting issues from different perspectives.

This guide will provide you with a framework to gain insights from and be able to answer questions on case studies. But remember, there are no absolutely right answers! In the real world, professionals will disagree with each other. As long as you have strong evidence to back up your views and also evidence to back up why you disagree with alternatives you will be okay!!

The Case Framework

Step One: Do Your Background Analysis

- A case study is about more than just answering the questions at the end of the case. You need to spend time reading it carefully to fully understand what the case study is discussing and the background context. It is really important that you read the case study several times in advance of either the classroom session it is being worked in or before you start to prepare your answers if you are being assessed.
The first basic principle is to be clear and accurate with your assessment of the case and pick out the relevant points. For example, what type of case is it? Does it centre on decision making, implementing a new strategy, problem solving or something else? Does it outline alternative views of a problem? Does it go onto make suggestions, or does it contain lots of quantitative information which you need to interpret and before drawing your own conclusions? It is also useful to do some supplementary information seeking about the company itself (if it is a real one) to help you put the case in context and to deepen your understanding of the issues. This can also help with your evaluation of potential solutions, conclusions and recommendations.

To help you fully evaluate the depth and breadth of the case study and to ensure that you do not leave any points out, the following checklist will be helpful. These questions are included in The Case Worksheet.

- In what time period is the case set? Which company is involved? What ‘characters’ if any are in the case?
- What is the background context the case is operating in? What type and size of organisation are they? A PESTLE and/or a SWOT analysis might be useful here.
- What is the key problem and what are the challenges the case is addressing? Cases often include some form of controversy. Sometimes the most obvious problem is not the real problem - for example, an executive in the case might say sales are falling because the advertising is not working. However, on further analysis it appears that actually the product does not deliver any real value to the customer.... So, look out for any major point or problem that is being overlooked or ignored!!!
- What is the focus of the case: what concepts, theories or models do you think are being illustrated or applied?
- Is any specific or technical terminology used?
- Does the case present information or solutions from a number of different viewpoints? If so what are these? Can you see the issues from these different perspectives?
- Are there any ‘red herrings’ in the discussion which are there to detract (or distract?) from the main point? It is important to identify these!
- What assumptions are made by the authors?
- Can you find flaws in any of the evidence, data or arguments?
- Are there any hidden meanings?
- What potential solutions can you see?
Step Two: Sharing Your Analysis in the classroom or in with your group

You may be encouraged during class time to work in pairs and swap your evaluation with a colleague to compare and discuss each of the key elements, but more importantly to discuss your opinion on what has been written and then, maybe, to contribute to a class discussion. The tutor may act as a facilitator to provide formative feedback and ask guiding questions. You might be asked to take part in a role play exercise where you have to assume the particular role of a character in the case and discuss a solution from their point of view. Sometimes your tutor might throw in an additional challenge for the case which you will have to address whilst thinking on your feet, so the more prepared you are, the better!

If you are carrying out a case study as part of a group assignment – you will need to make sure you meet regularly and discuss all the ideas of the members. This is a really good opportunity to see other points of view, so make sure you take notes and listen carefully to what others say – you may have missed something or interpreted things differently; other points of view are useful. In either circumstance, you are encouraged to reflect on these discussions and add to your original notes with the output of your peer discussions.

Step Three: Answer the Questions at the End of the Case

You will probably find that by the time you get to this stage, you have answered most of the questions as a result of your thinking and/or your discussions. So, review your notes and then have a go at writing out answers to the questions. Make sure your writing flows and use evidence from the case to support your points. If you use other sources to back up your arguments, make sure these are referenced correctly.

In summary, learning through cases enables you to take a much more active role in your learning. Your critical thinking skills will improve the more you practise, so enjoy the process!
The Case – Analysis Worksheet

Name of Case: ____________________________________________

<table>
<thead>
<tr>
<th>Guided Questions</th>
<th>Your Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>In what time period is the case set?</td>
<td></td>
</tr>
<tr>
<td>Which company is involved? What ‘characters’, if any, are in the case?</td>
<td></td>
</tr>
<tr>
<td>What is the background context? What type and size of organisation are they?</td>
<td></td>
</tr>
<tr>
<td>What is the <strong>key problem</strong> and what are the <strong>challenges</strong> the case is addressing?</td>
<td></td>
</tr>
<tr>
<td>What is the focus of the case? Which concepts or theories do you think are being illustrated or applied?</td>
<td></td>
</tr>
<tr>
<td>Is any specific or technical terminology used?</td>
<td></td>
</tr>
<tr>
<td>Does the case present information/solutions from a number of different viewpoints?</td>
<td></td>
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<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td>• If so, what are these?</td>
<td></td>
</tr>
<tr>
<td>• Identify the issues and how they differ from different perspectives?</td>
<td></td>
</tr>
<tr>
<td>• Are there any ‘red herrings’ in the discussion which are there to detract from the main point/s?</td>
<td></td>
</tr>
<tr>
<td>• It is important to identify these!</td>
<td></td>
</tr>
<tr>
<td>• Are any assumptions made by the authors?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can you find flaws in any of the evidence, data or arguments?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Are there any hidden meanings?</td>
</tr>
<tr>
<td>• Are any potential solutions suggested?</td>
</tr>
<tr>
<td>• What are the pros and cons of these?</td>
</tr>
<tr>
<td>• What potential solutions can you see?</td>
</tr>
</tbody>
</table>
The Critique

The Critique is designed to help you identify the main arguments in an academic paper, interpret their meaning and evaluate the credibility of the author’s support and the conclusions drawn. Refer to The Source in this toolkit if you need a recap on academic sources. The Critique provides a framework to identify important information within an academic paper, to critique what is there and what is missing and to help you spot any flaws in the author’s arguments and conclusions. This is how your inferential skills will be developed along with skills in interpretation, analysis, evaluation. Please also refer to the Glossary of Academic Terms in the toolkit to clarify any terminology you are unclear on – academic papers tend to use a lot of terminology and jargon most of which is less daunting when you know what it means!

The Critique can be used as a standalone tool for reading papers. You may be asked to do this at the early stage of your academic career either for an assignment or to support some work you are doing in class. However, you will find that this reading will throw up some unanswered questions which will mean you then have to read and evaluate more sources. This is where the Critique can help you along with the Thematic Analysis Grid or Argument Map as you can use them to input your findings from The Critique. You will then be able to compare and contrast arguments and look for links and connections. More information on these other tools can be found in other sections of the toolkit.

How Do You Critique a Paper?

Stage One: ‘Top and tail’ the paper. Read the abstract and the conclusions to get a quick synopsis of what it is about. The abstract should give an overview of the main contents of the article, so if you can’t see anything there relating to your area of enquiry, move on. If you think the paper could be for you, it is always worth reading it at least twice as they are written quite differently to academic textbooks and can use difficult language and contain complex arguments. You might also look for the key sentence/s or paragraph that lays out the precise purpose of the paper. Words such as ‘this article (or research or paper) proposes (or tests/postulates/examines/argues)’ indicate that this is the key focus of the paper. Once you have identified the purpose or aim of the paper, it should make reading the rest much easier.
Stage Two: Use the following key headings to critically evaluate it. These are contained in the Critique Worksheet which supports this teaching guide.

- What is the key purpose of the paper?
- What are the key research questions the paper addresses?
- What is the background to the paper: i.e. where does it fit in with other papers and studies that have been written on the subject and which it may discuss? For example, does it add to or support a point of view or does it argue against one?
- What type of study is it – qualitative, quantitative, literature review?
- What are the key themes underlying the discussion?
- What information is in the paper – key concepts and themes?
- How do you interpret these themes/discussions?
- What are the inferences you can draw? What are the implications/consequences of the discussion?
- What is the author’s key argument?
- Do you think the paper sufficiently answers the research question(s)?
- Do you agree with what the author is saying? Why? If not, why? Back up your point of view with evidence.
- Are there any conflicting views that you are aware of from your own reading and research around the topic?
- Has your view changed as your reading of the paper progressed?

During your reading make sure you keep an open mind and apply the standards needed for a proper critical evaluation i.e. aim to:

- be clear and accurate with your assessment
- pick out the relevant points
- fully evaluate the depth and breadth of the discussion so you do not leave points out
- assess the quality of the arguments: Are they logical? Do they seem fair? Are they well-constructed? Can you find flaws in them?

Read through your paper, filling out the key headings on the worksheet as you go. Save this, print it off and staple it to the paper you have read. This will help you when you go back to your work, perhaps after reading another paper. You will have the full reference there as well details of your critical evaluation.
The Critique – Worksheet

Print this off, fill out and staple to the paper you have analysed

<table>
<thead>
<tr>
<th>1. Title of paper</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s)</td>
<td></td>
</tr>
<tr>
<td>Journal</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td></td>
</tr>
<tr>
<td>Pages</td>
<td></td>
</tr>
</tbody>
</table>

2. What do you think is the key purpose of the paper?

3. What are the key research questions the paper addresses?

4. What is the background to the paper – does it add to previous sources and studies discussed in the paper?

5. What type of study is it?

   E.g. qualitative or quantitative academic, practitioner based or a literature review?

6. What are the key themes underlying the discussion?
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>6a. How do you interpret these themes/discussion?</td>
<td></td>
</tr>
<tr>
<td>6b. What are the inferences you can draw?</td>
<td></td>
</tr>
<tr>
<td>7. What is the author’s key argument?</td>
<td></td>
</tr>
<tr>
<td>7a. Do you think the paper sufficiently answers the research question(s)?</td>
<td></td>
</tr>
<tr>
<td>7b. Do you agree with what the author is saying? Why?</td>
<td></td>
</tr>
<tr>
<td>7c. If not, why not? Back up your point of view with evidence.</td>
<td></td>
</tr>
<tr>
<td>8a. Are there any conflicting views mentioned in the paper?</td>
<td></td>
</tr>
<tr>
<td>8b. Are you aware of any other conflicting views from your own research?</td>
<td></td>
</tr>
<tr>
<td>9. Has your view changed as your reading of the paper progressed?</td>
<td></td>
</tr>
</tbody>
</table>
### The Critique Example Worksheet

Print this off, fill out and staple to the paper you have analysed

<table>
<thead>
<tr>
<th>1. Title of paper</th>
<th>Guilt Regulation: The Relative Effects of AltruisticVersus Egoistic Appeals for Charity Advertising</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s)</td>
<td>Chingching Chang</td>
</tr>
<tr>
<td>Journal</td>
<td>Journal of Advertising</td>
</tr>
<tr>
<td>Volume</td>
<td>43 (3)</td>
</tr>
<tr>
<td>Year</td>
<td>2014</td>
</tr>
<tr>
<td>Pages</td>
<td>211-227</td>
</tr>
<tr>
<td>2. What do you think is the key purpose of the paper?</td>
<td>To discover whether people donate to charity for altruistic reasons or to assuage their feelings of guilt</td>
</tr>
<tr>
<td>3. What are the key research questions the paper addresses?</td>
<td>Is the main reason for charitable donation to make the receiver or the donor happier?</td>
</tr>
<tr>
<td></td>
<td>What are the key triggers for charitable donation?</td>
</tr>
<tr>
<td></td>
<td>How do different types of ‘guilt trigger’ or persuasion correlate with the amount given?</td>
</tr>
<tr>
<td>4. What is the background to the paper – does it add to previous sources and studies discussed in the paper?</td>
<td>The reduction in charitable giving since the ‘dire financial situation’ worldwide of 2008. It builds on prior research including: the argument that there is no such thing as true altruism (Cialdini *et al.*1987) the ‘guilt appraisal’ model (Tracy and Robins, 2007) and ‘affect regulation’ literature, including affect forecasting (Lowenstein, 2007)</td>
</tr>
<tr>
<td>5. What type of study is it?</td>
<td>Qualitative</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| E.g. qualitative or quantitative academic, practitioner based or a      | Motivation for charitable donations  
| literature review?                                                       | Effective fundraising  
|                                                                         | Guilt affect forecasting  
| 6. What are the key themes underlying the discussion?                   | That focusing on the potential donor’s wish to assuage their feelings of guilt and thereby feel happier, is a more effective way of fundraising than making them see the end result (the recipient’s increased happiness) of their donation.  
|                                                                         | That charities should consider their marketing/fundraising strategies and target the emotions of the giver rather than those of the recipient.  
|                                                                         | That the article supports Cialdini’s argument about altruism not really existing.  
|                                                                         | That although guilt is seen as a negative emotion, it can be used for a positive purpose.  
|                                                                         | That the findings are universal as the writer points out his participants were college students but makes no reference to their being Taiwanese, so must see this as irrelevant. |
| 6a. How do you interpret these themes/discussion?                       | That ‘egoistic ad appeals, as opposed to altruistic ad appeals’, facilitate the process of charitable donation and the ‘findings in turn have implications for practitioners’.  
|                                                                         | Yes, it appears to have been tested thoroughly.  
<p>|                                                                         | However the fact that the average age of the participants was around 22 means they may not give a full picture. |
| 6b. What are the inferences you can draw?                                |                                                                                                                                                                                                          |
| 7. What is the author’s key argument?                                    |                                                                                                                                                                                                          |
| 7a. Do you think the paper sufficiently answers the research question(s)? |                                                                                                                                                                                                          |
| 7b. Do you agree with what the author is saying? Why?                   |                                                                                                                                                                                                          |</p>
<table>
<thead>
<tr>
<th>7c. If not, why not? Back up your point of view with evidence.</th>
<th>Yes, because ‘compassion fatigue’ is a known syndrome, so it makes sense that people will donate more for reasons other than straightforward altruism/compassion, i.e. for ‘selfish’ purposes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8a. Are there any conflicting views mentioned in the paper?</td>
<td>Not conflicting, but qualifying e.g.: The relative effect of altruistic appeals may differ depending on: the individual (Brunel and Nelson, 2000), cultural (Nelson et al, 2006) and situational (Fisher and Ackerman, 1998; White and Peloza, 2009) Stronger guilt appeals can backfire (Coulter and Pinto, 1995)</td>
</tr>
<tr>
<td>8b. Are you aware of any other conflicting views from your own research?</td>
<td>8b No</td>
</tr>
<tr>
<td>9. Has your view changed as your reading of the paper progressed?</td>
<td>The author presents convincing research and arguments. The examples in the translated ads in the Appendix however, are very sentimental and obvious. So my final view is that elsewhere the altruistic approach would be have to be employed much more subtly or it might not be effective.</td>
</tr>
</tbody>
</table>
The purpose of the Thematic Analysis Grid (TAG) is to record evidence from a range of academic papers. You can transpose the main points of your analysis from The Critique in to it. It can also be used to record any practitioner themes identified by using Practitioner Insights. It will help you bring everything together in one place!

The TAG will help you identify a range of themes and supporting evidence across a number of papers. You can then identify similarities and differences in arguments between authors, evaluate the strength of evidence used, reflect on the significance of the conclusions and identify any flaws in the arguments or where more research is needed. This tool will help you develop more deeply your skills of analysis, interpretation, evaluation and inference.

The TAG may be introduced during your second year where you could be asked to critically discuss a small number of studies and then answer a question based on your findings. During your final year, your assignments may involve a much more in-depth critique of a topic and the writing of a traditional literature review. The TAG will help focus your work and save you time by collecting all your analysis in one place so that you can easily refer back to it. It is a very flexible tool which you can tailor to your level of study and the needs of your assignment. The examples included later in this document illustrate how it can be used.

How to Construct the TAG

**Step One:** Source a wide range of papers relating to your research topic, then read, analyse and interpret each paper using The Critique framework. Make sure you have used The Source first to check the credibility of the papers you have found and ensure that you are using the most suitable and relevant studies.

**Step Two:** Once you have completed your reading, input the title of each paper in the first column of the grid, using correct Harvard referencing. It can also be helpful to include the country where the research was undertaken.
**Step Three:** If it is important to your work, identify the type of study each paper describes and input this into the grid (e.g. practitioner based, academic, trade report).

**Step Four:** Record key notes from each paper in turn. It might be useful to record key definitions, the context of the research, the purpose of the paper and key points made. You can decide how many columns your TAG has and can always add them as you go. You may find that you change the order of things as your reading progresses and your understanding starts to develop.

**Step Five:** Include your review of each paper; this is often best left to the last column. Did the paper answer the research question? Were there any unanswered questions at the end of the study or any further questions? Did you find any methodological flaws or research limitations? Did you identify any source bias?

**Step Six:** Review the TAG after you have added the details of a few papers. It may be that you can start to see some key themes emerging. Highlight similarities and differences. Make sure you consider how one paper may contradict another. Some people find it easier to use colour at this point. If several authors make similar comments about a topic – highlight them all in the same colour. Make a key as you go. For example, in the section of a simple TAG shown below, the topic is about Critical Thinking and the research question is “Which classroom techniques improve the ability of students to think critically?” The creator of the TAG has focussed on comparing different definitions of critical thinking and the best way of developing it. The findings show that two authors agree that critical reflection at the end of every session is crucial. These have been highlighted in yellow. Others suggest that debating is a key activity – these are blue. Another author suggests that using structured worksheets to develop a more focussed approach to reading and understanding is the most helpful tool to use – this is green.

<table>
<thead>
<tr>
<th>Paper details</th>
<th>Date written</th>
<th>Definition of Critical Thinking</th>
<th>Best tool to develop it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wason, H. 'The importance of Critical thinking for students today.' <em>Journal of teaching and learning</em>, 4(2), pp.12 – 15.</td>
<td>2015</td>
<td>The skills of finding information, analysing it, interpretation, evaluation, reading between the lines and explanation.</td>
<td>In-class debates.</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Key Points</td>
<td>Methodology</td>
</tr>
<tr>
<td>------------</td>
<td>------</td>
<td>----------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Southall, J.</td>
<td>2009</td>
<td>Being able to make sense of complex information by using reasoned judgement.</td>
<td>Reflection at the end of sessions and after reading key texts.</td>
</tr>
<tr>
<td>Gray, R.</td>
<td>2016</td>
<td>Being able to develop a point of view based on evidence and understand the point of view of others.</td>
<td>Debates where students are asked to argue the opposite to their actual view.</td>
</tr>
<tr>
<td>Jack, J.</td>
<td>2016</td>
<td>Considering a broad range of valid evidence in order to construct an argument based on evidence.</td>
<td>Structured reading sheets to allow students to feel confident when working with more complex information.</td>
</tr>
<tr>
<td>Jill, J.</td>
<td>2008</td>
<td>Using reasoned judgement to evaluate evidence and construct arguments.</td>
<td>Encourage each student to reflect on what they have learned at the end of each session – what is good and what is not so good – lacks evidence etc.?</td>
</tr>
</tbody>
</table>

Now the TAG looks like this, it is easier for to answer the question by stating what you have discovered and evidencing your points. Highlighting the date each paper was written/published means that you can comment on how thinking has changed over time. In this example, it appears that whilst critical reflection was considered key 10 years ago, more recently researchers appear to think that reading and debating are the most important tools. Constructing your TAG in Excel is best if you want to see how thinking has changed as you can then sort the information using that column, to get the papers in chronological order. Excel also allows for more columns to be seen on a page.
You can create a TAG to suit your needs. The more complex example that follows shows how a TAG was used by a final year student for in preparation for writing a literature review on the effectiveness of using product placement within mass media. There is no fixed way to use this tool, but these guidelines will allow you to explore what works for you in your circumstances. Use colour to highlight and shade, different or coloured fonts to help you. You decide!

Once your TAG is complete you are now ready to write up your assignment using the hints and tips provided in Critically Write.
<table>
<thead>
<tr>
<th>Author, Title, Journal &amp; Date</th>
<th>Type of Paper / Concept</th>
<th>Main Themes</th>
<th>Sub Theme</th>
<th>Discussion</th>
<th>Cross-over</th>
</tr>
</thead>
</table>
- Brands are now actively seeking PP opportunities within movies, television and video games  
- Marketers such as Coca-Cola have now adopted the roles of product producer  
- Effectiveness relies on: Program-induced mood – happier the show, better recall,  
- Opportunity to process – foreground vs background  
- Process modality – visual vs spoken  
- Benefits of combining product placement in movies – as they have a long shelf live and have global stance. Also, movies have proven that they can influence human behaviour and mood (even if it is only for a short period of time)  
- Belief that PP is now a trade-off between financial and creative considerations  
- To effectively grow PP – there will need to combination of managers | PP is still hard to control – there needs to be some form of evaluation – this is prevalent still today  
Only measurement is recall & brand recognition – how reliable is this?  
Ethics of PP?  
How to overcome the editing process?  
Control of the message? | **Williams, K., Petrosky, A., Hernandez, E. and Page Jr, R., (2011) – Although measurement is hard to establish for PP – due to the upheaval of PP companies are making a conscious effort in measurement by a summary of top ranked products, air time, awareness scale & degree of integration & Nielsen is trying to conduct a measurement scale** |
<table>
<thead>
<tr>
<th>Author, Title, Journal &amp; Date</th>
<th>Type of Paper / Concept</th>
<th>Main Themes</th>
<th>Sub Theme</th>
<th>Discussion</th>
<th>Cross-over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams, K., Petrosky, A., Hernandez, E. and Page Jr, R., (2011).' Product placement effectiveness: revisited and renewed'. <em>Journal of Management and Marketing research</em>, 7, p.1.</td>
<td>Context: Discusses how product placement is risky compared to traditional advertising – however PP is now practiced amongst many different types of media. Main points: purpose of PP, specific media usage, effectiveness, negatives surrounding PP &amp; Ethics Currently TV is the highest spend in PP but the domain of</td>
<td>- The purpose of PP is defined by 8 – exposure &amp; Interest, Increase brand awareness, recall, recognition at point of purchase, desired attitudes, purchase behaviour, favourable practitioner views &amp; promote consumer attitudes about PP - Suggest a Framework on how effectiveness is defined in PP: Audio &amp; Visual, Strategies which include; Implicit PP (Visual), Integrated PP (Active role in the</td>
<td>- Digital has opened opportunities for PP to expand in place it has been before - It also allows marketers to monitor ongoing traffic to place the right product – by storytelling, pictures &amp; videos - Overall views on PP are positive – amongst various media vehicles - To be successful in PP – the media has to directly relate to the media platform</td>
<td>Suggests that consumers do not find PP unethical unless the product itself is PP can be seen as less ‘clutter’ than trad advertising – as the product is integrated in the story line Audience characteristic – found that more educated consumers are</td>
<td>Supports Lack of control within product placement – Supports Karrh &amp; Mckee (2003) for PP in movies –gaining longer shelf life and positive attitudes transferred from popular TV to brand Support for the visual and spoken modality as the combination is proven more successful</td>
</tr>
</tbody>
</table>
| gaming is expected to rise – US are currently PP leaders | scene) & Non Integrated PP (Sponsorship) placement vs plot placement | • PP helps costing for props – so it’s a win-win  
• Film, TV & Video Games are currently the most used media platforms. | less likely to respond to PP | negative character association |
The Argument Map tool is a mind mapping technique designed to help you explore academic and practitioner-based arguments at a much deeper level. It will help you develop your skills of interpretation, evaluation, inference and analysis and builds on what you have learned from using The Argument and The Critique tools. It serves a number of purposes for your academic studies and for future employment, as in both environments you will need to make appropriate decisions based on evaluating alternatives, identifying key evidence and drawing conclusions. It can be particularly suited to students who like to learn visually.

When Do I Use an Argument Map?

You may be required to carry out a critical review of a wide range of sources for a more advanced assignment at the later stages of your academic journey. Your first step is to use The Critique to enable you to critically evaluate each individual paper. However, your assignment will expect you to go beyond this and synthesise this information. You may need to compare and contrast different authors’ views on the range of themes and arguments you have identified, looking for similarities and differences, links and connections. The Argument Map can also help you see where there are gaps in thinking and where more evidence should be sought or further research done. Mapping the arguments can make the information seem less daunting as you can see it in one go.

The Argument Map can also help you explore a complex argument in a lot more detail, especially where there are a number of conflicting views in the literature. It can help you weigh these views up, decide which evidence is more compelling and draw your own conclusions. Remember, there is not a single right or wrong answer for these assignments. You are being graded based on your critical ability and the strength of your argument and evidence.

The Argument Map can be used as a substitute for the Thematic Analysis Grid (Anderson, Lees and Avery 2015) for students who prefer a visual way of organising their thoughts. Alternatively, it can be used in conjunction with the Thematic Analysis Grid once the themes are coded and recorded, to critically explore differing authors’ views on a theme. The toolkit aims to give you enough flexibility to use the tools that are appropriate to your learning style and the assignment task.
The Process

Step One: Preparation

Collate your sources using The Source then analyse them individually using The Critique. This will give you the range of information you need for the construction of your map.

Step Two: Construction

Construct your argument map. You can do this manually using pen and paper or by using an on-line argument mapping package. The latter can be useful as you can save and make changes to it more easily! There are a number of packages available via Google. However, previous students have recommended Microsoft PowerPoint as the page is in landscape format and it is easy to fill out information in the “bubbles”
Viewing a movie on a large screen increases recall of product placements in the (Balasubramanian et al, 2006)

Placement's prominence has a positive impact on the recall of the placed brand (Gupta and Lord, 1998)

Location - placements in the central quadrant get more attention (Lehu, 2005)

Product placement has been in the film industry for more than 100 years (PQ Media, 2010)

Films are the most popular avenue for product placement (Jin & Villegas, 2007)

A placement is prominent when the brand is at the focus of attention (Gupta and Lord, 1998)

A prominent placement is more deeply processed and that leads to increased memory

Repeated exposure to brand placement under low levels of attention can be enough to create a sense of familiarity with the brand (Auty and Lewis, 2004)

Brand memory did increase when an actor mentioned brands or showed them or when brands were prominently placed (Babin and Carder, 1996)

Product placement is often blamed for taking advantages of audiences who are unaware of it and trying to influence them in a preconscious way

Brand Placement Prominence

Reijmersdal (2009) A new branch of advertising

Product Placement

Reijmersdal (2009) Brand Placement

Auty and Lewis, 2004)
Produce the map using colour coding for each different author and input the key themes from each paper within the “bubbles”. You should then be able to identify similar themes between papers, what evidence and reasoning is used, which authors agree or disagree. Using Microsoft PowerPoint, it is easy to draw lines to connect the themes and then to look for similarities and differences between the various views. The example below was constructed by a final year student who had to write a critical discussion about product placement but could be used for any topic!

**Step Three: Look at Arguments More Deeply**

Once you have constructed your map you may discover that there are some themes which have a number of conflicting views. To help you critically evaluate these arguments, and come to your own conclusion, it can be helpful to use a smaller type of argument map. (Please see **The Argument** tool for more details.) This can also be useful if you have to prepare for an in-learning sessions debate or discussion when you have to take a stance on a particular issue.

**Step Four: How Do You Use the Argument Map?**

You can use Argument Maps to help you take part in a critical discussion in learning sessions; as preparation for an active learning exercise on a marketing topic; and/or to help you construct an assignment where a critical review of literature is needed. The **Critically Write** tool gives you lots of hints and tips about how to translate this work into a piece of critical writing which will definitely increase your marks!
The Critical Reflection

This tool will support you with any task which requires you to reflect critically on academic and/or practitioner literature, educational experiences e.g. training, events, work-based practice, classroom-based activities or perhaps in-class debates where you reflect on the impact of your participation in the discussion on your point of view. This will develop your evaluation, inference and explanation skills.

What is Critical Reflection?

Critical reflection is a process you subconsciously use when you think about everyday life and experiences. For example, what was the service like on a recent journey or with an online order? When you are thinking, discussing and possibly complaining about this you are engaging in some form of critical reflection and thinking about what you can learn for the future (“I need to buy the right size of case for my next EasyJet flight if I just want to take hand luggage”). So, it is a process for reflecting on your own work and experiences, enabling you to gain insights in your own thoughts and behaviour. It helps you to contextualise these insights and reflect on how you can take them back into your own academic and work life (Smith, 2011). As it involves questioning and challenging yourself, it can sometimes feel risky and a bit uncomfortable!

Why is it important?

Critical reflection supports both academic and professional development. It helps you to: become clearer about an issue; clarify your strengths and weaknesses; learn how to learn; and identify support/resources needed for improvement. It develops your observation skills and ability to be objective. It also helps you see things from different perspectives in order to gain a deeper understanding and supports self-evaluation and the development of new skills/knowledge/attitudes. To practise this, it is good idea after each lecture or tutorial to spend 15-20 mins reflecting on what you have learned and jot down some notes under the following headings: What were the key things I learned and which skills did I practise? How does this content relate to previous lectures? Did I to contribute to the sessions? How?
The Critical Reflection Model

A useful tool to help you learning from a situation is the critical reflection model. This is based on research by Kolb (1984) which suggests that for learning to be successful we need to move through a learning cycle which involves four stages: having a learning experience (experience stage); reflecting on it (review stage); making sense of it (concluding stage) and finally taking action to apply what we have learned (action stage). This model can be very useful to help you learn from any particular situation, for example from feedback from a very good piece of work (so that you can repeat your success). You could also reflect on the impact of your attendance at a careers event on your future career plans. However, depending on your learning style, you may prefer to enter the cycle at different points. This is not a problem, the important thing is to complete the cycle and carry out all stages. For example, if you are an active learner, you are likely to start with the experience and will actively seek it out. You must, though, make sure that you complete the cycle and reflect on what has happened and pull out conclusions to help you in the future.

Each reflection should contain the following information:

Description:

- What happened that you are going to reflect on (incident, assignment, event, theoretical idea)?
- What did you do?
- What happened?
- How was it handled?
- What was the reaction/outcome?

Feelings:

- What were your reactions and feelings?

Evaluation:

- What was good and bad about the experience?
- Why did you feel that way?
• Were you happy with the outcome?
• What aspect would you like to change?

**Analysis:**

• What sense can you make of the situation?
• Bring in ideas from outside the experience to help you (both personal and theoretical). What was really going on (namely what did you infer that wasn’t explicitly stated)? What have you learned?

**Conclusions:**

• What can be concluded from these experiences and the analysis you have undertaken?
• What strengths and weaknesses did it reveal?
• What new skills/knowledge/attitudes have you acquired?

**Personal Action plans:**

• What would you do differently next time?
• What steps are you going to take on the basis of what you have learnt?
• What support/resources do you need?

This information can then be tailored to the type of critical reflection you are required to carry out.

**Reflective Writing**

• Writing reflectively involves a different style of writing which may not seem natural! There are two aspects to it – thinking reflectively and writing reflectively.

The following example illustrates the difference between the two:

<table>
<thead>
<tr>
<th>Academic Essay or Report</th>
<th>Reflective Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usually expected to be impersonal, objective and written in the third person.</td>
<td>Different to other forms – more personal; no formalised or definitive structure, may</td>
</tr>
</tbody>
</table>
Follows a set structure (e.g. use headings) has an introduction and moves through to a conclusion.  

<table>
<thead>
<tr>
<th><strong>Follows a set structure (e.g. use headings) has an introduction and moves through to a conclusion.</strong></th>
<th><strong>use headings; uses first person rather than third.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. ‘The advantage of applying SMART objectives in a production environment can be appreciated’.</td>
<td>e.g. ‘Working in a production environment I was able to appreciate the value of applying SMART objectives in practice rather than just reading and learning about them from a theoretical perspective’</td>
</tr>
</tbody>
</table>

The following section should be used if you are writing a **formal reflective account** of a review of academic/practitioner literature followed by participation in a classroom discussion.

First, you will need to have read widely and identified themes using some of the other user friendly tools in the toolkit: **The Critique/The TAG/The Argument Map**. These will help you formulate a clear point of view on the topic.

You will need to explain what you have learned as a result of participating in the discussion. Don’t just describe what was said but focus on how you related to it and show how your own knowledge has been transformed as a result of taking part. You are an active participant in your own learning and you need to: reflect critically on the quality and content of the arguments made; compare them against your own views and what you have read; consider alternative ideas and points that may have been missed; and draw your own conclusions. Specifically, you need make clear how your view has changed (or maybe strengthened) as a result of the arguments made in the discussion/debate. A useful model to help remember this is the 5 Rs framework for these different levels of reflection: **reporting**: describing the content of the discussion **responding**: how did you respond to and participate in the discussion? **relating**: which points did you agree and disagree with? **reasoning**: why? What evidence contributed to your view and is it credible and valid? and **reconstructing**: piece together the views and evidence collected to formulate your argument (Bain *et al.*, 2002, cited in Ryan, 2011, p. 100).

You may feel slightly unsure as to how to structure your reflective account. Unlike a business report, which has headings and a definite structure, there is no formalised structure to reflective writing. It is a good idea to top and tail with an **introduction** which states your view at the start of your class discussion/debate and **conclude** with a critical reflection on how your view has changed (if at all!) Otherwise, you need to remember the 5 Rs above and ensure that you reflect critically on the points made and the quality of supporting evidence, the persuasiveness of your class participants in the discussion and
how this has impacted on your views. It is important that you inject your own viewpoint into this, using evidence to support it.

Academic reflective writing also embraces a different type and style of language. The following checklist is useful (Bain et al., 2002, cited in Ryan, 2011, p 100).

- Use the first person 'I'
- Use thinking and sensing verbs e.g. I believe, I feel, I questions, I understand, I consider
- Use the relevant technical language (or jargon) where relevant, to show you have understood the academic literature
- Use language of comparison/contrast e.g. similarly, just as, in contrast to, unlike
- Use language to illustrate causal reasoning (i.e. what happened and its effect) e.g. As a result of..., the consequences of... due to..., therefore, because...
- To show evidence, use phrases such as: this demonstrates, shows, supports x’s theory, highlights that
- To show reasoning, use phrases such as: according to Jones (2005), as Smith (2015) states, Brown (2011) suggests...

Finally, here are some key questions you can ask yourself if you are developing a critically reflective writing on a piece of academic literature. It is a good idea to annotate your own drafts (or work with your peers and review each other’s) according to these guidelines and to make suggestions for improvement based on them (Ryan, 2011).

1. Have I used the correct language of reflection?
2. What does my first paragraph do? Does it highlight the issue and state my position at the start with supporting evidence?
3. What do subsequent paragraphs do? Do I introduce and report on points made and quote supporting evidence? Do I relate these points to my own reading and identify any points missed? Do I critically evaluate the persuasiveness of my classmates and the quality of evidence they use? Can I relate to any points they made?
4. What does the final paragraph do? Having critically evaluated and reviewed the journey of the discussion and the arguments made and missed, have I drawn my own conclusion on my position? Is it the same as the start – stronger, has it changed?

Even though this will be a personal piece, as with all academic writing, if you refer to concepts and theories, these will need to be referenced. In-text citations will form part of the word count. The final list of full references will not.
The Critical Reflection

The Presentation - An exercise in reflective writing

This is an account of the experience of giving a presentation. It is written by Marianne who is in her first job after graduating. The three different versions all refer to the same presentation but demonstrate different levels of reflective writing.

Once you have read through each one, look at the grading criteria on the mark sheet and decide which account corresponds to the feedback labelled A, B or C.

The Presentation (1)

I had to take an agenda item to the weekly team meeting in my third week of working at PIGG PLC. I had to talk about the project that I am on (creating a new database for the management information system). I had done a presentation before and then I relied on my acting skills. Despite the acting, I spent quite a bit of time preparing it in the way that I have seen others make similar presentations. The presentation at the last team meeting, given by my colleague, went well – she used Power Point and I decided to use it. I decided that a good presentation comes from good planning and having all the figures that anyone might request so I spent a long time in the preparation and I went in feeling confident.

However, I became nervous when I realised they were all waiting for me to speak and my nerves made my voice wobble. I did not know how to stop it. Early on, I noticed that people seemed not to understand what I was saying despite the Power Point. Using Power Point meant that people received my presentation both through what I was saying and what I had prepared on the slides. In a way that meant they got it twice but I noticed that Mrs Shaw (my boss) repeated bits of what I had said several times and once or twice answered questions for me. This made me feel uncomfortable. I felt it was quite patronising and I was upset. Later my colleagues said that she always does it. I was disappointed that my presentation did not seem to have gone well.

I thought about the presentation for several days and then talked with Mrs Shaw about the presentation (there was no-one else). She gave me a list of points for improvement next time. They included:
• Putting less on Power Point;
• Talking more slowly;
• Calming myself down in some way.

I also have to write down the figures in a different way so that they can be understood better. She suggested that I should do a presentation to several of the team sometime next week so that I can improve my performance.

**The Presentation (2)**

I am writing this back in my office. It all happened 2 days ago.

Three weeks after I started at PIGG PLC had to take an agenda item to the team meeting. I was required to report on my progress in the project on which I am working. I am developing a new database for the management information system of the company. I was immediately worried. I was scared about not saying the right things and not being able to answer questions properly. I did a presentation in my course at university and felt the same about it initially. I was thinking then, like this time, I could use my acting skills. Both times that was helpful in maintaining my confidence at first, at least. Though the fact that I was all right last time through the whole presentation may not have helped me this time!

I decided to use Power Point. I was not very easy about its use because I have seen it go wrong so often. However, I have not seen anyone else give a presentation here without using it - and learning to use Power Point would be valuable. I was not sure, when it came to the session, whether I really knew enough about running Power Point. (How do you know when you know enough about something? – dummy runs, I suppose, but I couldn’t get the laptop when I wanted it).

When it came to the presentation, I really wanted to do it well – as well as the presentations were done the week before. Maybe I wanted too much to do well. Previous presentations have been interesting, informative and clear and I thought the handouts from them were good (I noticed that the best gave enough but not too much information).

In the event, the session was a disaster and has left me feeling uncomfortable in my work and I even worry about it at home. I need to think about why a simple presentation could have such an effect on me. The Power Point went wrong (I think I clicked on the wrong thing). My efforts to be calm and ‘cool’ failed and my voice went wobbly – that was, anyway, how it felt to me. My colleague actually said afterwards that I looked quite calm despite what I was feeling (I am not sure whether she meant it or was trying to help me). When I think back to that moment, if I had thought that I still looked calm (despite what I felt), I could have regained the situation. As it was, it went from bad to worse and I know that my state became obvious because Mrs Shaw, my boss, began to answer the questions that people were asking for me.
I am thinking about the awful presentation again – it was this time last week. I am reading what I wrote earlier about it. Now I return to it, I do have a slightly different perspective. I think that it was not as bad as it felt at the time. Several of my colleagues told me afterwards that Mrs. Shaw always steps in to answer questions like that and they commented that I handled her intrusion well. That is interesting. I need to do some thinking about how to act next time to prevent this interruption from happening or to deal with the situation when she starts*. I might look in the library for that book on assertiveness.

I have talked to Mrs. Shaw now too. I notice that my confidence in her is not all that great while I am still feeling a bit cross. However, I am feeling more positive generally and I can begin to analyse what I could do better in the presentation. It is interesting to see the change in my attitude after a week. I need to think from the beginning about the process of giving a good presentation. I am not sure how helpful was my reliance on my acting skills*. Acting helped my voice to be stronger and better paced, but I was not just trying to put over someone else’s lines but my own and I needed to be able to discuss matters in greater depth rather than just give the line*.

I probably will use Power Point again. I have had a look in the manual and it suggests that you treat it as a tool – not let it dominate and not use it as a means of presenting myself. That is what I think I was doing. I need not only to know how to use it, but I need to feel sufficiently confident in its use so I can retrieve the situation when things go wrong. That means understanding more than just the sequence of actions*.

As I am writing this, I am noticing how useful it is to go back over things I have written about before. I seem to be able to see the situation differently. The first time I wrote this, I felt that the presentation was dreadful and that I could not have done it differently. Then later I realised that there were things I did not know at the time (e.g. about Mrs. Shaw and her habit of interrupting). I also recognise some of the areas in which I went wrong. At the time I could not see that. It was as if my low self-esteem got in the way. Knowing where I went wrong, and admitting the errors to myself gives me a chance to improve next time – and perhaps to help Mrs. Shaw to improve in her behaviour towards us!

*I have asterisked the points that I need to address in order to improve.

The Presentation (3)

I had to take an agenda item to the weekly team meeting in my third week of working at PIGG PLC. I had to talk about the project that I am on. I am creating a new database for the management information system. I had given a presentation before and that time I relied on my acting skills. I did realise that there were considerable differences between then and now, particularly in the situation (it was only fellow students and my tutor before). I was confident but I did spend quite a bit of time preparing. Because everyone else here uses Power Point, I felt I had better use it – though I realised that it was not for the best reasons. I also prepared lots of figures so that I could answer questions. I thought, at that
stage, that any questions would involve requests for data. When I think back on the preparation that I did, I realise that I was desperately trying to prove that I could make a presentation as well as my colleague, who did the last one. I wanted to impress everyone. I had not realised there was so much to learn about presenting, and how much I needed to know about Power Point to use it properly.

When I set up the presentation in the meeting I tried to be calm but it did not work out. Early on the Power Point went wrong and I began to panic. Trying to pretend that I was cool and confident made the situation worse because I did not admit my difficulties and ask for help. The more I spoke, the more my voice went wobbly. I realised, from the kinds of questions that the others asked, that they did not understand what I was saying. They were asking for clarification – not the figures. I felt worse when Mrs Shaw, my boss, started to answer questions for me. I felt flustered and even less able to cope.

As a result of this poor presentation, my self-esteem is low at work now. I had thought I was doing all right in the company. After a few days, I went to see Mrs. Shaw and we talked it over. I still feel that her interventions did not help me. Interestingly several of my colleagues commented that she always does that. It was probably her behaviour, more than anything else, that damaged my poise. Partly through talking over the presentation and the things that went wrong (but not, of course, her interventions), I can see several areas that I could get better. I need to know more about using Power Point – and to practice with it. I recognise, also, that my old acting skills might have given me initial confidence, but I needed more than a clear voice, especially when I lost my way with Power Point. Relying on a mass of figures was not right either. It was not figures they wanted. In retrospect, I could have put the figures on a handout. I am hoping to have a chance to try with a presentation, practicing with some of the team.
The Critical Reflection

The Presentation - An exercise in reflective writing

Feedback – Which feedback corresponds to which Reflective account?

A. This account is descriptive and it contains little reflection

- The account describes what happened, sometimes mentioning past experiences, sometimes anticipating the future – but all in the context of an account of the event
- There are some references to Marianne’s emotional reactions, but she has not explored how the reactions relate to her behaviour
- Ideas are taken on without questioning them or considering them in depth.
- The account is written only from Marianne’s point of view
- External information is mentioned but its impact on behaviour is not subject to consideration
- Generally one point is made at a time and ideas are not linked

B. This account shows quite deep reflection, and it does incorporate a recognition that the frame of reference with which an event is viewed can change

- Self questioning is evident (an ‘internal dialogue’ is set up at times) deliberating between different views of her own behaviour (different views of her own and others)
- Marianne takes into account the views and motives of others and considers these against her own.
- She recognises how prior experience, thoughts (own and other’s) interact with the production of her own behaviour
- There is clear evidence of standing back from an event
• She helps herself to learn from the experience by splitting off the reflective processes from the points she wants to learn (by asterisk system)

• There is recognition that the personal frame of reference can change according to the emotional state in which it is written, the acquisition of new information, the review of ideas and the effect of time passing

C. An account showing evidence of some reflection

• There is description of the event, but where there are external ideas or information, the material is subjected to consideration and deliberation

• The account shows some analysis

• There is recognition of the worth of exploring motives for behaviour

• There is willingness to be critical of action

• Relevant and helpful detail is explored where it has value

• There is recognition of the overall effect of the event on self – in other words, there is some ‘standing back’ from the event

The account is written at one point in time. It does not, therefore, demonstrate the recognition that views can change with time and more reflection. In other words, the account does not indicate a recognition that frames of reference affect the manner in which we reflect at a given time.

**Exercise developed by Jenny Moon, University of Exeter**
The Critical Reflection

Using Gibbs: Model of reflection

Each reflection should contain the following information:

Description:

- What happened that you are going to reflect on (incident, assignment, event, theoretical idea)?
- What did you do?
- What happened?
- How was it handled?
- What was the reaction/outcome?

Feelings:

- What were your reactions and feelings?

Evaluation:

- What was good and bad about the experience?
- Why did you feel that way?
- Were you happy with the outcome?
- What aspect would you like to change?
## Analysis:

- What sense can you make of the situation?
- Bring in ideas from outside the experience to help you (both personal and theoretical).
- What was really going on (namely what did you *infer* that wasn’t explicitly stated)? What have you learned?

## Conclusions:

- What can be concluded from these experiences and the analysis you have undertaken?
- What strengths and weaknesses did it reveal?
- What new skills/knowledge/attitudes have you acquired?
- Now write an Action Plan
Critically Reflective Discussion

The Critically Reflective Discussion

As a nursing student and future practitioner much of your learning is absorbed within your practice and learning from and within these experiences in critical. Using evidence and drawing on what you have learned from different academic and professional learning contexts, your repertoire of skills, standards, codes of conduct is key to helping your critically reflect in action and make effect decisions.

At university you will take part in skills labs and simulations which involved experiencing different real life contexts and demonstrating your competence in being able to think critically and problem solve. As this will be done in real time, it is critical that you are aware of your own bias and assumptions, adopt an inquiry based attitude, and do not take things at face value. You will need to be able to assess the background of the situation, the context, ask appropriate questions and make recommendations on the case at hand.

The Critically Reflective Discussion builds on the Critical Reflection and aims to help you develop your ‘reflection-in-action’ skills when you are taking part in a role play or scenario based learning activity. In addition it will help you discuss and respond to the scenario as it is happening. It will support you to talk through your learning and what knowledge and skills you have drawn on to make decisions in the moment.

It will develop the critical thinking skills of interpretation, analysis, evaluation, inference and explanation and the graduate attributes: thoughtful, creative, resilient and professional.

This tool will provide a framework to help you develop the skills and attributes you need to critically reflect and make recommendations during your participation in the activity. You may be faced with unexpected circumstances and scenarios which means you will need to draw on your learning from lectures, skills labs, the literature, professional bodies and your code of conduct. The following framework will guide you through this process.

• What is the context?
• What is the problem?
• How can you make sense of the situation?
• Are there any unexpected factors you have not come across before?
• What else do you think is going on which has not been mentioned?
• What skills have you learned which you could apply here?
• What questions do you need to ask to help you make a decision (this could involve some of the oracy framework, e.g. invite discussion, build on ideas, challenge, justify)?
• What conclusions can you draw?
• What recommendations can you make?
• What evidence can you draw on to help you justify your decisions
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>What is the context?</td>
<td></td>
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<tr>
<td>What is the problem?</td>
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<tr>
<td>What evidence can you draw on to help you justify your decisions</td>
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</table>
Critically Write

Aim

This tool has been produced to help you prepare for an assignment which involves writing critically about academic and/or practitioner literature. This could cover a range of assignments from a report, a traditional literature review, an industry briefing paper for a fictitious director that presents them with the latest thinking in a topic area, or a critical essay based on your course topic. This tool will help you develop your CT skills of evaluation, inference and explanation.

Among the terms you will encounter in critical writing will be: research question, argument (sometimes called a thesis statement) and counter argument. These are discussed more in the Argument tool within the toolkit. Put simply, the research question may be 'Critically discuss what should be done to address the increased incidence of obesity in children?' Your argument, which is simply the main point or focus of your assignment, may be that parents should be better educated about nutrition. You will use evidence from your reading and research to support this. A counter argument may be that it is up to the Government to stop advertisers from promoting unhealthy foods. You might synthesise these arguments by saying that although it is crucial that parents are targeted, advertising has an equally important part to play in ensuring better eating habits in childhood. This might be your conclusion as it both answers the research question and presents a balanced argument.

What is a Critical Review?

You may have had feedback on assignments which says “too descriptive” or that there is not enough “critical insight”. It is much harder to write critically than descriptively which is why marking guidelines and rubrics attach higher grades to it.

Descriptive writing will merely describe something, but will not go beyond an account of what appears to be there. You are not developing an argument but representing a situation as it stands without taking the ideas forward in any way through analysis and discussion. Some early assignments in your academic career may have involved descriptive writing in order to check your understanding and application of concepts and theories. However as you progress through the different levels of your studies, you will need to demonstrate an ability to write critically, synthesising arguments from a wide range of sources and providing a balanced presentation of reasons why the conclusions of others may be accepted or should be treated with caution. You will need to present your own evidence
and arguments clearly and recognise their limitations, before coming to your conclusions. By doing this you will become a part of the academic and practitioner debate, interpreting the evidence and explaining it to others. This is why your critical thinking skills of **evaluation, inference** and **explanation** are so important.

**Examples of the Different Between Descriptive and Critical and Analytic Writing**

<table>
<thead>
<tr>
<th><strong>Descriptive</strong></th>
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<tbody>
<tr>
<td>• Summarises what other people have found without saying what these findings mean for your investigation or discussion.</td>
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<tr>
<td>• Usually a chronological list of who discovered what, and when</td>
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</table>

**For example:**

• "Green (2005) discovered ...."
• "In 2007, Black conducted experiments and discovered that ...."
• "Later Brown (2009) illustrated this in ......"

<table>
<thead>
<tr>
<th><strong>Analytical/Critical</strong></th>
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<tr>
<td>• Synthesises the work and succinctly discusses the research conducted in your field helping you to weigh up the relative merits or failings.</td>
<td></td>
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<tr>
<td>• Reveals limitations or suggests how you could take your research further, allowing you to formulate and justify your aims for your investigation.</td>
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</table>

**For example:**

There seems to be general agreement on x (see White 2007, Brown 2008, Black 2009, Green 2009). However, Green (2008) sees x as a consequence of y, while Black (2009) considers x and y as .... On the other hand, Green's work has some limitations in that it ...., its main value lies in ....

**Source:** [http://www2.le.ac.uk/offices/ld/resources/study/critical-student](http://www2.le.ac.uk/offices/ld/resources/study/critical-student)
How do I construct a Critical Review?

Use **The Source, The Critique, The Thematic Analysis Grid** and/or **The Argument Map** in this toolkit to help you find, analyse, interpret and evaluate the information you need.

**Step One: The Source**

A reminder that first of all your need to be clear on what your research question is and be sure you have developed the correct search terms, so that you can find and use the correct sources. Ask your lecturer or LRC staff about this if you are unsure. Refer to your assignment brief and The Source for further support.

Assess the credibility and the usefulness of the sources you identify. How powerful do you think the evidence is? Does it appear to be of sufficient quality? Is it a source you want to cite and include in your reference list? Make sure you are really confident of using your sources, referring to the 5 Step Framework within the Source tool. A common question is how many papers should I read? To find out, you should firstly refer to your assignment brief and ensure that you at least meet or exceed the requirements there. However, in the absence of formal guidance, a useful rule of thumb is that if after reading a number of papers, you find that similar viewpoints keep occurring, then you have probably read enough and should stop – there is no point continuing if you are not discovering any new information! Also, make sure you keep referring back to your assignment brief to ensure you are on track and sourcing information which will help answer the question.

Remember, the quality of your final report will only be as good as the quality of your sources.

TIP: Some writers have a more complicated or difficult writing style than others. This does not mean their work is better than others writing on the same topic. Don’t waste time struggling to understand one writer, if there’s another saying the same thing more clearly.

**Step Two: The Critique, The Thematic Analysis, The Argument Map**

Once you have identified and downloaded your sources, use **The Critique** to analyse and interpret each individual paper and then transfer the key points onto your **Thematic Analysis Grid** and/or **Argument Map**.
Step Three: Critically Write

Review your Thematic Analysis Grid and look for links and connections in order to identify the key themes, and which authors agree and disagree. Sometimes a further argument map can be useful to visualise this.

Use the information from the above to build up a coherent argument or point of view for your answer, demonstrating you understand what authors are saying, how they relate to, or maybe contradict each other with evidence to back up your points. Consider the quality of the evidence and arguments your have read, identify positive and negative aspects you can comment on as well as their relevance and usefulness for your assignment. Then identify how they can best be woven into the argument you are developing and structure your answer according to the specific requirements of the brief.

If you are writing a critical essay, you should start with an introduction setting out the context of your research. Then divide your themes into paragraphs, starting each paragraph with a topic sentence, followed by evidence and explanation. You might then develop your analysis by introducing more references, that either further support or offer a counter argument as appropriate. Your essay should end with a reasoned conclusion that pulls it all together and answers the question or supports the argument you have set out at the start.

Here is an example:

Wason (2016) discussed the importance of using Critically Write to produce a Marketing Insights Paper. Specifically, this author discovered that students who attended a writing workshop obtained a higher mark in their assignment than students who did not attend. This was supported by Southall (2016) who analysed a range of assignments and discovered a higher degree classification for those using Critically Write. In contrast, Gray (2016) found that while reading widely from a range of high quality academic papers increased academic attainment, no specific evidence supported the use of writing workshops. Collectively this would suggest that students should make use of the academic support available balanced with their own independent study.
Language tips

Useful words for linking references together, for example: similarly, moreover, in addition, in contrast, however, as opposed to.

Useful phrases for drawing a reasoned conclusion: therefore, consequently, accordingly, this would imply, collectively this suggests etc.

Finally, here are some hints and tips as to how to improve your writing (Xue, 2016).

- **Avoid unnecessary description** – only include general background details and history when they add to your argument. Remember description is a report of what happened and analysis is judging why it happened.

- **Interpret your evidence** – explain how and why your evidence supports the points you are making – do not just rely on the evidence ‘speaking’ for itself.

- **Be specific** – avoid making points which are difficult to support with the evidence but instead take a measured approach and link your arguments to precise evidence from the literature. Avoid making bold generalisations which are difficult to substantiate.

- **Counter-arguments can strengthen your work** – viewpoints against your arguments should not be ignored! Opposing viewpoints can add value to your own arguments if you explain why they are not as convincing as your own reasoning.

- **Always write in a formal style** – use the third person, use plain language and simple sentences avoid cliches (they are a bit old hat), contractions (write ‘do not’, not ‘don’t’), phrases which sound like speech and/or subjective descriptions.

- **Avoid the over-use of quotes** when you are developing an argument as this can show a lack of understanding and interpretation. If you do use them occasionally, make sure you explain them! Instead, paraphrase (i.e. put the ideas into your own words, but be sure to reference).

- **Avoid phrases that sound like speech** (‘well this bit is really fascinating’)

- **Use plain language**: you don’t have to search for a more ‘academic sounding’ word when a simple one will do. Markers are looking for clear and accurate
expression of ideas, not jargon or confusing language. Shorter sentences are usually clearer than long complex ones, but make sure it is a whole sentence with a subject and a verb and not just a phrase or sentence fragment.

**Step Four: Check Check and Check Again**

When you think you have finished, you have not! Review your work against the following checklist

- What is the balance between description and comment?
- Have I missed out any important dimension of the argument, or literature?
- Have I supported the development of each step in my argument effectively?
- Is the material presented in the most effective order?
- Are there places where the reader is left with unanswered questions?
- Is every element of my research question supported by the preceding material?
- Have I explained to the reader the relevance of each piece of evidence?
- Is there any material that is interesting but which does not contribute to the development of the argument?
- Have I explained adequately the justification for this research approach / topic / question?
- Are my references up to date and presented correctly in Harvard format?
- How effective is my linking of all the elements?

**Step Five: Make Use of Feedback to Improve**

Finally, here are some examples of feedback you may receive to enable you to become more critical in your writing:
• Whilst there are some good examples in this work, it is not an academic essay in the sense that it does not present the findings of studies into the topic and then make a judgment about which views are most convincing. Instead, it relies on personal opinion and anecdotal evidence.

• You have raised some interesting points but your work could be much stronger by remaining focused on one specific argument

• Avoid presenting "big sweeping ideas" without references to substantiate

• To improve, use evidence (references) much more

• To improve and take this to the next grade, consider critically evaluating some of the studies - are the results convincing?

• Avoid using very old papers to illustrate a current situation

• This is not an academic essay which discusses researched evidence to argue for or against a particular point of view. Instead it is an opinion piece, albeit well-written, in a journalistic style

• Link the ideas and concepts more overtly from each of the studies (or write in themes rather than 'paper by paper’)

• Your work needs to move to a more academic style - reviewing studies and providing opposing views, fully referenced, leading you to a position/point of view. Whilst interesting, it is not based on enough credible academic evidence.

• Avoid starting with general, unsupported (i.e. few references) statements – be specific

• Improvements could be made by taking a more critical stance - which studies were more credible and why

**BLASC canvas**

The Business and Law Academic Skills site, run by BLASC (the Academic Success Centre), offers advice and information on all aspects of academic writing from grammar and punctuation to the different sorts of assignments and how to avoid plagiarising. There is also information on other areas of advice and support at Kingston Hill, BLASC opening times and much more. For further information, please contact Reica Gray: r.gray@kingston.ac.uk
How to: Link your writing to develop your argument and create your own voice

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<tr>
<th>Linking Words</th>
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<tr>
<td><strong>Listing</strong></td>
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<td>- First</td>
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<td>- Second</td>
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<td>- Third</td>
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<tr>
<td>- First</td>
</tr>
<tr>
<td>- Furthermore</td>
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<tr>
<td>- Finally to begin</td>
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<td>- To conclude next</td>
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<tr>
<th><strong>Reinforcement</strong></th>
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<tr>
<td>- Also</td>
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<tr>
<td>- Furthermore</td>
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<tr>
<td>- Moreover</td>
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<tr>
<td>- What is more</td>
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<td>- In addition</td>
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<td>- Besides above all</td>
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<td>- As well (as)</td>
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<td>- In the same way not only</td>
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<td>- ... but also</td>
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<th><strong>Summary</strong></th>
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<tr>
<td>- In conclusion</td>
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<tr>
<td>- To conclude</td>
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<tr>
<td>- In brief</td>
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<tr>
<td>- To summarise</td>
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<tr>
<td>- Overall</td>
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<tr>
<td>- Therefore</td>
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<th><strong>Contrast</strong></th>
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<tr>
<td>- Instead</td>
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<td>- Conversely</td>
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<td>- On the contrary</td>
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<td>- In contrast</td>
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<tr>
<td>- In comparison</td>
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<tr>
<th><strong>Similarity</strong></th>
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<tr>
<td>- Equally</td>
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- Likewise
- Similarly
- Correspondingly
- In the same way

**Stating the obvious**

- Clearly
- As can be expected,
- Surely
- After all

**Giving examples**

- For example
- For instance
- As follows:
- That is
- In this case
- Namely
- In other words

**Expressing an alternative**

- Alternatively
- Rather
- The alternative is
- Another possibility would be

**Result/consequence**

- So
- Therefore as a result/consequence
- Accordingly
- Consequently
- Because of this/that
- Thus/hence
- For this/that reason
- So that
- In that case
- Under these circumstances
<table>
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<tr>
<th><strong>Concession, something unexpected</strong></th>
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<tbody>
<tr>
<td>• However</td>
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<td>• Even</td>
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<td>• Though</td>
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<tr>
<td>• However much</td>
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<tr>
<td>• Nevertheless still</td>
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<tr>
<td>• Yet</td>
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<tr>
<th><strong>Reformulation</strong></th>
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<tr>
<td>• In other words</td>
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<tr>
<td>• Rather</td>
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<tr>
<td>• To put it more simply</td>
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<tr>
<th><strong>Generalising</strong></th>
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<tr>
<td>• In general</td>
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<tr>
<td>• Generally</td>
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<tr>
<td>• On the whole</td>
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<tr>
<td>• As a rule</td>
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<tr>
<td>• For the most part</td>
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<tr>
<td>• In most cases</td>
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<tr>
<td>• Usually</td>
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<table>
<thead>
<tr>
<th><strong>Highlighting</strong></th>
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<tr>
<td>• In particular</td>
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<tr>
<td>• Particularly</td>
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<tr>
<td>• Especially</td>
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<tr>
<td>• Mainly</td>
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<tr>
<th><strong>Transition to new point</strong></th>
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</thead>
<tbody>
<tr>
<td>• Now,</td>
</tr>
<tr>
<td>• As far as x is concerned</td>
</tr>
<tr>
<td>• With regard/reference to</td>
</tr>
<tr>
<td>• As for ...</td>
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<tr>
<td>• It follows that</td>
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<tr>
<td>• Turning to</td>
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<table>
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<tr>
<th><strong>Deduction</strong></th>
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<tbody>
<tr>
<td>• Then</td>
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<tr>
<td>• In other words</td>
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</tbody>
</table>
- In that case
- Otherwise
- This implies that … is so/not

Here are just a few examples of some of the words in action:

<table>
<thead>
<tr>
<th>Reinforcement</th>
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<tbody>
<tr>
<td>Desktop computers are cheaper and more reliable than laptops; <strong>furthermore</strong>, they are more flexible.</td>
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</table>

<table>
<thead>
<tr>
<th>Result / Consequence</th>
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<tbody>
<tr>
<td>Prices fell by more than 20% last year. <strong>As a result</strong>, sales increased by 15%.</td>
</tr>
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<table>
<thead>
<tr>
<th>Generalising</th>
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<tr>
<td>On the whole, his speech was well received, <strong>despite</strong> some complaints from new members.</td>
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<tr>
<th>Contrast</th>
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<tbody>
<tr>
<td>The South East of the UK often has the coldest weather in the winter. <strong>Conversely</strong>, the North West of Scotland frequently has the mildest temperatures.</td>
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<table>
<thead>
<tr>
<th>Concession</th>
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<tbody>
<tr>
<td>It was a very expensive holiday, the weather was bad and the people weren’t very friendly. <strong>Nevertheless</strong>, we would probably go back to the same place.</td>
</tr>
</tbody>
</table>
Linking references together to develop your point of view

Once you have completed your reading of papers, professional sources and relevant textbooks and have analysed them to pull out the key themes and the main arguments, you will need to start writing your assignment. You will be expected to use quotes and material from your reading to support your claims and to help you develop your own arguments. This evidence will show how you have reached your conclusions.

The following section outlines how to reach a reasoned conclusion in a paragraph.

Start with what is known.

Most paragraphs start by introducing the main topic of discussion. You can do this by repeating what an author has said about what you are going to discuss. For example:

Jack (2010) stated that students do best in the subjects where they enjoy the teaching style.

Expand this with more of what is known.

You can build your paragraph by developing this first sentence. You could give more detail about what this author actually said. For example:

Jack (2010) stated that students do best in subjects where they enjoy the teaching style and are actively involved in activities. Specifically, this author found that those subjects which were taught by lecturers and tutors who were seen as engaging and “interesting”, tended to get the best results across a year group of students who were all of a similar standard.

Develop this with other points of view from other writers on the topic.

Jack (2010) stated that students do best in subjects where they enjoy the teaching style and are actively involved in activities. Specifically this author found that those subjects which were taught by lecturers and tutors who were seen as engaging and “interesting”, tended to get the best results across a year group of students who were all of a similar standard. These findings are supported by Jill (2012) who
found that students do well when they are fully engaged in a wide range of participatory sessions taught by energetic and knowledgeable staff.

There are other phrases you can use to link references together.

<table>
<thead>
<tr>
<th>To show agreement and support the previous reference</th>
<th>To show disagreement and present a different point of view than the previous reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likewise</td>
<td>However</td>
</tr>
<tr>
<td>Similarly</td>
<td>Alternatively</td>
</tr>
<tr>
<td>In addition</td>
<td>In contrast</td>
</tr>
<tr>
<td>Furthermore</td>
<td>As opposed to</td>
</tr>
<tr>
<td>Moreover</td>
<td>Nevertheless</td>
</tr>
</tbody>
</table>

**Draw a reasoned conclusion with your last sentence**

Once you have presented all your evidence you should draw a reasoned conclusion about what you have discussed.

You can introduce your conclusion using a range of words or phrases:

- Therefore
- Consequently
- Based on this
• This would imply

• Collectively, this would suggest….

Jack (2010) stated that students do best in subjects where they enjoy the teaching and are actively involved in activities. Specifically, this author found that those subjects which were taught by lecturers and tutors who were seen as engaging and “interesting”, tended to get the best results across a year group of students who were all of a similar standard. These findings are supported by Jill (2012) who found that students do well when they are fully engaged in a wide range of participatory sessions taught by energetic and knowledgeable staff. Consequently, it would seem that developing teaching staff who are energetic, enthusiastic, knowledgeable and prepared to use a wide range of interventions that involve students in active learning, is to be encouraged.

Stating your opinion (without using “I”)

The following linking words will allow you to hint at your opinion or your attitude without using the first person e.g. I think,

I believe, In my opinion……

• Apparently

• Arguably (this demonstrates that you know/understand that there is/could be another point of view)

• Ideally

• Certainly

• Unexpectedly

• Obviously
# Glossary of Academic Terms

Please use this template as a guide to the different terms you will come across during your studies and refer back to these when you have to produce an assignment or for your exam revision. Feel free to add additional terms you come across!

<table>
<thead>
<tr>
<th>Academic Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theory</strong></td>
<td>A theory is a specific explanation of a particular subject or group of facts: e.g. Einstein’s Theory of Relativity, or Maslow’s Hierarchy of Needs.</td>
</tr>
<tr>
<td><strong>Concept</strong></td>
<td>A concept is less specific than a theory and can refer to an idea or belief. Ideas can change, be proved or be disproved. While you will probably refer to a theory in your work, you are more likely to challenge a concept as it is less definite.</td>
</tr>
<tr>
<td><strong>Evidence</strong></td>
<td>Evidence is what you provide to support your ideas, concepts or beliefs. This is where your reading comes in. You should cite (i.e. quote or paraphrase) the academic articles or journals you have read to strengthen and reinforce the point you are making (your argument).</td>
</tr>
<tr>
<td><strong>Literature Review</strong></td>
<td>A literature review will summarise, compare and weigh up the literature on the topic you are discussing. It will show the current thinking on the topic and can also be where you identify any gaps in the area. Gaps are useful as they can give you something new to discuss!</td>
</tr>
<tr>
<td><strong>Systematic Review</strong></td>
<td>A systematic review is a review of several studies, such as clinical or controlled trials, to provide a summary of current evidence. Perhaps some found that an intervention was successful, but others found that it was not. By reviewing all the trials together, systematic reviews can propose whether or not, or in what circumstances, the intervention should be used.</td>
</tr>
<tr>
<td><strong>Empirical Study</strong></td>
<td>Empirical means something that is based on evidence, not just theory. So if your study and results are based on interviews you have carried out or first-hand experience, then it is empirical.</td>
</tr>
<tr>
<td><strong>Inferential connections</strong></td>
<td>Something that is inferred is something that is not directly stated: you will work out for yourself, basically by ‘reading between the lines’. An inference therefore is a conclusion that is based on logical analysis of the evidence. When you begin to see a pattern emerge, based on what you have inferred, you will start making inferential connections.</td>
</tr>
<tr>
<td><strong>Synthesise arguments</strong></td>
<td>To synthesise arguments means to bring them together. The word argument doesn’t mean the various points of view have to contradict each other (although they may). It really means you should identify the relationship between them and draw conclusions accordingly.</td>
</tr>
<tr>
<td><strong>Use a range of evidence</strong></td>
<td>A range of evidence means not relying solely on your course textbook, but on books, journals, professional sources. Just make sure these ‘sources’ are suitably academic or relevant. If you have a question about this, you can check with an advisor in the library.</td>
</tr>
<tr>
<td><strong>Demonstrate a critical ability</strong></td>
<td>A critical ability doesn’t just mean you can criticise something. It means that you can make a judgement about it. It also means that you don’t accept things at face value but can weigh up and consider what is being said and, with the help of the reading and research you have done, draw your own conclusions.</td>
</tr>
<tr>
<td><strong>Critically Evaluate</strong></td>
<td>You will use your critical ability (see above) to weigh up a statement, or findings or research and say whether or not you agree with them. To do so, you will need to provide evidence from a range of sources (see evidence).</td>
</tr>
<tr>
<td><strong>Descriptive Writing</strong></td>
<td>Descriptive writing does just that: it describes what happened but without analysing or evaluating it. The majority of academic writing is ‘critical’ and you should assume it is unless specifically told to ‘describe’ a situation, event, test etc.</td>
</tr>
<tr>
<td><strong>Theme</strong></td>
<td>A theme is the underlying idea or topic which is discussed within an academic paper e.g. data privacy, cultural identity. Authors can have different perspectives on this theme which is why claims and counterclaims are developed within different papers. Themes are often linked to theories and concepts.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Claim</td>
<td>An argument with supporting evidence to back up.</td>
</tr>
<tr>
<td>Counterclaim</td>
<td>An opposing view based on a sound argument.</td>
</tr>
<tr>
<td>Rebuttal</td>
<td>A response to a counterclaim.</td>
</tr>
<tr>
<td>Refute</td>
<td>To prove an argument wrong.</td>
</tr>
<tr>
<td>Qualify</td>
<td>To partly agree with a claim and partly agree with a counterclaim.</td>
</tr>
</tbody>
</table>
Critically Connect

The purpose of Critically Connect is to help you make connections between each of the CT tools in this toolkit and use them together as appropriate in different learning contexts. It will also help you see how The Critical Thinking Skills Toolkit provides you with an anchor to refer to as you make your way through the journey of your degree. The toolkit not only helps you to do well in your studies, but also to develop the key attributes for the career you want to enter. Critical thinking is more than just developing a set of skills. It’s about becoming a scientist, or a nurse, a journalist, a social worker, a business manager. Whatever your choice of career, using the toolkit will prepare you for this. It will help you recognise the importance of using an evidence base to solve complex problems, draw conclusions, make decisions and recommendations.

The toolkit also helps you develop the attributes to be a critical thinker: to be curious, open minded, to see other people’s perspective, to challenge and be challenged, be aware of your own bias and use your judgement. Don’t forget that you are not just studying the content of your degree. This of course is incredibly important. But there are other layers to your learning. The content is the core, but the flesh around it is critical thinking. It helps and supports you to access this core knowledge and to interpret and use it. It empowers you to be able to think about the theories and concepts you have learned, apply them to practice and contextualise them.

So in summary, The Critical Thinking Skills Toolkit enables you to connect together the skills, dispositions and attributes you need to access your disciplinary knowledge as well as get ready for employment and participate effectively in society. This is illustrated in the diagram below.
Practise makes perfect!

Don’t forget the best way to develop your critical thinking skills is through practise and to progressively build the skills you have developed. The more you use the tools and worksheets, the better you will be at filling them out. Keep these as a record and use the findings to develop a deeper understanding of what you are learning.

It is also a good idea to make a note of the tools you have used on the Recording your Progress Sheet which is part of this tool. This will help you keep a record of what you have used and what you have learned, which will be a useful resource to refer to as part of your learning journey. Also, don’t forget to records of the toolkit worksheets for discussion and learning!

The Process of Critical Thinking

Critically Connect is designed to make you aware of the multiple benefits of using the toolkit and also illustrate how each of the tools connect together. Remember that you need to train yourself and learn how to do this. It is a process which involves a series of jigsaw
Critical Thinking for Academic Success

A good place to start is often the assignment which you are given to do. Go through the assignment brief carefully. Perhaps refer to the Critically Listen tool where you have recorded key concepts from a live or recorded lecture to familiarise yourself with some of the key information you may need to use. Look at The Source 5 Step Framework on page 27 of the toolkit. Think about the key question the brief asking. Develop some search terms. Attend the library sessions about finding sources. Use the Source Worksheet on page 31, to record your findings. Be prepared to discuss these in class. Once you have identified what sources to use you can use Read Right, Practitioner Insights, and the Critique to interpret, analyse and critique the content of these sources. Don’t forget that you need to differentiate between the sources and use the correct tool for each one: Read Right for textbooks; Practitioner/Professional Insights for data in professional sources like website, trade journals and The Critique for academic sources. Sometimes your tutors will ask you to bring these findings into class to discuss with your peers (this type of discussion can really help you develop your critical writing in assignments). This is where Critically Speak on page 19 can be really helpful. It contains a range of different types of language to use to discuss your argument and help you find your own voice in a discussion, using evidence. It can also be used for example with The Argument tool which can help you prepare for these types of discussions by recording the main claim you are making and the evidence for and against this claim. Or The Argument Map where you may have more complex arguments. This can also be really helpful in a debate!

Another very important assessment where you need to use critical thinking is when you have to write a literature review and synthesise a range of different themes, identify the similarities and differences and draw a conclusion with evidence. This is where the Thematic Analysis Grid on page 60 is very useful and should be used to draw out the themes you have identified from individual research papers using The Critique. Sometimes you will need to find these papers yourself and sometimes they will be given to you. Either way you will need to critique their credibility using The Source. The TAG can also be used with The Argument Map to help you visualise the different themes and perhaps use colour coding to identify the similarities and differences. Once you have done this you can bring all of these together to write your assignment using structure and language guidance from Critically Write.
Finally don’t forget **The Critical Reflection**. This can be used within an assignment where you are tasked with reflecting on what you have learned and what you could do better next time. This could also be for group work or for an in class activity. **The Critically Reflective Discussion** can be used for skills or simulation based activity but don’t forget you can also draw on these learnings and take them into a more academic type of activity.

**Critical Thinking for Employability**

Don’t forget that using the toolkit enhance your employability. For example, **The Source** tool can help you find a range of credible sources for your career searches. You could record your search terms about companies, different roles and functions and to document the sources you find. This could be teamed up with **Practitioner Insights** where you could analyse and collect your findings about these companies and roles and use this information within your job applications. This type of evidence is very useful to discuss during the recruitment process and can really help you demonstrate your critical thinking to your potential employers. Reflection is used a lot in the workplace to learn from experiences, enhance performance and can form the basis of discussions about your job role and progress with your employer. **The Critical Reflection** can help with this. Also don’t forget that some employers, for example in health professions, may use a simulation type assessment. This is where **The Critically Reflective Discussion** could be very useful. So remember the transferability of the toolkit between your academic studies and how you can use it to enhance your employability. **Critically Speak** to could also provide you with language tips to help you participate professionally in work experience and in applications for jobs.

Good luck with it all! Don’t forget to talk to your tutors, librarians, fellow students about what you are learning! And record this in the Recording Your Progress Worksheet!
Critically Connect – Worksheet
Formative Activity - Recording your Progress

Date Used: ______________________________________________________
CT Tool: ______________________________________________________
Activity: ______________________________________________________
In class / Online / Independent study (please highlight)

Reflections:

• How did you use the tool?
• What did you learn?
• What would you improve for next time?

Question(s):
References


