International Journal of Teaching and Learning in Higher Education 2018, Volume 30, Number 3, 433-442
http://www.isetl.org/ijtlhe/ ISSN 1812-9129

Exploring First Year Undergraduate Students' Conceptualizations of Critical Thinking Skills

Karen Forbes
University of Cambridge

The development of critical thinking skills forms an important part of many higher education courses and has become increasingly visible in syllabi and assessment criteria. Yet, in spite of this, students often struggle to understand what it is and to demonstrate it in their work. This paper aims to explore how students understand the term critical thinking and to identify some of the key factors which influence this. An in-depth case study was conducted with four first-year undergraduate students in the education faculty of a university in England. Data were collected through thematic interviews and stimulated recall interviews. Key findings highlight that students believe strongly in the importance of developing critical thinking skills, yet while they can speak relatively easily about more abstract definitions of the term, they often find it difficult to do and to identify in their own work. Findings suggest that their conceptualizations are influenced by their prior educational experiences and vary according to discipline. Implications for pedagogy include the need for explicit guidance on critical thinking, the provision of substantial opportunities for practice, and the need to engage in dialogue across disciplines to highlight opportunities for promoting connection-making and transfer between different contexts.

Across the Western world educators, policymakers, and employers have demonstrated a sustained interest in teaching critical thinking as both an important life skill and an asset to the future workforce (Huber & Kuncel, 2016; Ku, 2009). In the UK, critical thinking has been identified as a key area to be cultivated and assessed in higher education institutions (HEQC, 1996). As such, it has become a central tenet of tertiary level education and often forms an explicit part of courses and assessment criteria across a wide range of disciplines. Yet, in spite of the emphasis placed on the importance of developing critical thinking skills both within and beyond the university system, students often struggle to understand what it is and to demonstrate it in their work (Duro, Elander, Maratos, Stupple, & Aubeeluck, 2013). The aim of this paper, therefore, is to explore how students conceptualize critical thinking with a view to developing pedagogical strategies to better support them.

Literature Review

In spite of the general recognition of the importance of critical thinking, as outlined above, there remains widespread disagreement about what it actually is (Mulnix, 2012). The aim of this section is to firstly provide an overview of some of the key perspectives on critical thinking, with reference to philosophers of education such as Robert Ennis, Richard Paul, and John McPeck, in order to establish a working definition for the purpose of this paper. Critical thinking will then be considered from a student perspective, and some key factors which may influence students' ability to become critical thinkers will be examined.

Philosophical Perspectives on Critical Thinking

Critical thinking is generally considered to be a form of higher order thinking and, as such, is distinct from forms of lower order thinking such as recall and direct application of knowledge. Yet, as Rudd (2007) highlights, the two are not necessarily synonymous, and even though critical thinking utilizes higher order thinking, it should not be used as a "catch-all" term. However, a universal definition of critical thinking remains elusive and debates center largely around whether or not it constitutes a particular skill, as well as the extent to which it is discipline-specific or transferable between contexts.

Early definitions emphasized critical thinking as a particular skill or set of skills, such as generalizing, reasoning, and evaluating. For the philosopher of education Robert Ennis, emphasis was initially placed on the more cognitive component, and critical thinking for him entailed the "correct assessing of statements" (1962, p. 81). However, this definition became more holistic over the years and was broadened to encompass "reasonable reflective thinking that is focused on deciding what we believe and do" (Ennis, 1987, p. 10). This additional recognition of a dispositional component suggests that, "[B]esides the ability to engage in cognitive skills, a critical thinker must also have a strong intention to recognise the importance of good thinking and have the initiative to seek better judgement" (Ku, 2009, p. 71).

A similar view was held by Paul (1982), who also emphasized the skills associated with critical thinking. In later work with colleagues, he defines it as "the intellectually disciplined process of actively and skilfully conceptualising, applying, analysing, synthesising, and/or evaluating information gathered from, or generated by observation, experience, reflection,

reasoning or communication, as a guide to belief and action" (Scriven & Paul, 2008a). Importantly, the use of the term "intellectually disciplined" here suggests that the authors view critical thinking as a learned skill that can be developed rather than something which is innate. Such a view of critical thinking as a "process" is similarly emphasized by Mulnix (2012). For Paul, critical thinking also requires an in-depth knowledge of oneself and is self-directed, self-disciplined, and self-monitored (Scriven & Paul, 2008b).

However, if critical thinking can be considered as a skill or set of skills, there is still no clear consensus as to whether such skills are generic and can be applied across disciplines or whether they are more closely related to specific subject knowledge (Duro et al., 2013). Both Ennis (1996) and Paul (1982) argue that critical thinking can be learned independently of specific disciplines and transferred between contexts, however with the caveat that the learner must have at least a threshold level of competence in a particular discipline for this to hold true. Yet McPeck (1981) claims that critical thinking is both specific to, and dependent on, a particular discipline, and that in order to be a critical thinker it is necessary to have a thorough knowledge of the content. A similar view is held by Willingham (2007), though this time from a psychological perspective, who in turn suggests that critical thinking is fundamentally intertwined with domain knowledge and, as such, is highly discipline-specific and non-transferable across disciplines.

Yet this implies that a different skill set is required for different disciplines, which does not seem feasible given the widespread emphasis placed on critical thinking across different subject areas and professions. It would seem logical, therefore, that if particular skills of critical thinking are developed in one context, they could be applied to another. This may not happen automatically, however, as suggested by Billing (2007), training in critical thinking can be effective for transfer when abstract principles and rules are coupled with examples.

Given the literature considered above, it would seem that critical thinking, as suggested by Mulnix (2012), should be considered as a process and a skilled activity of thought which includes a commitment to using reason in the formulation of our beliefs and that it can be possessed to a greater or lesser degree. Critical thinking can transcend disciplines and "has little to do with *what* we think, but everything to do with *how we* think" (p. 466).

Understanding Critical Thinking: The Student Perspective

While the literature above considered critical thinking from a more philosophical and theoretical perspective, it is also important to take into account empirical studies which investigate the way in which it is understood and operationalized in the university context. Although there are some empirical studies which focus on conceptualizations of critical thinking among academics or teachers (e.g. Moore, 2013), there has been less focus on the students.

One exception to this which is highly relevant to the current research, is a study conducted by Duro et al. (2013) into the understandings of critical thinking among 26 undergraduate students of psychology at a university in England. Data were collected through focus groups, and the questions asked participants to define critical thinking and to discuss the extent to which they felt they could demonstrate it in their work. It should be noted, however, that this study focused only on the general views of the participants and did not include discussion of concrete examples of students' work. As such, it may not have been possible for the researchers to capture more in-depth and reliable insights into what students actually do.

However, in spite of this, the study was useful in shifting the focus from the teachers to the students, and the findings gave rise to practical implications for promoting critical thinking. Four main themes emerged which were termed by the authors as "vague beginnings," "conceptualizations," "development and transitions," and "learning strategies." Students' understandings of critical thinking were initially very vague in that they believed that it was an intuitive ability that could not be explicitly taught. It was believed to be a transferable skill and one which was highly relevant outside academic life as well. The students described the ways in which their critical thinking developed slowly over time, which is in line with the literature cited above. The participants also referred to the role of social interactions, both with peers and with tutors, in this development. As such, the authors surmised that explicit demonstration, explanation, and provision of opportunities to engage in critical thinking on the part of the tutors were important.

Factors Which Might Influence Critical Thinking

While the above study provided an overview of students' views of critical thinking, it did not consider the complex individual or contextual factors which may have influenced these views. It is also important, therefore, to recognize that students do not come to university as *tabulae rasae* and, as such, we must acknowledge the role of their prior academic experiences.

Given that conceptualizations of critical thinking among academics and theorists differ between disciplines (Moore, 2013; Swanwick et al., 2014), it seems logical that this in turn will influence the students' understanding of, and engagement with, such thinking. As such, it is important to consider that undergraduate students, particularly those in the social

sciences, will often come to the university from a wide range of academic backgrounds. Some students will have focused more heavily on arts and humanities subjects at school and may find themselves working alongside peers who predominantly studied science subjects in the year or two prior to attending the university. This will undoubtedly shape their initial conceptualizations of critical thinking in a new discipline. While, as suggested above, critical thinking is not necessarily discipline-specific, nonetheless it will take time and effort to 'translate' and adapt pre-existing skills accordingly.

Research Questions

An evaluation of the research explored above led to the current qualitative study which explores conceptualizations of critical thinking among first year undergraduate students of education at a university in England. The following research questions were identified:

1. *How do students understand the term 'critical thinking'?* While existing research provides some general characteristics of critical thinking, it is important to fully understand how students within a specific context understand and operationalize this. This is particularly important given the emphasis placed on critical engagement within higher education more broadly.
2. *What are the key factors which influence the way in which students conceptualize critical thinking?* As suggested above, students' conceptualizations of critical thinking may be influenced by a range of individual and contextual factors such as their prior learning experiences and academic backgrounds. It is important to understand how such experiences may both facilitate and hinder their understanding of, and ability to engage with, critical thinking.
3. *What strategies could be used to support students' development of critical thinking skills?* This study ultimately aims to identify some strategies for higher education practitioners which can be used to help students to develop their critical thinking skills.

Method

In order to answer the above research questions, a small-scale case study was conducted to explore first year undergraduate students' conceptualizations of critical thinking. This study is situated within a constructivist paradigm which is considered to be idiographic, subjective, and generally associated with qualitative research. A constructivist view holds that "social properties are constructed through interactions between people rather than having a separate existence. Meaning does not exist in its own right; it is constructed by human beings as they interact and engage in interpretation" (Robson & McCartan, 2016, p. 24). As such, it implies a focus on the individual and the way in which he or she makes sense of the world through his or her experiences, which allows the researcher to gather a complexity of views. The central aim of research from a constructivist perspective is *understanding*, and as such it constitutes an appropriate framework in which to situate the current study. The purpose of this study is not to start with a theory, but instead to "generate or inductively develop a theory or pattern of meaning" (Creswell, 2014, p. 8) from the data.

Research Context

This study was conducted with first-year undergraduate students taking a course on language and literacy in the education faculty of a university in England. The course draws predominantly on theories from sociology and psychology. This is a compulsory course for students of education; however, it is also an optional module for students studying for a degree in psychology, and they normally constitute about 50% of the group. This means that the students come from a wide range of academic backgrounds in terms of subjects they studied at school, ranging from the purely humanities-based to the purely science-based. First year students are also an important focus of research into student learning in higher education given that they are coping with a steep transition from secondary to tertiary level education (Harvey & Drew, 2006).

The assessment criteria for undergraduate students in education places a lot of emphasis on critical engagement, particularly in the higher mark "bands". Interestingly, the word "critical" does not appear in any criteria below an upper second class grade; therefore, it is one of the key features that students are striving to include. At this level, students must show "a capacity to engage critically with arguments and evidence," while to get a first-class grade it is expected that students will answer the question "relevantly and critically" and demonstrate "strong powers of analysis and synthesis in developing arguments."

Research Design: Case Study

The participants of this study were four first year students in the 2016/17 academic year who represent a range of backgrounds and courses (see Table 1). As such, this is a case study which aims to focus on several "instances of a particular phenomenon with a view to providing an in-depth account of events, relationships,

Table 1
Overview of Participants

Pseudonym	University degree course	School subjects studied at advanced level
Denise	Education with English and Drama	Drama, English, Music, Psychology
Lucy	Education with Geography	English literature, Geography, Philosophy, Sociology
Maria	Education with English and Drama	Drama, English, French, Philosophy
Orla	Psychology	Biology, English literature, English language, Psychology

experiences, or processes occurring in that particular instance" (Denscombe, 2010, p. 52). Given the small number of participants the aim of this study is not to generalize, but instead to look closely at *how* they understand critical thinking with a view to discovering how students can be best supported to develop these skills. As such, in line with a case study approach, the aim of this study is "to illuminate the general by looking at the particular" (Denscombe, 2010, p. 53).

Research Method: Interviews

A number of existing studies into critical thinking have taken a more quantitative approach, using multiple choice tests, such as the Watson-Glaser Critical Thinking Appraisal (Watson & Glaser, 1980) and the California Critical Thinking Skills Test (Facione, 1990), to assess and measure students' skills. In these tests statements are set within a general context and are designed to be discipline-neutral. However, they have more recently been questioned on the grounds of their construct validity and reliability (Ku, 2009). Also, it could be argued that such a tool does not reveal the complexity of participants' reasons for choosing a particular answer.

As the aim of this study was rather to gain an in-depth understanding of students' conceptualizations of critical thinking, it was considered more appropriate to conduct semi-structured interviews, lasting 20-30 minutes, with each participant. The aim of the interview was primarily to ask the students about how they defined critical thinking and drew on general prompts used by Duro et al. (2013) (see Appendix). However, given that this is a relatively abstract topic, two of the students were also asked to bring along a recent piece of written work to reflect on during an additional stimulated recall interview. The theoretical foundation for using such a stimulus relies on "an information processing approach whereby the use of, and access to, memory structures is enhanced, if not guaranteed, by a prompt that aids in the recall of information" (Gass & Mackey, 2000, p. 17). The assumption therefore, is that it is easier for students to discuss issues surrounding critical thinking when they have a particular concrete experience in mind. Due to the variation in essay submission deadlines and examinations, unfortunately it was not possible to conduct the stimulated recall element with all four students. Interviews were recorded and transcribed verbatim.

Analysis of Data

A thematic coding approach was used for analysis. As stated by Robson (2011), this method "provides a means of summarizing key features of large amounts of qualitative data using a principled approach" (p.477) and consists of five key phases: familiarizing yourself with the data, generating initial codes, identifying themes, constructing thematic networks, and integrating and interpreting. Key themes which emerged included, for example, critical thinking across disciplines, the role of the tutor, and prior educational experiences.

Ethical Considerations

It is important to recognize that "all research involving groups of people interacting with each other has an ethical dimension" (Wilson & Stutchbury, 2009, p. 65). This study was conducted in line with the guidelines set out by the British Educational Research Association (BERA), which states that "all educational research should be conducted with an ethic of respect for: the person, knowledge, democratic values, the quality of educational research, and academic freedom" (2011). Students were fully informed about the aim of the study and gave their consent to take part. All reasonable measures were also taken to ensure the validity and reliability of the research. For example, the use of both general interview questions and retrospective stimulated recalls based on a specific task allow for some form of triangulation which contributes to the internal validity of the study.

Results

How Do Students Understand the Term "Critical Thinking"?

There were three main themes which emerged from the interviews with regard to the students' understanding of the term critical thinking. First, they overwhelmingly considered it to mean not taking everything at face value; second, it was viewed as an

evaluation of the ideas of others in order to develop their own thinking; and third, there was some uncertainty surrounding the difference between critiquing and criticizing. However, all students believed strongly in the importance of developing critical thinking skills. This section will consider each of these themes in turn.

Not taking everything at face value. Interestingly, even though the students found critical thinking to be quite an abstract concept and something which they found quite difficult to do, as will be explored further below, paradoxically they seemed to be able to provide a definition quite easily. All of the participants primarily conceptualized critical thinking as "not taking everything at face value" (Lucy). Denise similarly suggested, "[I]t's like seeing a piece of evidence that's like, 40%, and thinking about the 60% as well, like, kind of looking at it more all-rounded." Interestingly, all of the examples they gave were specifically related to the evaluation of empirical studies, such as considering "the strength and limitations of studies" (Orla) and "thinking more about the study itself" (Maria), rather than engaging more generally with concepts.

Evaluating the ideas of others to lead to your own. There was also a consensus that the first step in critical thinking is to "look at what other people have said about something" to then "come up with your own ideas" (Orla) or "come up with your own conclusion of which one you think is stronger and why" (Maria). Yet, while Denise expressed a similar view, she was much more tentative in doing so and was unsure about the sort of evidence she could provide to support her own opinions:

> I mean at this stage you're not a researcher, it's kind of hard to be like, this is my view and I have the research to support it. But I feel that you can kind of, like, even if you are going to side with the yes or no, it just helps to say, you know, I can understand why people would believe this but this is the kind of, this is what they're not looking at, or this is what they're missing. Which I think is important.

Critique vs criticism. The above quote from Denise also somewhat links to the next key theme which emerged in the interviews, which was the role of criticism in critical thinking. While the students' views on the above themes were more or less in line with each other, this was the key point in which there was some disagreement. Orla thought of critical engagement with studies as a consideration of "what was wrong, what they could have done better" and seemed therefore to conflate critique with criticism. Maria was more tentative in this regard and instead spoke about negotiating the "fine line between sort of just being like 'I think this, that's why this study's wrong' and, kind of like, engaging with it properly." However, she was unsure what exactly she meant by "engaging with it properly."

Lucy, on the other hand, positioned herself very much as a "student" and struggled with how to engage critically with (which she also associated to some extent with criticizing) published works:

> There's no way I'm challenging someone who's done 10 years' worth of study on something they feel so passionately and strongly about… I'm not going to say that's wrong, like, because surely you've put so much into that and I'm just coming in with like, literally 3 or 4 months' worth of knowing about this, and how can I really give a valid interpretation of that?

Lucy, therefore, identified building up what she referred to as "foundational knowledge" in a subject as crucial for being able to engage critically with it and to provide a solid justification or rationale for opinions. This view was echoed by both Denise and Orla, with the latter stating, "[T]he more you read, the more ideas you're aware of and the more things you can use to engage with something."

Importance of critical thinking. One theme which emerged among all four participants was the importance of developing critical thinking skills, not just for their current course, but also for their future careers. Interestingly, all of their comments related to the broader societal relevance of such skills rather than more immediate, instrumental reasons related to getting good marks in exams and essays. Lucy, for example, is considering a career in teaching and viewed critical thinking not only as important for her own development, but also as a key skill she would pass on to her own students one day:

> I think it's quite important to instil that idea of telling them to not just take everything at face value and maybe have their own perceptions and readings of things, and to do it from a young age I think would be a really productive skill for children to learn.

The implication here is that, for Lucy at least, critical thinking is a skill which can be actively taught and developed. Similarly, Maria said that she couldn't imagine a career where it would not be relevant. Orla and Denise focused more on the importance of critical thinking more generally in today's society. Denise in particular felt strongly about this:

> [I]t should be a massive priority, especially in the world we live in now, this like, 'fake news' world… I think it's important to kind of, make people actually think and sort of build the world for themselves rather than just like, accept it. Cause I feel that you need to be able to think to make any form of like, change I guess.

What are the Key Factors Which Influence the Way in Which Students Conceptualize Critical Thinking?

This section will consider the extent to which prior school experience and, crucially, different subjects and disciplines influence the way students conceptualize critical thinking.

Prior school experiences. There were several comments which indicated that the students had very different prior experiences in terms of explicit exposure to critical thinking as a skill more generally. Lucy, for example, mentioned that she only became aware of critical thinking in university, as she perceived that in school, "[Y]ou're not really as much taught to question things, you're just kind of taught this is a study and this is what it means." For Orla, critical thinking had been present at school, but very implicitly and she seemed to have lacked an awareness of this at the time:

> I don't think we used that exact term at school, but when we started using it here I thought ah, that's what we did in like, psychology when we were discussing limitations and stuff of studies. But we didn't use the term critical engagement.

At the other extreme, Maria spoke of having had timetabled "critical thinking" classes during her first three years of secondary school (age 11-14). She described it as "kind of like history," where the teacher would circulate a source text and lead a discussion. Yet when asked whether she felt this helped her to develop her thinking skills, she said, "[W]e didn't really know [how well we were doing] I suppose… [I]t was just sort of like a little thing we did once a week." As such, it was not assessed, nor does she remember receiving any form of feedback either formally or informally.

Even though the varied experiences of the students in secondary school did not seem to influence strongly their current conceptualizations of critical thinking, it raises questions surrounding the explicitness of teaching such skills. If this is so implicit that the students are not aware of what they are doing, to what extent will they be able to develop these skills or indeed transfer them to different contexts?

"Critical engagement in one discipline is completely different to another one." As this quote by Denise suggests, the overwhelming factor which seemed to influence the way students thought of, and engaged with, critical thinking was the particular discipline or subject. Lucy went a step further and suggested that "it's easier to be critical in some subjects than others". The main differences were discussed in relation to psychology, sociology, and philosophy, three of the four core disciplines of education covered in the first-year course. All students also referred to English literature; even though only two of them were currently studying this as part of their degree, all had studied this to an advanced level in school.

Critical thinking in psychology was very much considered from a "research methods point of view" (Denise) and was generally viewed to be slightly easier as it was more "controlled" (Denise). Orla described it as almost formulaic: "[T]here are almost like, a limited number of like, things you can say about the study like, you always refer back to like, sample sizes and generalisability and just like, use the same sort of terms." In sociology, however, students were a lot less clear about how to demonstrate their critical thinking. Lucy described it as "really different in terms of how you engage with stuff… you'd have different theories and then you put them against each other," which was perceived as more difficult to do. Denise admitted that she didn't really understand how critique works in sociology, "so I don't really engage with it that much."

Similar comments were made by the students in relation to the two more humanities-based subjects: English literature and philosophy. Critical thinking often arose because "there's no right or wrong answer, so it's just how you engage with the text mostly and sort of, engage with ideas" (Maria). It was seen to some extent as more "broad" (Orla), yet also more accessible because students felt that there was less chance they could be wrong: "[Y]ou can listen to more perspectives and then develop your own, whereas in science I feel like it can often be a lot more right or wrong, or like provable or not provable" (Denise). Lucy also felt like that in subjects like English it was possible to justify her views based on the text in front of her, and there was therefore less pressure to have wider "foundational knowledge."

It seems, therefore, that that students' perceptions of, and engagement with, critical thinking differ widely between subjects and disciplines. As such, their views are unlikely to be very coherent if the underlying attitudes and perceptions of the disciplines (and maybe by extension the way in which the various tutors address critical thinking) differ so widely. Perhaps then, tutors and supervisors should engage more explicitly in dialogue with students and each other about the differences and particular expectations in a certain field.

What strategies could be used to support students' development of critical thinking skills?

This section will consider two key themes which emerged in relation to supporting students' development of critical thinking skills: the need for practice and explicit guidance and subsequently the role of feedback.

The need for practice and explicit guidance. Firstly, it is worth noting that all of the participants referred to critical thinking as a skill which can be developed through practice rather than a static trait, yet this raises questions about the extent to which it is a

skill which is actively taught. The general consensus among the students was that they were aware that they are supposed to demonstrate critical thinking in their work and that this is a key criterion in assessments; however, they are often unsure about how to go about doing this or indeed, in some cases, how to recognize it in their own work. As stated by Orla:

> The difference between what you do to get a first and what you do to get an upper second and things like that, it's like one word difference and it's like 'excellent' or 'very good'… there's nothing quite like, specific that says what you need to do, which would be nice.

As explored above, this will also be different depending on the subject or discipline and therefore perhaps some clear content-specific guidelines and examples would be of help.

Denise also suggested, "[I]t would be really helpful, like, to have someone explaining, this is how you compare things or this is how you place things on a sort of scale of, you know like, importance or relevance." Lucy similarly suggested, "[I]t helps to have an awareness of what kind of questions we need to be asking, because it's quite hard to know what you're meant to be looking for." It seems therefore that the students would appreciate the rather abstract process of critical thinking being demystified and made explicit. Using "thinking aloud" as a teaching technique in supervisions or tutorials could therefore be one possible way of achieving this. This would not only give students an insight into the process of critical engagement, but also would also serve to develop their own metacognitive awareness of how they, and others, engage with studies or texts.

Linked to this, it is also important to help students to develop the ability to critically reflect on, or self-assess, their own work. Stimulated recall interviews were conducted with both Lucy and Denise following a mock examination essay. Although they both produced essays of a good standard, interestingly they both found it difficult to pinpoint concrete examples of critical thinking in their own work, and neither picked up on what the assessor identified as the best critiques.

For example, Denise identified a section where she had commented on the population validity of a study she was referring to "'cause it's got like, a lot of people in it so it kind of reduced the impact of, like, individual differences and individual variables," but she then added, "[B]ut I didn't really get a chance to explain that." When asked what she meant by this and what she would have done differently, she said, "Well, I would have just said 'which means it can be applied to more people because of this reason,' but it's just, it's just a time thing, so I'm going to have to assume that people know what that means." Here she focused much more on definition rather than critical engagement. Lucy also admitted that she found it "really difficult" to assess her own work and as a result had never really engaged in this independently.

Interestingly, both Denise and Lucy were able to speak relatively easily about more abstract definitions of critical thinking, as discussed above, yet found it difficult to identify in their own work. This further highlights the need to be explicit about what critical thinking is within a particular course or discipline and the need to indicate to students when they are doing this, as explored further below.

The role of feedback. The students identified targeted feedback as being crucial in supporting their development of critical thinking skills. When giving written feedback on essays for this course, the tutor had previously developed a table to group comments into key areas identified in the mark scheme such as "reference to the literature" and "critical engagement". When asked about this in the interview the consensus was that it was helpful. Maria, for example, said, "[H]aving that feedback there is useful and sort of actually realising to what extent you've thought about it critically". She also found it helpful when indications were made on her essay of both good examples of critique and where she should have engaged further. Orla similarly commented that targeted feedback was helpful in drawing her attention to the importance of critical engagement in relation to the mark scheme, since she was "not even sure if [she was] meant to do it" in all of her courses.

However, when asked about peer assessment, the students expressed much more reluctance, which seemed to be underpinned by a lack of confidence/trust. Denise commented, for example, "Even if it's terrible, they probably wouldn't tell you." Yet, given the difficulties the students seemed to encounter in identifying critique in their own work, perhaps providing them with more opportunities and guidance to engage in effective peer feedback could help develop their awareness and evaluative skills more generally.

Discussion and Conclusion

In their study into the understanding of critical thinking among undergraduate students, Duro et al. (2013) reported that their participants' comments were initially very vague. However, in the current study the participants seemed more readily able to define critical thinking, even though they found it more difficult to do and to identify in their work. This may be a result of the increasingly explicit emphasis on critical thinking in course overviews and grading schemes. In this study, students' views seemed to align largely with the more cognitive conceptualizations of critical thinking as proposed by Ennis (1962); as such, for them it involves

an element of evaluation (and sometimes criticism) of the work of others with a view to presenting one's own opinions. In line with Scriven and Paul (2008a) they also viewed critical thinking as a skill which can be learned and developed, as well as one which is facilitated by increased knowledge of the field.

Yet interestingly, the participants in this study seemed to approach and operationalize critical thinking differently according to the subject or discipline they are working in (in line with McPeck, 1981 and Willingham, 2007) rather than viewing it as transferable across contexts. Given the largely discipline-specific views which emerged from the participants, it seems therefore important to engage more explicitly in discussion about these differences, not only with the students, but with colleagues from other academic backgrounds. Given that students of education work across a range of disciplines, they may benefit from more explicit guidance in how critical thinking skills in one area can be transferred to another. As suggested by Mulnix (2012), critical thinking can transcend disciplines and "has little to do with *what* we think but everything to do with *how* we think" (p. 466). This highlights the key role of metacognition in critical thinking. Metacognition typically refers to the overarching, reflective functions that control and monitor more subconscious processes (Desautel, 2009), and is sometimes more simply defined as 'thinking about thinking'. Both Swanwick et al. (2014) and Mulnix (2012) identify metacognitive awareness as one of the key principles of critical thinking. Findings from this study similarly highlight the importance of developing students' metacognitive awareness in order to enable them to better evaluate their own work. Raising metacognitive awareness is also important in sensitizing students to variations between disciplines and encouraging transfer.

Due to the small-scale nature of this case study it is not possible to make generalizations. However, given the importance of engaging in critical thinking across a wide range of university courses at both undergraduate and postgraduate level, the findings from this study offer insights into how a particular group of students conceptualize critical thinking and provides some suggestions of what practitioners can do to help further support students' development of this skill. Implications for practice include the importance of:

- Explicit demonstration and explanation of critical thinking within a particular discipline;
- Providing substantial opportunities for practice, as while the above demonstration will help to draw students' attention to critical thinking, they will only progress through engaging in this themselves;
- Developing students' metacognitive awareness and their ability to reflect on their own work;
- Incorporating explicit comments about critical engagement into feedback and indicating examples of where students have done this well;
- Engaging in dialogue about the extent to which critical thinking skills are discipline-specific and highlighting opportunities for connection-making and transfer between different contexts.

References

BERA. (2011). *Ethical guidelines for educational research.* Retrieved from http://www.bera.ac.uk/wp-content/uploads/2014/02/BERA-Ethical-Guidelines-2011.pdf

Billing, D. (2007). Teaching for transfer of core/key skills in higher education: Cognitive skills. *Higher Education*, *53*(4), 483–516.

Creswell, J. W. (2014). *Research design: qualitative, quantitative and mixed methods* (4th ed.). Los Angeles, CA: Sage.

Denscombe, M. (2010). *The good research guide: For small-scale social research projects* (4th ed.). Maidenhead, UK: Open University Press.

Desautel, D. (2009). Becoming a thinking thinker: Metacognition, self-reflection, and classroom practice. *The Teachers College Record*, *111*(8), 1997–2020.

Duro, E., Elander, J., Maratos, F. A., Stupple, E. J. N., & Aubeeluck, A. (2013). In search of critical thinking in psychology: an exploration of student and lecturer understandings in higher education. *Psychology Learning and Teaching*, *12*(3), 275–281.

Ennis, R. (1996). *Critical thinking*. Upper Saddle River, NJ: Prentice Hall.

Ennis, R. H. (1962). A concept of critical thinking. *Harvard Educational Review*, *32*, 81–111.

Ennis, R. H. (1987). A taxonomy of critical thinking dispositions and abilities. In J. B. Baron & R. J. Sternberg (Eds.), *Teaching thinking skills: Theory and practice* (pp. 9-26). New York, NY: Freeman.

Facione, P. A. (1990). *The California critical thinking skills test.* Millbrae, CA: California Academic Press.

Gass, S. M., & Mackey, A. (2000). *Stimulated recall methodology in second language research*. Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Harvey, L., & Drew, S. (2006). *The first-year experience: a review of literature for the Higher Education Academy*. York, UK: Higher Education Academy.

Higher Education Quality Council (HEQC). (1996). *What are graduates? Clarifying the attributes of "graduateness."* London, UK: HEQC

Huber, C. R., & Kuncel, N. R. (2016). Does college teach critical thinking: A meta-analysis. *Review of*

Educational Research, *86*(2), 431–468. http://doi.org/10.3102/0034654315605917

Ku, K. Y. L. (2009). Assessing students' critical thinking performance: urging for measurements using multi-response format. *Thinking Skills and Creativity*, *4*, 70–76.

McPeck, J. E. (1981). *Critical thinking and education*. Oxford, UK: Martin Robinson & Company, Ltd.

Moore, T. (2013). Critical thinking: Seven definitions in search of a concept. *Studies in Higher Education*, *38*(4), 506–522. doi: 10.1080/03075079.2011.586995

Morgan, D. L. (2007). Paradigms lost and pragmatism regained. *Journal of Mixed Methods Research*, *1*(1), 48–76.

Mulnix, J. W. (2012). Thinking critically about critical thinking. *Educational Philosophy and Theory*, *44*(5), 464–479. http://doi.org/DOI: 10.1111/j.1469-5812.2010.00673.x

Paul, R. (1982). Teaching critical thinking in the "strong sense": A focus on self-deception, world views, and a dialectical mode of analysis. *Informal Logic Newsletter*, *4*(2), 2-7.

Robson, C. (2011). *Real world research* (3rd ed.). Oxford, UK: Wiley-Blackwell.

Robson, C., & McCartan, K. (2016). *Real world research* (4th ed.). Chichester, UK: John Wiley and Sons, Ltd.

Rudd, R. D. (2007). Defining critical thinking. *Techniques*, *October*, 56–49.

Scriven, M., & Paul, R. (2008a). *Defining critical thinking.* Retrieved from http://www.criticalthinking.org/aboutCT/definingCT.cfm

Scriven, M., & Paul, R. (2008b). *Our concept of critical thinking.* Retrieved from http://www.criticalthinking.org/aboutCT/ourConceptCT.cfm

Swanwick, R., Kitchen, R., Jarvis, J., McCracken, W., O'Neil, R., & Powers, S. (2014). Following Alice: Theories of critical thinking and reflective practice in action at postgraduate level. *Teaching in Higher Education*, *19*(2), 156–169. http://doi.org/10.1080/13562517.2013.836099

Watson, G., & Glaser, E. M. (1980). *Watson-Glaser critical thinking appraisal*. Cleveland, OH: Psychological Corporation.

Willingham, D. T. (2007). Can critical thinking be taught? *American Educator*, *Summer*, 8–19.

Wilson, E., & Stutchbury, K. (2009). Research design and ethics. In E. Wilson (Ed.), *School-based research: A guide for education students* (pp.57-75). London, UK: Sage Publications Ltd.

KAREN FORBES is a Lecturer in Second Language Education at the Faculty of Education, University of Cambridge. She teaches and supervises on a range of courses for undergraduate students, graduate students, and trainee teachers. Her research interests include multilingualism and identity, language learning strategies, and the language development and social integration of students who speak English as an additional language in schools.

Acknowledgements

This study was conducted as part of a Postgraduate Certificate in Teaching and Learning in Higher Education course. I would like to thank Dr. Meg Tait for her helpful comments on earlier drafts of this paper.

Appendix

Interview prompts

General questions

- Contextual questions about subjects studied at school.
- What does the phrase “critical thinking” mean to you?
- Can you remember when you first heard the term “critical thinking” being used? (Was it referred to at school or only when you started university? If at school, in what context? For which subjects?)
- Has your understanding of “critical thinking” changed since you have been at university?
- When the term “critically discuss” appears in an assignment title what do you think you are being asked to do? How do you do it? Do you find it difficult?
- How do you think students could improve their “critical thinking” skills? Is there anything in particular you think would help?
- How important do you think “critical thinking” is to the field of education? Do you think it means something different in other subjects?
- How important do you think "critical thinking" is for your future career?

Stimulated recall questions

- Looking at this example of your most recent essay, how did you plan to demonstrate critical thinking for this particular question?
- Can you find an example where you think you have demonstrated critical engagement and talk me through what you did?
- How would you evaluate this essay against the mark scheme? Why?
- Do you think you could have done better in this essay? If so, how?