Critical Thinking and Critical Literacy: Mutually Exclusive?

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Abstract

Critical thinking is a core skill within tertiary education, traditionally relying on such principles as logic and truth. Relativistic pedagogical frameworks, such as critical literacy, however, have become increasingly widespread within all levels of education and call into question such principles. In order to ascertain whether critical thinking skills are enhanced or hindered by relativistic approaches, the assessment results of students studying critical literacy within an enabling program at a regional university in Australia were analysed in a small-scale study. The findings potentially suggest that the framework of critical literacy may have had a negative impact on students' results and, possibly, their critical thinking skills, raising the question as to whether the two frameworks might be mutually exclusive.

INTRODUCTION

Critical thinking is widely recognised as a core skill to both university learning (Vardi, 2013) and work place readiness (Fullan & Scott, 2014). Moreover, critical thinking is integral to lifelong learning and intellectual development: arguably the goal of most tertiary institutions in general. However, research has shown that many universities are failing to equip their students with critical thinking skills (Arum and Roska, 2011; Commonwealth of Australia, 2002; Davies, 2013; Flores, Maktin, Burback, Quinn & Harding, 2012; Larson, Britt & Larson, 2004; Larson, Britt & Kirby, 2009). While such findings are of significant concern to tertiary educators in general, they are also of particular relevance to educators within enabling programs. Industry review (Pitman, et. al., 2016) has shown that students within enabling courses have expressed concerns as to the efficacy of programs in equipping them for the difficulties of tertiary study – including the need to become independent learners. This means that students in enabling programs are potentially doubly underprepared in terms of both their readiness for tertiary study and their work readiness after graduation. By contrast, equipping students with critical thinking skills in enabling programs has the potential to positively impact on their university studies, their future job prospects, and their capabilities as life-long learners. Effectively assessing the development of students' critical thinking skills is an important step in addressing such concerns, benefitting both students and educators within the field.

Given the importance of developing critical thinking skills in students, and the widespread lack of success in imparting such skills to students, it is imperative to not only discover teaching strategies that encourage critical thinking, but to also evaluate the effectiveness of such strategies – to assess their impact on student learning. Further, while a range of research exists dealing with the development of critical thinking skills within tertiary education, none yet has been conducted specifically within the field of enabling programs. In Australia, enabling, or pathways, programs are designed to equip students who lack the formal qualifications or prerequisites for admission into a university degree program. Such students may not have completed high school, have had their studies interrupted, or not received a high enough grade to enter their desired degree. Enabling programs enable students to enter tertiary education with the foundational skills and prerequisite knowledge needed for tertiary study, which further underscores the need for research in the teaching and assessment of critical thinking skills not only in terms of its importance generally within higher education, but also specifically within programs preparing students for tertiary study. The enabling course upon which this present small-scale study was based was delivered at a regional Australian university and offered subjects in foundational skills relating to academic writing, digital literacy, mathematics, and critical literacy. This small-scale, exploratory study concentrated specifically on the learning outcomes of students in a subject whose pedagogical framework focused on critical literacy, making it an appropriate base on which to observe the development of critical thinking skills – as shall be outlined below.

CRITICAL LITERACY AND CRITICAL THINKING

Critical literacy and critical thinking are different concepts but are often viewed as synonymous. The question of whether critical literacy and critical thinking are indeed synonymous is important, as it is not only related to the debate over how critical thinking should be taught, but also to the wider debate over the definition of critical thinking itself.

Critical literacy is an educational theory and pedagogical practice that has been widely employed internationally for over 50 years within schools, community education, university education and teacher education (Luke, 2012, p.5). Critical literacy is founded on two key philosophical approaches: the social critique of Paolo Freire's Marxist-influenced critical pedagogy and poststructuralism (Luke, 2012). Freire's social critique raises the issue of the unequal power structures within education and the importance of justice for the marginalised and oppressed. Poststructuralism also opposes the exclusion of the marginalised 'other', but also opposes the possibility of universal truth. As Allan Luke (2012) observed: "Poststructuralist theory…argued against the validity of any definitive interpretation or truth from a given text" (p.6). There is therefore the assumption within critical literacy that all texts are biased and informed by the ideological perspective of the producer (Winograd, 2016); that is, that there are no neutral texts and, consequently, no universal truth. It should be noted at this point that, although this is the dominant framework in use (and the focus of this present study), there are other philosophical approaches that can act as alternative frameworks for crit-

ical literacy, such as the post-positivist realist approach (Moya & Hames-Garcia, 2000), and Sandra Harding's (2015) theory of strong objectivity – both of which a combine a concern for social justice with the possibility of reliable forms of objective knowledge.

Critical thinking is a highly debated concept, both in relation to the method in which it is taught and its definition: issues which are ultimately inter-related. A key aspect of the debate is whether critical thinking should be learnt as a generic set of skills and abilities – such as those used in informal logic, traditionally associated with philosophical reasoning – and should therefore be taught in stand-alone subjects (Robinson, 2011, 279), or whether they are skills that are specific to the subject or discipline being taught – and therefore taught within the subject. This debate has been characterised as a debate between "generalists" and "specifists" (Davies, 2013, p. 530), with Robert Ennis representing an early and influential view of the generalist approach, viewing critical thinking skills as a set of "abilities" and "dispositions" (Ennis 1987, p. 4), while John McPeck (1981), a prominent theorist of the specifist approach, argued that thinking is never actually practised in a general sense, but must be always oriented towards "something in particular" in order for it to be effective (McPeck, 1981, p. 4).

LITERATURE REVIEW

Various research has been undertaken exploring the efficacy of the specificist and generalist approaches. Clinton Golding (2011) presented a pedagogical method for developing critical thinking in students which he argued could be applied both generally and specifically, in that the approach was based on a Socratic, dialogical method of teaching which was applicable across disciplines. Golding suggested that students would begin to think critically as a result (2011); however, no collected data or empirical evidence was provided to assess the method's impact on student learning outcomes. This undermines the impact of his argument somewhat, emphasising the need for research based on student outcomes. By contrast, Rush Cosgrove (2011), in examining whether critical thinking skills were being developed in the traditional Oxford tutorial, employed empirical research methods in the form of semi-structured interviews conducted with both tutors and students, which were then qualitatively analysed. While the cohort size was small (seven students and three tutors), Cosgrove argued as to negative effects of such tutorial practices on the development of critical thinking, recommending a more explicit and systematic approach: in short, a generalist approach. However, evaluating critical thinking based on subjective interviews – that is, evaluating student self-efficacy in response to a researcher's questions – is an approach that would be unlikely to be effective with enabling students. The majority of enabling students are from low-socioeconomic backgrounds (Pitman, et.al. 2017), with research showing that, in terms of self-assessment, such students have a tendency to rate their academic skills poorly, despite their actual ability (Rocchino, Dever, Telesford, & Fletcher, 2017). This further underscores the need for more objective research based on student outcomes, as opposed to self-assessment.

Barnett and Francis (2012), in evaluating the critical thinking skills of psychology students, utilised a quantitative and 'quasi-experimental,' method involving a pre-test and a post-test of critical thinking ability using the *Watson-Glaser Critical Thinking Appraisal (Short Form)*. Student results on assessment tasks were also tested, and the results of both sets of data analysed statistically. The analysis revealed that, while there was no difference in the improvement of the general critical ability of the cohort as a whole, there was a significant difference in the assessment results of the group exposed to higher order thinking questions, in that they scored consistently higher than other groups (Barnett & Francis, 2012). The authors had applied an 'immersion method' of critical thinking to the cohort, in that no explicit instruction in critical thinking was given. Nevertheless, while arguing overall for the discipline-specific teaching of critical thinking skills in their empirical study, Barnett and Francis (2012) ultimately conclude that 'immersion' may not be an effective approach, and that it is important to investigate the effects of explicit critical thinking instruction. Molly Espey (2018) has also offered persuasive empirical evidence as to the effectiveness of team-based learning embedded within different disciplines in enhancing critical thinking skills, however, these skills were also explicitly and deliberately taught, rather than simply forming part of the normal curriculum.

Tim Moore (2004; 2011) and Martin Davies (2006; 2013) have represented a sustained defence of specifist and generalist approaches, respectively. Davies has argued for a traditional, logic based conception – although he has also suggested that informal logic can be 'infused' into discipline specific subjects (Davies, 2006). Moore, by contrast, has argued for a relativist, specifist approach, which is characteristic of poststucturalist approaches to critical thinking, concluding that the teaching of critical thinking skills should be conceived as the teaching of a relativistic "understanding" of the different "discourses" within each discipline – which he described as a "metacritique" (2011, p. 273). Moore cited McPeck's concession to Ennis that certain generic, critical thinking skills do exist, such as "not contradicting one's self, or not believing everything one hears", however, McPeck (and Moore) dismissed these as only "trivially obvious" and not "truly useful" (2011, p. 263). Relativistic approaches, such as Moore's, are highly influential not only within tertiary education and enabling programs, but also within primary and secondary education, where critical literacy is replacing more formal, traditional approaches to critical thinking. This development is highly significant, in that poststructuralist and relativistic assumptions potentially challenge the very nature of critical thinking itself, in that they might be viewed as undermining the foundations of logic, truth and non-contradiction underpinning traditional concepts of critical thinking.

Margaret Lloyd and Nan Bahr explicitly aligned their research in their article "Thinking Critically about Critical Thinking in Higher Education" (2010) with Moore's specifist approach (p. 3, p.14), concluding that by "the specificity and contextualisation given to critical thinking in the discipline of Education, it would appear that the predominant approach here is that to think critically, one needs to have something to think about" (p. 14). The study suggested that both students (pre-service teachers) and academics at an Australian university had similar understandings of critical thinking, although the conception of critical thinking held by both was synonymous with their conception of critical literacy. Not only was this explicitly stated (Lloyd & Bahr, 2010, p.12), but the authors' citation of their university's definition of critical thinking as the "ability to critique current paradigms" (Lloyd & Bahr, 2010, p.3) coincided with the emphasis on social critique which lies at the core of critical literacy. Academics and students taking part in the survey overwhelmingly defined critical thinking as social critique alone, describing it as becoming aware of and challenging bias, of confronting and challenging "the main

discourse" (Lloyd & Bahr, 2010, p.8), "power relationships" (Lloyd & Bahr, 2010, p.8), and "society's injustices to marginalised groups" (Lloyd & Bahr, 2010, p.7). Two academics did state that there was a difference between higher order thinking and social critique, but nonetheless still defined both as different *aspects* of critical thinking: "critical thinking has two meanings: 1) higher order thinking 2) social critique (Lloyd & Bahr, 2010, p.3); "We distinguish critical thinking as in higher order thinking from critical thinking as in social critique. We link the former to comprehension, understood in cognitive terms, and the latter to critical literacy as a transformative social process" (Lloyd & Bahr, 2010, p. 12). Significantly, both academics defined 'higher order thinking' as 'comprehension' or understanding alone, rather than any of the skills usually associated with higher order thinking on Bloom's taxonomy, where comprehension is regarded as one of the 'lower-order' skills and is listed under 'analysis', which is commonly viewed as the point at which critical thinking begins (Adams, 2015, p.152). Comprehension is also not listed among the skills commonly associated with other definitions of critical thinking – such as interpreting, analysing, evaluating, inferring, explaining and self-regulating (Facione, 1990). Despite this, Lloyd and Bahr (2010) employed the seeming congruence between critical thinking and critical literacy to substantiate one of their key conclusions: that not only did academics and students hold similar views of critical thinking, but these corresponded to "extant" or "published" definitions of critical thinking "in the literature" (p. 14, p. 15): "all proffered definitions, however informally worded, were synonymous with extant definitions" (p.8).

Although Lloyd and Bahr (2010) did initially cite Glaser's and the Melbourne Declaration's definitions of critical thinking as including "knowledge of the methods of logical enquiry and reasoning" (p.2) and the ability to think "deeply and logically" (pg. 3), respectively, there is no further mention of logic in any of the definitions given by either the authors, academics or students. This would appear to indicate that logic was not part of the academics or students' conception of either critical literacy or critical thinking, which further undermines the authors' claims that their conceptions were "synonymous with extant definitions" (p.8). This not only suggests that critical literacy cannot be viewed as synonymous with critical thinking, but raises the question as to whether students' critical thinking skills are actually developed within the framework of critical literacy. Moore's (2011) own research, which was also based on surveys with academics, sought to prove that different disciplines had different conceptions of critical thinking (a conclusion challenged by Davies, 2013), however, the important question as to whether students' critical thinking skills are developed within these apparently different approaches remains unanswered. The aim of this exploratory, inductive study was to observe whether critical thinking skills were developed in students over the course of an enabling program for tertiary study within a subject explicitly structured on the framework of critical literacy.

Theoretical Framework: Conceptual Analysis

Conceptual analysis was used as the overarching theoretical framework within the study. Conceptual analysis originated in and is most commonly used within the discipline of philosophy (Beany, 2017; Jackson, 2000; Flew, 1956), however, it is also used across a wide variety of other disciplines, including the Scholarship of Teaching and Learning research (Hussy & Smith 2008), education (Boylan, Coldwell, Maxwell& Jordan, 2018), law (Mauthe, 2014), nursing (Milbrath & DeGuzman, 2015), psychology (Monroe & Harkness, 2011), psychiatry (Kendler & Neale 2010) and science (Bursten, Hartmann, & Millstone, 2016).

Conceptual analysis focuses on the analysis of concepts, which were traditionally abstract concepts – such as knowledge, truth, justice and virtue – as exemplified by Plato's depiction of Socrates' early dialogues. However, as Mauthe (2014) noted, scholars have rightly argued that it can be applied to any concept, and this is borne out by the current cross-disciplinary applications of conceptual analysis cited above, where the concepts analysed range from "learning outcomes" (Hussy & Smith 2008), "neighbourhood" (Milbrath & DeGuzman, 2015), and "endophonotype" (Kendler and Neale 2010), to "recurrence in major depression" (Monroe & Harkness, 2011). Approaches to conceptual analysis vary within philosophy (Beany, 2017), as well as across different disciplines. The formal approaches associated with analytical philosophy (those which employ formal logic), were not employed here, but rather a more broadly traditional approach was implemented, which simply seeks to examine definitions of concepts – a method that Beany traced back to Plato, suggesting that "concern with definition was central to his dialogues, and definitions have often been seen as what 'conceptual analysis' should yield" (Beany, 2017).

Conceptual analysis is appropriate within the present context not only because the teaching of critical thinking has traditionally taken place within the provenance of philosophy, but also due to the fact that the debate over the definition of critical thinking itself is a conceptual debate: that is, over the definition and nature of critical thinking as a concept. Both Moore and Davis employed philosophical arguments to defend their respective interpretations of critical thinking, with Moore explicitly making reference to Wittgenstein's theory of language games – which deals specifically with the role of concepts within language – to justify his interpretation of the concept as being without any essential meaning or definition (Moore, 2011). Moreover, the theoretical framework of critical literacy itself is based on poststructuralist philosophical concepts that question the very nature of the concept of truth.

Context: Enabling Program at a Regional Australian University

The study was conducted within a half-year enabling course at a regional Australian university and based on a subject focusing on critical literacy. The subject learning outcomes were for the greater part aimed at identifying and examining techniques of bias and persuasion, and to a lesser degree, informal logic, as shown below:

> Students who successfully complete this subject will be able to:
>
> 1. Identify bias in purpose (why) and authorship (who) of various texts (what);
>
> 2. Recognise and apply techniques (how) of persuasion to bias in a range of text types (print and visual);
>
> 3. Assess and present informal logic in arguments including the use of statistics in texts;
>
> 4. Develop the ability to deconstruct texts at an introductory level to examine bias and logic.

The emphasis on identifying bias and persuasion reflected the overall pedagogical theoretical framework informing the subject, which was the relativistic framework of critical literacy as formulated by Winograd (2015), which suggests that all texts are biased:

> A key assumption of critical literacy is that there are no neutral texts…All texts reflect the biases of its authors which, in turn, reflect the authors' social location in society. Ultimately, our biases reflect our larger beliefs, or ideologies, about the world….Texts reflect particular ideological perspectives, even the most seemingly innocuous warning label on an aspirin bottle. (Winograd, 2015, p.5)

This view was presented to the students in their first lecture and informed the entire content of the subject – with a concomitant emphasis on rhetoric, specifically Aristotle's theory of rhetoric, which focuses on the persuasive strategies of ethos, pathos and logos. The emphasis on persuasive rhetorical devices – taught as techniques of persuasion and bias in advertising and propaganda, such as the use of emotive language, stereotyping, repetition and tone of intimacy – was the main focus of the subject; no sustained teaching on informal logic was incorporated. A brief exercise on logical fallacies and a very short introduction to the principles of inductive reasoning were presented to students mid-way through the subject, however, the learning outcome of 'informal logic' was seemingly intended as a very general understanding of what is reasonable, as no explicit instruction in inductive reasoning, such as the process of argumentation, premises and conclusion, was incorporated into the learning and teaching activities.

One of the challenges the project faced was how to evaluate the development of critical thinking within the cohort. The project was small in size and scope, comprising seven students over the period of one semester, which consisted of thirteen weeks. In relation to demographics, as noted earlier, a significant number of the student cohort within enabling programs consists of students from disadvantaged backgrounds (Pitman, et. al., 2016). There are many formal, quantitative tests available, offering pre- and post-course testing, and much former research in the area has been based on such testing (Ennis, 1993). The cost of formal testing was prohibitive, however, and the 'testing' approach itself may have potentially intimidated some students, given that, as noted earlier, the student cohort is vulnerable in terms of low self-confidence in relation to university preparedness, displaying lower levels of academic self-efficacy (Rocchino, Dever, Telesford & Fletcher, 2017). This also mitigated against using self-evaluating methods, such as the use of interviews, as employed by Cosgrove (2011). In addition, a possible outcome variable was that students may already have had well-developed critical thinking skills before commencing the subject, which could possibly skew results if students' final marks were the sole focus of the analysis. All of these factors informed the choice of the final evaluative framework, which was to qualitatively analyse individual student progress over the semester in terms of a list of criteria developed by Higher Education Research Development Society of Australasia (HERDSA) (Vardi, 2013), as described in the data analysis section below.

METHOD

Methodology: Action Research

The overarching methodology employed was Action Research (AR) and the research undertaken in the project was qualitative in nature. Stephen Brookfield (1995) has emphasised the importance of critical reflection in improving teaching practices, and AR provides a methodology within which critical reflection is embedded as part of a cyclical process of improvement (Kemmis, McTaggart & Nixon, 2014). This cyclical process – plan, act, observe, reflect – can be viewed sequentially as a series of steps; however, Kemmis, McTaggart and Nixon (2014) suggest that it is more accurate to view the process as a self-reflective spiral instead, given that the stages often overlap and that self-reflection is embedded within each stage of the process – which was appropriate to the present study.

The subject of the research was the effectiveness of critical literacy as a framework for teaching critical thinking within an enabling program. This subject was identified by reflection on teaching practice. A research plan was devised to assess whether students' critical thinking skills improved as a result of being instructed in critical literacy. Ethics approval was granted by the university's Ethics Committee (No. H7043) and participants were recruited. The observation stage consisted of a process of data collection and analysis. Reflection on the previous stages and results included planning how to implement future changes in the teaching of critical literacy within the enabling program; that is, how to improve future teaching practices as a result of the AR process.

Participant Recruitment

All students participating in the Critical Literacy class (originally 12 students in total) were informed of the research project during class time in the first week of the semester, presented with an information sheet describing the project, and informed that their assessment results would ultimately be de-identified and their anonymity preserved. Confidentiality was assured via consent being sought by a third party, and confidentially stored so that the Primary Investigator (PI) and Lecturer would be blind to participation status until after the marking of the final assessment task.

Students were informed that their participation was entirely voluntary and were not coerced to participate. They were also informed that the analysis of their assessment tasks would take place after their assessments had been formally marked and that the analysis would not affect their marks in any way. Students were then provided with both an information sheet on the project and a consent form asking if they would consent to their assessment tasks being analysed, which they then chose to sign, or not. They were informed that they could withdraw their consent at any time without prejudice, and that, if any students did not consent to having their data analysed, the PI would not include their assessment tasks within the analysis. This was explained verbally to the students and also included on the information sheet provided.

Of the 12 students, 10 agreed to participate, and two declined to participate. Over the course of the semester, three of the students who had consented withdrew from the subject (along with one who had declined to participate), leaving seven consenting participants out of a total of eight remaining students.

Data Collection

Students' marked assessment tasks were collected three weeks after the end of the semester, after final marking was completed. The third party initially involved with participant recruitment then provided the PI with the written consent forms, and the assessment tasks belonging to the student who did not consent to participate was removed.

In order to avoid possible bias in the research design the PI, as Lecturer, was only responsible for one third of the total marking and grading of assessments: the rest were marked by another staff member. Further, as part of the moderation process, a third staff member then moderated all the assessment grading completed by both the PI and other staff member.

As part of fulfilling the subject requirements, students were required to complete three assessment tasks: an analysis of a visual text (an advertisement), an in-class test analysing a newspaper/blog opinion piece, and an essay analysing an academic journal article. In total, 21 assessment tasks were collected. Both the individual mark given, and the grading given on the criteria rubric in response to specific criteria, were used as data as to the overall progress of the students in terms of their critical thinking skills over the semester.

DATA ANALYSIS

Students' marked assessment tasks were collated and analysed to identify development in critical thinking skills, as evidenced in their response to criteria in assessment tasks, over the duration of the semester. Student results were qualitatively analysed in terms of the overall performance and progress at the end of the semester in response to a list of criteria developed by HERDSA (Vardi, 2013, p. 57). These were:

- How students are achieving in relation to the criteria for each assessment task
- Improvements against the criteria from one assessment task to another
- Common problems/achievements in reasoning across the cohort
- Common problems/achievements in conceptual and theoretical understanding across the cohort

Vardi's (2013) criteria was useful in terms of broadly assessing the development of critical thinking across the cohort over the semester and identifying common areas of strength or weakness in student achievement – both in relation to specific criteria and general reasoning and conceptual understanding. This included analysing improvements in relation to grades over the semester, but also against specific criteria from one assessment task to another, in order to gauge the effectiveness of teaching and learning strategies, content and materials. The two formal assessment criteria spanning all tasks were:

- Demonstrate ability to identify the techniques of persuasion and bias
- Demonstrate ability to recognise arguments in a text, and analyse the logic and validity of the argument

Given these were the overriding criteria and reflective of the subject learning outcomes, student achievement was analysed in relation to these criteria alone. Students' achievements in relation to the criterion of persuasion and bias was viewed as an indicator of their competency in critical literacy, whereas their competency in logic was viewed as an indicator of critical thinking. Qualitatively analysing improvements in relation to specific criteria and common problems/achievements in relation to reasoning and conceptual and theoretical understanding provided a more nuanced result than solely looking at grades, as it meant that improvements could be analysed in relation to the particular areas of critical thinking and critical literacy, and therefore particular areas of teaching. As students were marked on the same criteria across the semester, improving or declining on that criteria over time could be viewed as an indicator of whether skills in that area were improving, or not. However, it became apparent during the moderation process that these two main criteria were not discrete, but rather impacted upon and ultimately conflicted with each other.

RESULTS AND DISCUSSION

How students achieved in relation to the criteria for each assessment task

Analysis of the students' achievements over the semester found that students' results declined in relation to both the quality of their responses to the assessment criteria, and to their overall grades (Table 1 and Table 2). Grading for each assessment task was as follows: Competent with Distinction (CWD), Competent Plus (C+), Competent (C), and Not Yet Competent (NYC). It is important to note that these results were calculated as the percentage of students achieving specific grades for specific criteria over time for ease of comprehension alone (Table 1), rather than as an attempt at quantitative analysis. It might be argued that marks may have declined due to the assessment tasks increasing in complexity; however, to mitigate against the complexity of the last task (an analysis of an academic journal article), students were provided with intensive in-class scaffolding, and were able to demonstrate in their tasks that they were indeed very competent at identifying specific instances of bias and persuasion within the article. Students' initially higher marks in this criterion were nonetheless impacted during the moderation process, where students' recognition of bias came into conflict with their recognition of logic. The problem was not that students could not identify techniques of persuasion and bias in a complex text, but rather, that they ultimately could not see that such techniques affected the logic and validity of the argument they were analysing. This meant that students then scored poorly on both the criterion of logic *and* the criterion of bias and persuasion, in that, in affirming that a *biased* argument was both valid and logical, they were consequently viewed as not sufficiently competent at recognising bias.

Improvements against the criteria from one assessment task to another

Student results against the criteria from one assessment task to another indicate that the majority were very competent at identifying techniques of bias and persuasion in the first assessment task, and slightly less competent (although the majority still received C+) in logic (Table 1). By this stage in the subject students had received training in recognising bias and persuasion, but none in logic. The overall majority declined in competency in bias and persuasion by the second task, an analysis of a newspaper opinion piece, but increased in the criterion of logic. At this stage students had received a small amount of instruction in logic, but might have found it difficult to recognise persuasion and bias in a previously unsighted text under test conditions. The grades given for the criteria show that, nevertheless, the majority of students maintained their grades in the second assessment task (Table 2). For the last assessment task, a written analysis of an academic journal article, by contrast, the majority of students, 86%, showed a decline in the criteria of both bias and logic compared to the second assessment task. In this final stage of the subject, students were instructed in Aristotles' categories of rhetoric: the appeal to ethos (character), logos (logic) and pathos (emotion). Signifi-

cantly, logos was perceived by the students as an *appeal*; that is, a rhetorical strategy of persuasion on par with pathos, rather than as a *process* that in itself could reveal any illogical appeals or bias in the persuasive devices of emotion and character. This can be viewed as contributing to the students' view of logic as a persuasive device alone – which is in keeping with critical literacy's insistence that there are no neutral texts – further undermining their ability to view bias as illogical and invalid, which is why they ultimately did not improve in either of these criterion.

Table 1. Percentages of students achieving each grade against criteria for each task.

Criteria	NYC	C	C+	CWD
Task 1: Logic	0	14%	72%	14%
Task 1: Bias and Persuasion	0	14%	0	86%
Task 2: Logic	0	14%	28%	58%
Task 2: Bias and Persuasion	0	28%	14%	58%
Task 3: Logic	14%	14%	58%	0
Task 3: Bias and Persuasion	14%	14%	58%	0

Table 2: Percentage of students achieving each grade for each of the three assessment tasks.

	NYC	C	C+	CWD
Task 1	0	14%	0	86%
Task 2	0	28%	0	72%
Task 3	14%	14%	72%	0

Common problems/achievements in reasoning across the cohort

In terms of reasoning, a common problem for students was their understanding relating to whether a text or argument was logical or not, particularly in relation to the final assessment task (Table 1). It could be argued that this might be due to students not receiving enough explicit instruction in logic and reasoning, and then finding it difficult to apply their limited knowledge to a relatively sophisticated academic argument. However, as noted above, the main reason students were marked down on the logic criterion in this assessment was that, although they could effectively recognise evidence of bias, they viewed such bias as evidence of the argument's *validity*, rather than as evidence as to the argument's lack of credibility or invalidity. The nature of the problem in their reasoning was that they could not identify that bias was negative, invalid, or wrong: that the presence of bias actually undermined the credibility of the text. For example, a number of students identified a sarcastic tone within a text – which would normally be regarded as displaying bias – but then viewed this an aspect of the text that they found persuasive. Importantly, this was a reasonable conclusion for the students to reach within the framework of critical literacy, for in a framework that suggests that all texts are biased, there is no standard by which one could judge a text as unbiased: as true, sound, or objective. Within such a framework, then, students were in fact correct in claiming that a strongly biased text, complete with logical fallacies, could indeed be viewed as persuasive and valid, given that ultimately nothing can be viewed as valid, objective or true.

Critical reflection on these issues raised the possibility of simply incorporating more teaching on logic and reasoning within the curriculum in the future. However, more instruction on logic would not eradicate the fact that within the framework of critical literacy, a biased text cannot be viewed as negative, invalid, or wrong, given that all texts are presumed to be biased. For, although critical literacy does indeed explicitly condemn prejudice and bias against marginalised groups as unjust and unfair, such a judgement can only be made on the universal truth claim all humans are equal and should be treated with equal respect. Such an assumption, however, contradicts the claim within critical literacy that there is no universal truth, revealing an inherent contradiction within its internal logic.

Common problems/achievements in conceptual and theoretical understanding across the cohort

The majority of the students were clearly able to recognise rhetorical, surface language strategies of bias and persuasion within the conceptual framework of critical literacy. However, their marks in this criterion in the final assessment piece were lowered due to the fact that they found the article persuasive precisely due to these biased techniques, which was viewed as a problem both in their conceptual understanding of bias, and in their understanding of logic and critical thinking. As noted above, such a conclusion is logical within the framework of critical literacy, suggesting that the most significant problem was the underlying incommensurability between the conceptual principles of relativism and logic within the subject, resulting in a contradiction in the theoretical approach to the teaching of critical thinking skills. Underlying the relativistic theoretical framework of critical literacy is the principle that there is no truth and underpinning the concept of logic are the principles of non-contradiction, truth, and soundness. A possible solution might be to reject the teaching of logic altogether within the curriculum and introduce a scale, whereby a text might be viewed on a scale from 'strongly biased' to 'less biased'. However, 'less biased' still implies a comparison to a standard of what it means to be unbiased; that is, the meaning of bias is to be unfair, unjust, prejudiced and unobjective, which requires the existence of such standards as fair, just, objective and non-prejudiced. If there are no such fair standards, then the very notion of bias itself becomes meaningless. It would be similar to having a criterion wherein the standard can only be 'wrong'; that is, an answer can be 'strongly wrong' or 'less wrong', but can never be 'right'. In addition, the principle that there is no truth, which provides the theoretical foundation for the claim that all texts are biased, is itself a logical contradiction: 'the truth is, that there is no truth'. It is itself a claim to universal truth, which undermines its own claims that truth does not exist. Finally, if all texts are indeed biased, then critical literacy is itself biased, and its claims therefore cannot be viewed as either objective, sound or true. The eradication of logic from the curriculum would not eradicate such conceptual and theoretical inconsistencies within critical literacy itself.

These findings have relevance and implications within the wider debate surrounding the teaching of critical thinking within tertiary education – both in relation to the nature and definition of the concept of critical thinking and in relation to ethics. For to endorse relativism – that all views are equally valid – is to risk endorsing views that affirm that not all humans are equal. The irony of critical literacy – along with its seminal philosophical influences of poststructuralist anti-humanism – is the underlying and contradictory assumption that all humans are indeed universally equal (Giselsson, 2012). Winograd states that critical literacy "can lead to empowerment and equity", that its "goal" is "equity and democracy", and that it involves "challenging inequality" (2015, pp. 5-6). Winograd's relativistic stance, however, simultaneously undermines the possibility of universal truth and therefore the very possibility of the concept of a universal, equal, humanity. As noted earlier, Moore cited McPeck's concession to Ennis

that certain generic, critical thinking skills do exist, such as "not contradicting one's self, or not believing everything one hears", but ultimately dismissed these as only "trivially obvious" and not "truly useful" (2011, p. 263). What has hopefully been indicated in the preceding discussion, however, is that the importance of not contradicting one's self is, worryingly, far from trivial. Prominent poststructuralist theorists, such as Jacques Derrida, Carey Wolfe and Niklas Luhmann have regularly affirmed the "illogical", "paradoxical" and "impossible" nature of their theories as somehow positive (Wolfe, 2003; Wolfe, 2010, p. xxxiii), effectively jettisoning the concept of "sense" (Wolfe, 2003, p. 207) and moving into the realm of the irrational. Not only does their abandoning of reason and logic undermine the claims of their own arguments, but it undermines the basis for critical thinking and the rational exchange of ideas. Generic critical thinking skills and principles – such as the principles of logic, truth, and non-contradiction – provide us with the vitally useful and extremely important ability to assess truth claims: to evaluate some views as not only more sound, but also less prejudiced and inhumane than others – which is ultimately the goal of critical literacy itself.

LIMITATIONS

A limitation to the project is the small sample size – only seven students – although the size of the enabling cohort is typically small, averaging between 8-15 students each semester. Nonetheless, given the small sample size and the fact that this is the first study to be done both in terms of observing the development of critical thinking in the context of critical literacy, and the first to observe the development of critical thinking in an enabling program, the research cannot be regarded as deductive and conclusive, but rather as inductive and exploratory, and the conclusions as therefore tentative. Clearly, more research needs to be undertaken. Nevertheless, critical reflection on and conceptual analysis of the theoretical framework of critical literacy prompted by the study has revealed not only fault lines within critical literacy's foundational assumptions, but also an apparent contradiction between the theoretical and philosophical frameworks of critical thinking and critical literacy – which in itself provides an important point for further discussion and research within the field. Here it might be suggested that such conceptual fault lines might have been discerned by logic alone – that is, without the necessity of empirical research. However, as noted in relation to Golding's (2011) work above, it is important to empirically assess the impact of any theoretical framework on student learning outcomes, and, significantly, these fault lines also appear to manifest themselves experientially – as evidenced by students' results.

CONCLUSION

The study suggests three main findings: that within the relativistic framework of critical literacy, which rests on the assumption that bias is universal and there is no universal truth, students appeared unable to judge that the presence of bias in an academic text undermined the text's credibility. Such a finding is not surprising, given that, if all texts are biased, then there is no standard by which a text can be said to be more credible than another. The other main finding is that this exposes a fundamental flaw in relativist frameworks: the logical contradiction inherent in the claim that bias is universal and there is no universal truth, which itself is a claim to universal truth. Finally, that the first two findings would appear to suggest that the frameworks of critical literacy and critical thinking may be mutually exclusive, given that critical thinking requires "knowledge of the methods of logical enquiry and reasoning" (Glaser, as cited by Lloyd & Bahr, 2010, pg. 2); in short, logic, which relies on the law of non-contradiction and the fundamental assumption that premises need to be true in order for a conclusion to be sound.

The enabling course subject under consideration in the present study was a stand-alone subject whose object was to teach students to think critically about texts, and yet its relativistic pedagogical framework of critical literacy (Winograd, 2015) appeared to undermine such a goal. Similarly, discipline-specific subjects couched within relativistic theoretical frameworks might assume that they are fostering critical thinking – as argued by Lloyd and Bahr (2010) and Moore (2011) – but the findings of this present study suggest otherwise. What is hopefully clear from the preceding discussion is the importance of clarifying the nature and definition of critical thinking skills – both for educators and students alike. Based on the results of this project, not only do we need to affirm the importance of generic critical thinking skills, such as analysis, inference, interpretation, explanation, self-regulation and evaluation (Vardi, 2013, p.3), but also the principles of logic, truth and non-contradiction. What appears also crucial is not so much the question of whether they are taught within a disciplinary-specific or stand-alone subjects, but that they are explicitly and consciously taught to and fostered within students – as borne out by the research undertaken by Barnett and Francis (2012), Espey (2018), Halpern and Nummedal (1995) and Davies (2006, 2013). There are clearly different methods for teaching generic critical thinking skills, but we cannot assume that all methods and pedagogical frameworks are equally effective in teaching such skills. Ultimately, their efficacy needs to be measured against students' learning outcomes. This study, while small in scale, nonetheless raises serious questions regarding the efficacy of relativist frameworks in relation to the teaching of critical thinking skills in students, signalling the need for more research into the area.

Here it is important to note that this critique specifically applies to a framework of critical literacy informed by poststructuralist/relativist philosophical approaches, and so does not necessarily apply in other contexts where critical literacy is informed by alternative philosophical frameworks, such as post-positivist realism (Moya & Hames-Garcia, 2000) and strong objectivity (Harding, 2015), which, as noted earlier, do acknowledge that objective knowledge – or truth – can be grounded on subjective viewpoints.

Within the context of enabling education, there is a dearth of research specifically relating to the teaching of critical thinking. Moreover, the reality is that many enabling courses are relatively narrow conduits through which students enter into a broad range of disciplines. This would suggest that a generalist approach, as argued by Davies (2013), might be more suitable for enabling programs that do not have the capacity to offer discipline-specific preparatory subjects. It may be that stand-alone subjects that concentrate specifically on fostering generic critical thinking skills might be more appropriate for enabling programs, or, at the very least, that within discipline-specific subjects within enabling programs, there is a conscious decision on the part of educators to explicitly develop such skills and to identify learning and teaching strategies that foster critical thinking within that discipline. More importantly, whether in discipline-specific or general stand-alone subjects, it seems clear that there are certain princi-

ples and skills that are integral to critical thinking itself. In other words, that critical thinking is not merely a 'discourse' amongst other 'discourses', but on the contrary, it is only the generic skills involved in critical thinking that allow for any true 'metacritique' of all other competing 'discourses'.

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REFERENCES

Adams, N. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association*, 103(3), 152-153. doi:10.3163/1536-5050.103.3.010

Arum, R., & Roksa, J. (2011). *Academically adrift: Limited learning on college campuses.* Chigago, IL: University of Chicago Press.

Barnett, J. E. & Francis, F. L. (2012). Using higher order thinking skills to foster critical thinking: a classroom study. *Educational Psychology* 32 (2), 201-211.

Beaney, M. "Analysis", *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/win2017/entries/analysis/>.

Boylan, M., Coldwell, M., Maxwell, B., & Jordan, J. (2018). Rethinking models of professional learning as tools: A conceptual analysis to inform research and practice. *Professional Development in Education*, 44(1), 120. doi:10.1080/19415257.2017.1306789

Brookfield, S. D. (1995). *Becoming a critically reflective teacher*. San Francisco: Jossey-Bass, Inc.

Bursten, J. R., Hartmann, M. J., & Millstone, J. E. (2016). Conceptual analysis for nanoscience. *The Journal of Physical Chemistry Letters*, 7(10), 1917.

Commonwealth of Australia. (2000). Employer satisfaction with graduate skills. Canberra, ACT: Department of Education, Training and Youth Affairs. Retrieved Oct. 19, 2018, from http://www.voced.edu.au/content/ngv%3A13863

Cosgrove, R. (2011). Critical thinking in the Oxford tutorial: A call for an explicit and systematic approach. *Higher Education Research and Development*, 30 (3), 343-356.

Davies, W. M. (2006). An "infusion" approach to critical thinking: Moore on the critical thinking debate. *Higher Education Research and Development*, 25(2), 179-193.

Davies, W. M. (2013) Critical thinking and the disciplines reconsidered. *Higher Education Research and Development*, 32:4, 529-544, DOI: 10.1080/07294360.2012.697878

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

Ennis, R.H. (1993). Critical thinking assessment. *Theory Into Practice*, 32, (3), 179-186.

Espey, M. (2018). Enhancing critical thinking using team-based learning. *Higher Education Research and Development*, 37(1), 15. doi:10.1080/07294360.2017.1344196

Faccioni, P.A. (1990). Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction. Research findings and recommendation. Newark, DE: American Philosophical Association.

Flores, K. L., Maktin, G. S., Burback, M. E., Quinn, C. E., & Harding, H. (2012). Deficient critical thinking skills among college graduates: Implications for leadership. *Educational Philosophy and Theory*, 44(2), 212-230. doi:10.1111/j.1469-5812.2010.00672.x

Flew, A. (1956). *Essays in conceptual analysis*. London: Macmillan.

Fulham, M. & Scott, G. (2014). *Education Plus*. Washington: NDLP.

Golding, C. (2011). Educating for critical thinking: thought-encouraging questions in a community of inquiry. *Higher Education Research and Development*, 30 (3), 357-370.

Giselsson, K. (2012). *Grounds for respect: Particularism, universalism, and communal accountability.* Lanham, Md: Lexington Books.

Halpern, D.F. and Nummedal, S.G. (1995). Closing thoughts about helping students improve how they think. *Teaching of Psychology*, 22: 82-83.

Harding, S. (2015). *Objectivity and diversity: Another logic of scientific research*. Chicago and London: The University of Chicago Press.

Jackson, F. (2000; 1998). *From metaphysics to ethics: A defence of conceptual analysis*. Oxford: Clarendon.

Kemmis, S., McTaggart, R., & Nixon, R. (2014). *The action research planner doing critical participatory action research*. S.l.: Springer Singapore.

Kendler, K. S., & Neale, M. C. (2010). Endophenotype: A conceptual analysis. *Molecular Psychiatry*, 15(8), 789-797. doi:10.1038/mp.2010.8

Larson, M., Britt, M. A., & Larson, A. A. (2004). Disfluencies in comprehending argumentative texts. *Reading Psychology,* 25(3), 205-224. doi:10.1080/02702710490489908

Larson, A. A., Britt, M. A., & Kirby, C. A. (2009). Improving students' evaluation of informal arguments. *The Journal of Experimental Education,* 77(4), 339-365. doi:10.3200/JEXE.77.4.339-366

Lloyd, M., & Bahr, N. (2010). Thinking critically about critical thinking in higher education. *International Journal for the Scholarship of Teaching and Learning,* 4(2) doi:10.20429/ijsotl.2010.040209

Mauthe, B. (2014). Public law and the value of conceptual analysis. *International Journal of Law in Context*, 10(1), 47. doi:10.1017/S1744552313000360

Milbrath, G. R., & DeGuzman, P. B. (2015). Neighborhood: A conceptual analysis. *Public Health Nursing*, 32(4), 349-358. doi:10.1111/phn.12197

Monroe, S. M., & Harkness, K. L. (2011). Recurrence in major depression: A conceptual analysis. *Psychological Review*, 118(4), 655-674. doi:10.1037/a0025190

Moore, T. (2004). The critical thinking debate: How general are general thinking skills? *Higher Education Research and Development*, 23(1), 3–18. DOI:10.1080/0729436032000168469

Moore, T. (2011). Critical thinking and disciplinary thinking: A continuing debate. *Higher Education Research and Development,* 30(3), 261–274. DOI:10.1080/07294360.2010.501328

Moya, P.M.L., & Hames-Garcia, M.R. (2000). *Reclaiming identity: Realist theory and the predicament of Postmodernism*. Berkeley, University of California Press.

Pitman, T., Trinidad, S., Devlin, M., Harvey, A., Brett, M., & McKay, J. (2016). Pathways to higher education: The efficacy of enabling and sub-bachelor pathways for disadvantaged stu-

dents. Perth, Australia: National Centre for Student Equity in Higher Education, Curtin University.

Robinson, S. R. (2011). Teaching logic and teaching critical thinking: Revisiting McPeck. *Higher Education Research and Development*, 30(3), 275-287. doi:10.1080/07294360.2010.500656

Rocchino, G. H., Dever, B.V., Telesford, A., & Fletcher, K. (2017). Internalizing and externalizing in adolescence: The roles of academic self-efficacy and gender. *Psychology in the Schools*, 54(9), 905-917. doi:10.1002/pits.22045

Vardi, I. (2013). *Developing students' critical thinking in the higher education class*. Milperra, NSW: HERDSA.

Winograd, K. (Ed). (2015). *Critical literacies and young learners: Connecting classroom practice to the common core*. New York and London: Routledge.

Wolfe, C. (2003). *Animal rites: American culture, the discourse of species, and posthumanist theory.* Chicago: University of Chicago Press.

Wolfe, C. (2010). *What is posthumanism?* (Vol. 8). Minneapolis: University of Minnesota Press.