

Research Article

Secondary teachers' beliefs about the relationship between students cultural identity and their ability to think critically

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Critical thinking (CT) is increasingly included within education curriculum policy development to support students' intellectual progress. Teachers who embed CT learning and are cognisant of students cultural identity increase their ability and aptitude to think critically. This paper reports results from an anonymous survey administered to 490 teacher participants, designed to investigate teacher beliefs regarding the impact of students cultural identity on their ability to think critically. The results of the study found a diversity of teacher opinion, including negative attitudes (53%) regarding students' abilities and the requirement for a culturally responsive teaching approach. The study highlights the complexities of implementing CT, and the need for policy makers to consider the impact of teachers' beliefs about student cultural identity before effective delivery of CT in secondary schools is likely to occur.

Keywords: Beliefs of teachers; Student cultural identity; Critical thinking; Educational policy

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1. Introduction

Recent studies have demonstrated that there are different understandings of critical thinking across cultures (Ab Kadir, 2016; Guo, 2013; Howe, 2004; Tan, 2020) and therefore it is important to ascertain teachers beliefs about students cultural identity and their capacity to think critically. Current research reveals that culturally relevant pedagogical approaches for students increase their confidence and aptitude for critical thinking (DeWaelsche, 2015; Lun et al., 2010; Xu & Clarke, 2019). Researchers have cautioned that the westernisation of critical thinking can create tensions for diverse students whose cultural background and beliefs may not align with the dilemmas they are required to debate (Ab Kadir, 2016; Lu & Singh, 2017; Xu & Clarke, 2019). Ab Kadir (2016) made it clear that, by prioritising western concepts within the classroom, diverse learners become compromised as their epistemologies are not naturally congruent with these ideas.

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It is important to investigate teachers' beliefs about the effect of culture and their views of students' ability to use CT because the current literature acknowledges that culturally relevant pedagogy will increase the efficacy of critical thinking skills of students in the classroom (Ab Kadir, 2016; Jones, 2005; Lu & Singh, 2017; Wu, 2020). Often, school-based research within these fields begins with the researchers' gathering data on what teachers believe critical thinking is (Baildon & Sim, 2009; Howe, 2004; Innabi & Sheikh, 2007; Mok & Yuen, 2016) and yet, investigating teachers' beliefs about the place of students cultural identity within the fields of critical thinking and classroom talk is important in relation to the development of this approach within a school setting.

2. Theoretical Framework Describing Cultural Beliefs of Teachers

For the purposes of this study, three theoretical frameworks that are in line with educational research describing the cultural beliefs of teachers will be discussed. These being multicultural beliefs; egalitarian or colour blind beliefs and assimilation (Schotte et al. 2021)

Multicultural beliefs refer to individuals who embrace and engage with different socio-cultural contexts. These teachers understand differences in students views and experiences are interesting, if not impossible to ignore (Park & Judd, 2005). In an educational setting, teachers who hold multicultural beliefs would incorporate students' cultural differences within their everyday school practice. This would include planning lessons, selecting relevant teaching material and would be demonstrated within the nature of their interactions with their students (Hachfeld et al. 2011). Egalitarian beliefs refer to those teachers who believe that everyone should be treated equally. Those who hold egalitarian beliefs seek out similarities and commonalities rather than differences between students of different ethnic and cultural backgrounds (Markus et al., 2002; Richeson & Nussbaum, 2004; Wolsko et al., 2022). Egalitarian beliefs are sometimes referred to in the literature as individuals who are 'colour blind'. Teachers who hold egalitarian beliefs will set out to ensure that they treat all of their students equally, and will often favour the set curriculum rather than consider their students cultural background when planning and teaching (Hachfield et al., 2011). Assimilation beliefs refers to those teachers who view ethnic minority students who maintain their values and behaviours as an obstacle to their learning and development (Schotte et al. 2021). They espouse that for students who hold on to their "own" ethnicity, their values and beliefs become an obstacle to their successful adaptation to mainstream society (Agirdag et al., 2013; Bender-Szymanski, 2000; Profanter & Hachfeld, 2018).

3. Background of New Zealand context

New Zealand has a history of high levels of inequity in academic outcomes for students. Many students flourish in the New Zealand education system, but there is a concerning 'tail end' of students whose academic results are declining (Organisation for Economic Co-operation and Development [OECD], 2019; Wilson & Jesson, 2018). New Zealand also has one of the highest global rates of streaming and banding (OECD, 2016) of students based on their academic summative test results. This method of structural categorisation of perceived student academic ability is problematic because, as Hipkins et al., (2016) contend, New Zealand students have not had equal opportunities over the duration of their secondary school education to practise the critical thinking, needed to gain access to academic success in New Zealand universities. Indigenous Māori students and low socio-economic status (SES) students are over-represented in low-band classes in secondary schools in New Zealand (OECD, 2012) and, therefore, it is important to consistently research experiences of students to better understand the consequences of the inequities that continue to be perpetuated through these types of unchallenged oppressive systems - which are examples of covert structural racism (Highfield, 2021). For example, in 2019, a third of Year 11 indigenous Māori students were not enrolled by school leaders to attempt success in the nationally assessed, mathematics assessment. Over the last decade, a range of government policies have signalled an increased emphasis on school leaders taking a culturally responsive

approach to policy decisions and pedagogy to address persistent barriers to student underachievement, particularly for minority groups (Ministry of Education, 2022).

The school-exit qualification in New Zealand is called the National Certificate of Educational Achievement (NCEA). NCEA, is a standards-based qualification system where curriculum subjects are assessed by a mix of exams and internal assessment endorsements that are nationally moderated. There are three levels of NCEA; designed to assess the learning of 15-18-year-olds in the senior secondary school. Students are recognised for their achievement at each level by gaining NCEA with Merit or NCEA with Excellence (New Zealand Qualifications Authority, 2019). In order to achieve excellence grades in the NCEA students must be able to engage in critical thinking within the curriculum subjects they have selected.

Socio-economic effects in this research project were measured by a system that has recently been abandoned by the current New Zealand government, called school decile. When this study took place, every school in New Zealand – primary and secondary – was accorded a number from 1 through to 10 that denoted the average socio-economic status of the students who attended the school (Ministry of Education, 2022). Schools with a decile 1 ranking served socio-economic areas with the highest proportions of minority and economically disadvantaged students whereas decile 10 schools served the more affluent students and were often situated in prosperous urban suburbs (Fiske & Ladd, 2001). Until last year, the New Zealand government used this mechanism to fund lower decile schools at a higher per-student rate than those in higher decile schools (Ministry of Education, 2022). For the purposes of this project, participant schools who at the time of data collection were rated decile 1-3 were considered low Socio- Economic Status (SES), schools 4-7 decile were rated as mid SES and schools in the 8-10 decile were rated as high SES.

There has been renewed interest in the place of critical thinking in secondary education in New Zealand because of slipping academic standards compared to international results, despite recent curriculum and assessment developments designed to meet the needs of diverse learners (OECD, 2020). Included in the national assessments for secondary aged students (aged 15–18) there has been a greater emphasis on creative and critical thinking skills. The requirement for ever-increasing knowledge and capability for preparing young people for their futures and developing teachers' skills so that students can access this learning is an ongoing challenge and not always equitable for all students. Understanding teachers' beliefs about the extent to which they believe they can teach critical thinking to diverse students from cultural backgrounds other than their own is particularly important in the New Zealand context. The public education system is based on the notion that all students have a right to receive an education that will provide an opportunity for academic attainment (Ministry of Education, 2020). Although critical thinking has been proposed to be important for equitable outcomes for students (Bolhuis, 2003; Museus & Jayakumar, 2012), low equity in New Zealand manifests, not only in an uneven distribution of wealth, but also in varying access to teacher expertise and the types of learning that can contribute to closing the gaps of this inequity.

Although the New Zealand Curriculum Refresh (Ministry of Education, 2022) has been designed for all pupils, irrespective of the academic level of the class in which they learn, teachers' capacity and capability to provide equal opportunity for students to practise critical thinking is currently unknown. Therefore, this study set out to scope teachers' beliefs about how their students' cultural identity impacts their ability to use CT in the classroom in order to gain insights into how to support teachers to address the current inequities for students and effectively implement critical thinking in their classrooms.

3.1. Definition of Critical Thinking for This Study

The definition of CT for this study was drawn from government mandated curriculum documentation, utilised by all New Zealand schools. Like many OECD countries, the New Zealand Ministry of Education has an intensifying interest in CT due to the rapidly increasing use of social media, and rising concerns about the proliferation of mis-dis-and mal-information

(Ministry of Education, 2022). The initial definition of CT that was described in the New Zealand Curriculum document (2007) stated: "Thinking is about using creative, critical, and metacognitive processes to make sense of information, experiences, and ideas. These processes can be applied to purposes such as developing understanding, making decisions, shaping actions, or constructing knowledge, p.12. However, since the 2007 statement, the New Zealand government has attempted to define CT for teachers in order to include a more developmental approach, defining what it means by to be thinking critically by the time students reach the senior school (age 16-18 years). Therefore, CT skills are now described as progressions, through increased depth of thinking and sophistication.

The following definition was sourced from the New Zealand curriculum refresh documentation (Ministry of Education, 2022) and selected for use within the Qualtrics survey because it clearly explains the expectations for critical thinking skills for New Zealand students, by the time they reach the senior secondary school. In order to give clarity for teachers the researchers selected this statement as a definition for participant reference due to the use of simple language, teacher familiarity and to avoid ambiguity.

"Understand and use at least two different types of information from a variety of sources; use sources to gather reliable information about a big idea; gather information from primary and secondary sources, considering their reliability and identifying gaps in them; consider whether my sources are valid and reliable, identify gaps in them and reflect on the weaknesses and bias in them and engage with diverse theoretical perspectives that seek to explain the paradigms and ideologies behind people's action and ideas" (Ministry of Education, 2022, p.6).

4. Literature Review

4.1. International Research on the Interrelationship of Cultural Differences between Teachers and Students

In this study, given the complexities of the students multiple identities and their cultural background, cultural identity of students was defined as including the notion of the diversity in learner epistemologies (Ab Kadir, 2016). Ab Kadir (2016) argued that students will make sense of their identity and what they experience by linking it to their prior knowledge, or, if the experience is new for them, augmenting what they know to process new experiences. Inevitably, the students' personal epistemologies' will be shaped by their individual cultural and value systems that have shaped their perspective and world views. These multiple identities of students are important to consider because of the increasing cultural and ethnic diversity of students in New Zealand schools. To gain a comprehensive understanding of teacher's beliefs on how cultural identity impacts secondary student's ability to think critically, an extensive search of literature was conducted. Google Scholar and The University of Auckland's Catalogue database were used with the search terms 'critical thinking', 'secondary schools', 'culture/diversity', and 'teacher beliefs', allowing a narrow but precise search. A total of 39 relevant articles were identified that provided insight into the research aims. These were predominantly: case studies (29), theoretical studies (6), and reflective articles on the nature of these topics (4). No articles discussed the cross-section of all four of these terms, which provided certainty that the findings of this study contribute to a gap in the field. After reading, annotating, and compiling the literature, clear themes were present: cultural identity impacts CT; culturally relevant practices can enhance CT; teaching CT is more difficult in some contexts than others; CT is a concept shrouded in Western ideals; and language affects one's ability to express CT.

Recent research reveals that students whose teachers have high expectations for the whole class, appear to make positive gains academically and psychologically when they are taught in a class where the teacher believes they can achieve. The converse effect occurs when a teacher with low expectations of their students, has a negative impact on their students' achievement and self-belief (Rubie-Davies, 2016). The teacher expectation research is relevant to this study because the notion that differentiated cultural background of teachers and their students can negatively impact

classroom teaching is not new and was identified within the sphere of critical thinking in the late 1990s. In 1999, Elise Rockwell contended that children from different cultural traditions often have serious doubts about the validity of assertions they encounter in the classroom when these contradict what students have learnt at home (Rockwell, 1999). Littlewood (1999) cautioned against the presupposition that specific notions and practices in the West 'must of necessity also be appropriate to an east Asian context' (p. 73). Atkinson (1997) criticised the stance of self-expression in CT stemming from the Western, individualistic sense of self that is substantially prescribed in many non-Western cultures.

Lu and Singh (2017) conducted a study specifically focused on the capability of 'Chinese students' to think critically in Anglophone universities, but many of the concepts draw on deficit theorising that were represented in these teachers' comments. The use of inverted commas is purposeful due to the authors' argument that 'multi-lingual students' would perhaps be a more appropriate term and 'opens up possibilities for exploring the potential their linguistic repertoire offers for them to access modes of critical thinking' (Lu & Singh, 2017, p. 2). These authors argued that critical thinking has become reduced to a Western phenomenon, and that it has ignorantly been constructed as a unique Western mode of expression. Their research looked at the possibility that, privileging modes of critical thinking in English, means neglecting modes of CT in other languages - potentially erasing significant contributions from learners (Lu & Singh, 2017). These claims surrounding the prioritising of a Western 'style' of critical thinking are further explored in Howe's (2004) study of the differences between Canadian and Japanese teachers' conceptions of CT. Charlene Tan (2020) explored the notion that Chinese applications of critical thinking are 'determined by socially embodied and historically contingent tradition' (p. 342). Tan (2020) reified some of the teachers' responses as she observed that the definitions of CT asserted by the Shanghai school leaders in her study involved neither confrontational approaches nor anti-establishment ideas that are commonly part and parcel of Western conceptions of CT. She found that there were fundamental differences between East Asian and Western understandings of CT and reiterated that there was a diverse array of approaches to, and understandings and expressions of, CT across different cultural traditions (Tan, 2020). For example, when it comes to achievement, what is considered achievement differed from one culture to the other.

Similarly, Guo's (2013) research on culture reveals that some teachers make assumptions about ethnic groups and others argued that there are, indeed, cultural differences in views on CT. Multiple studies show that it is not so much a matter of cultural difference but language proficiency (Lun et al., 2010; Lu & Singh, 2017; Manalo & Sheppard, 2016; Player et al., 2021). An example of how problematic teachers' beliefs can be about language proficiency is demonstrated by Ronai and Lammervo's (2017) study, which showed that teachers of second language learners will group learners into passive or active learners, thus limiting the students' opportunities for using CT of their own accord. Torff's (2006) study examined the assumptions of teachers around minority students who were considered 'lower ability' and therefore did not receive challenging high CT activities. Davies & Esling, (2020) study of minority secondary students demonstrated that when students drew upon their cultural background and identity knowledge to contextualise controversial issues such as the exploitation of coffee bean workers, this learning opportunity increased their capacity for critical analytical thinking in a national assessment (Davies & Esling, 2020).

This current study was designed to examine the extent to which New Zealand teachers held similar or dissimilar views to international studies conducted in secondary schools.

5. Method

5.1. Study Design

The qualitative research design was selected because of the need to use methods which allow opportunity to investigate teachers' patterns of behaviour and processes of interaction, as well as revealing the meanings, values and intentions of a participant (Grbich, 2013). The data collected is

interpreted via various conceptual or theoretical perspectives (Grbich, 2013). Grounded theory was used to enable analysis of the data because the technique is best used for small scale projects such as this study, where little previous research has occurred and where processes, relationships, meanings and adaptation are the focus (Strauss & Corbin, 1997).

5.2. Participants

Ethical approval for the study was provided by the University of Auckland (22366) to recruit New Zealand secondary teachers to participate in the study. The researchers contacted secondary teachers who managed nationwide curriculum or subject association websites. The purpose of these websites is mostly for the secondary teachers to engage online with each other and provide support for each other through the sharing of resources and updates related to new government initiatives. The researchers provided ethically approved participant information which explained the study to the online managers and they agreed to post the Qualtrics Survey on their curriculum websites including participation information from the researchers. These online postings provided an opportunity for teachers to participate if they were interested and access to the Qualtrics survey.

The teachers who participated in this study were based in a variety of geographic locations. Almost half of the teachers were in schools in cities, about a quarter were based in schools in towns and 15% were in schools located within city fringe and rural areas, respectively. In New Zealand approximately 14% of the population live rurally, and a fifth of those live-in areas that have a high urban influence (New Zealand Government, 2022). Many schools that were rural a generation ago have become high income urban schools, because of urban spread to acreages and coastal areas.

Participants identified as working in a range of school types, with most teachers working in schools that are fully funded by the government. These include co-educational schools (63%), followed by single-sex schools (23%) and integrated schools which are faith-based schools funded by a combination of government funds and parent fees (9%), allowing more autonomy than state schools. A further (5%) of teachers worked in Māori medium schools, which are schools that are government funded and students are taught in Te Reo Māori using a specifically designed Māori curriculum and assessments. Each schools' socio-economic status (SES) measured by school decile ranged from very low to very high. However, more teacher participants in this study were based in the middle-decile to high-decile schools compared to those of lower deciles. Most teacher participants described teaching in traditional, single-cell classrooms (87%), whereas a smaller percentage taught in modern/innovative open plan learning environments (13%).

Among the participants, more than 60% were mathematics teachers, followed by geography (30%), and English teachers (10%). Most of the participant teachers identified as European/Pākehā (70%), which includes both New Zealand European and overseas European. Other participants identified as Māori (8.7%), Asian (6.3%), South African (5.3%) and Middle Eastern/Latin American/African (MELAA) (5.2%), with teachers who identified as being from a Pacific island the smallest group (4.4%). The New Zealand population, according to the New Zealand 2018 Census (Statistics New Zealand, 2020), stated the ethnic groups in New Zealand were European 70.2%; Māori 16.5%; Pacific Peoples 8.1%; Asian 15.1%, Middle Eastern/Latin American/African (MELAA) 1.5% and other, 1.2%. Therefore, this study had an under-representation of Pacific teachers and a higher representation of South African teachers in relation to ethnic groups in New Zealand. There were more female (57.9%) than male (38.5%) teachers who participated in the study. Regarding the qualifications of the participant teachers, one third of the teachers had a graduate diploma in teaching, and nearly one in five had a postgraduate diploma in education. The average teaching experience of the participant teachers was 18.9 years ($SD = 10.8$).

5.3. Data Collection

Teachers were given to access and complete the anonymous survey, and their responses were downloaded from Qualtrics on 25 September 2021. The questionnaire included generic questions concerning teachers' beliefs about critical thinking and their pedagogical practice. They were also asked for their views on the type of professional development on critical thinking that would

support their practice. It is reasonable to assume that the teachers who chose to participate in the research, were interested in critical thinking, and therefore the results would have some bias.

The research question taken from the survey for the purposes of the analysis reported in this study was the following:

Please draw on your experience to comment on how a student or a teacher's cultural background affects their approach to critical thinking. Cultural background may include ethnicity, values, and beliefs, and how steeped in their own culture the student or teacher is. Feel free to apply your own view of culture when considering this.

5.4. Data Analysis

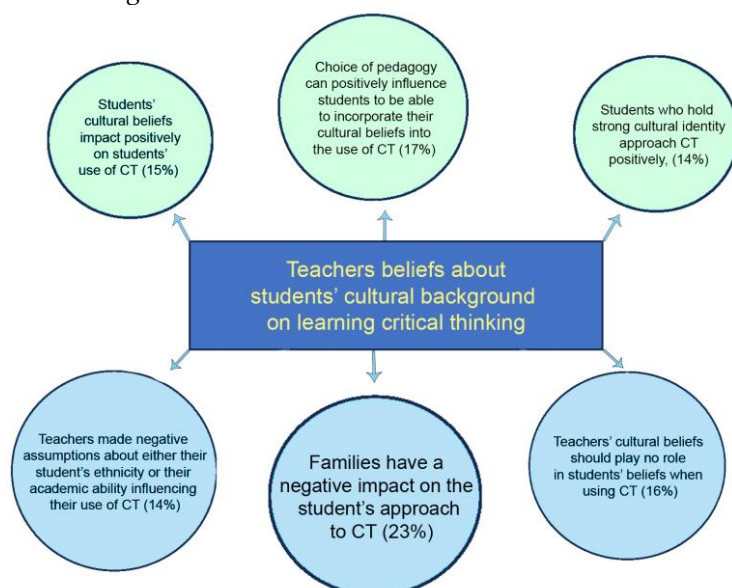
To analyse the teacher responses to the survey, we employed Braun and Clarke's (2006) thematic analysis to approach the data. Participants' answers were coded and analysed to gain an understanding of how teachers articulated the impact cultural background had on their approach to teaching CT. The literature search provided key thematic codes in what Braun and Clarke (2006) identified as a theoretical thematic analysis, 'driven by the researchers theoretical or analytic interest in the area' (p. 84) and therefore provided a rich description of the entire data set, rather than focusing on one aspect, given this is an under-researched area. Codes and themes were generated using semantic analysis, with the researcher identifying patterns in the way participants expressed and articulated their beliefs on the topic.

6. Results

The key findings from the qualitative posts by teachers in the survey reflected a mix of responses with regards to students' cultural background impacting on their approach to CT. The most common post recorded was teachers expressing their belief that the students' family had a negative impact on the students' approach to CT (23%). Other negative beliefs expressed were that the teachers' cultural beliefs should play no role in students' beliefs when using CT (16%) and 14% of teachers made negative assumptions about either their student's ethnicity or their academic ability would influence their students use of CT. Conversely, positive comments reflected teachers' belief that a choice of pedagogy *can* positively influence their students to be able to incorporate their cultural beliefs into their use of CT (17% comments); the students' cultural beliefs impacted positively on the students' use of CT (15%) and students who appeared to hold a strong cultural identity approached CT positively, (14%) (see Figure 1).

Figure 1

Findings regarding teachers' beliefs of students cultural background impacting on their capability to learn critical thinking



6.1. Negative Family Influence (Assimilation View)

Negative comments from participants about how the family influences the students' approach to CT and how they perceived this as a problem in the classroom were more prevalent from teachers from South Africa who had immigrated to New Zealand. More than half of the teachers in the study dismissed the notion of the students' family, cultural background and identity influencing their approaches to critical thinking. Some teachers expressed a view that the parents had a negative impact on the student's willingness to use critical thinking. A mathematics teacher who identified as female stated "Parent teacher discussions were also interesting as they had to be done in a way that satisfied the parent because they were concerned that critical thinking on the child's part would be threatening to them as a parent". The same teacher commented that drawing out an answer from some students was a struggle because of the fear of the "'top-down' approach from the parents" (Female mathematics teacher who identified as South African with 30 years teaching experience).

6.2. Teachers' Cultural Beliefs Should Play No Role (Egalitarian or Colour Blind View)

Some participants stated that they believed teachers own culture played no role or should not play a role in their teaching of critical thinking. Respondents' views were represented by a female geography teacher who identified as European/ Pākehā² geography teacher with 20 plus years of teaching experience maintained that a teachers own culture should be irrelevant, she maintained that "for critical thinking a teacher's ethnicity, values or beliefs should be irrelevant". An experienced female mathematics teacher who also identified as European/Pākehā with 10 plus years of teaching experience believed that neither the teachers nor the student's family or cultural background has any influence on the way that CT is taught by teachers or learnt by students: "I don't believe cultural background affects the ability to teach or learn critical thinking! It is within every human's grasp to think and to think for self critically".

6.3. Agentic Positive Beliefs of Teachers (Multicultural View)

Conversely, other teacher comments were positive about the impact a teacher has on students' capacity to use CT. Participants consistently commented that effective culturally responsive pedagogy of teachers can effectively draw on students' cultural background to support their developed understanding of CT. A male mathematics teacher stated "A student should feel in my classroom that that their cultural background is acknowledged, and develop awareness that it is not entirely determinate of their learning journey, rather one of many components" (Male mathematics teacher who identified as European/Pākehā who had six years' teaching experience).

Teachers also commented on the importance of teacher student relationships that are affirming, productive and support and motivate students to apply themselves to thinking critically. Comments were focussed on the pedagogy required to integrate the learning about critical thinking so that it is integrated into authentic learning contexts that students understood and related to. A female geography teacher who identified as Middle Eastern/Latin American/African (MELAA) and who had 6.5 years' teaching experienced explained that:

Student's cultural background has many variables that a teacher cannot control and the motivation to be capable in critical thinking comes from the pitch of the teacher to explain to students the value of critical thinking. 'How' the critical thinking is taught and integrated into learning should involve a variety of methods to suit the cultural needs of the student/s.

6.4. Students' Cultural Beliefs is Significant in Learning Critical Thinking (Multicultural View)

Teachers also consistently commented on the student's cultural identity playing a significant role in their students' use of CT. Indigenous Māori teachers were less likely to separate notions of culture from students learning approaches and clearly stated that cultural norms and spiritual

²Pākehā is a Māori-language term used to describe people usually of European descent.

beliefs were critical to methodology adapted in problem-solving. “Everyone’s culture impacts everything they do, say, think, feel so to assume that cultural perspective would not change your ways of thinking/teaching/learning critically is a bit naïve [sic] (Māori, mathematics, female, first year teacher). These teachers explained that critical thinking involved making values-based judgments about different aspects of a situation or problem. A mathematics teacher reflected: “there is an objective framework which problems or situations should be analysed against, but students (people) will always approach this framework through the lens of their culture. Therefore, culture will shape a person’s critical thinking (New Zealand European, mathematics, no gender, 7-years experience). A geography teacher explained that critical thinking is higher level thinking and stated: “my Māori students participate fully and have great higher order thinking” (New Zealand European, geography, female, 20yrs). Two indigenous Māori teacher participants commented on the westernised values that were embedded within critical thinking. They explained that they believed that Māori students consider spiritual aspects of their world more than non-Māori, when arriving at decisions. One participant who was a male geography teacher who identified as European/Pākehā with 33 years’ teaching experience contended that: “For Māori this includes impacts on people and the environment in terms of effects on daily life – the economic aspect is often seen as more important for non-Māori”. A male English teacher who identified as Māori with 8 years teaching experience explained:

The view of indifference occurs when monocultural values are expressed by the “dominant” culture which still attempts to pervade the interpretation of “cultural” background, pedagogy, and relationships. Critical thinking for Māori is still being perceived through the lens of pākehā [sic].

6.5. Deficit Theorising

The results also revealed teachers made assumptions about students’ cultural identity and how this impacted on their ability to apply critical thinking in the classroom. These comments were somewhat negative and reflected general stereotypes that teachers held about the values, beliefs and dispositions of students who identified within a particular cultural group. An example was a mathematics teacher who described his work with Pacific Island students where he explained his beliefs about why students he taught were unlikely to openly express their ideas in the classroom. He states: “if a [Pacific Island] student disagrees with a position or an idea expressed by an elder, they may remain silent out of respect rather than show disrespect. This doesn't mean that they are not engaged in critical thinking” (Male mathematics teacher who identified as European/Pākehā with 28 years of teaching experience). A male mathematics teacher who identified as Taiwanese with 13 years’ teaching experience also expressed views about the learning background and focus of Asian students. He explained:

The students from Asia tend to focus on the knowledge-based learning. Therefore, critical thinking to them is foreign and they require more time to understand the importance of critical thinking. Additionally, some cultures might focus more on living in harmony with each other, the definition of critical thinking might make them feel uncomfortable.

A geography teacher stated that European culture had a negative impact on the abilities of high-income students to be critical thinkers with regards to some topics, particularly with issues that don’t impact these students’ daily lives. She also shared a view that teaching critical thinking and perspectives to everyone regardless of background or “group” is very important to increase understanding of diverse communities and decision making to support students to think more about inclusion.

The results revealed considerable deficit theorising (Bishop & Berryman, 2010) by some teachers. Alongside ethnic stereotyping, some teachers identified that their students did not have the academic capacity to use CT. One mathematics teacher stated that students that come from a low socio-economic backgrounds had poor disciplinary knowledge and therefore were not able to cope with developing their CT skills. Some participants stated that more experienced teachers were more capable of teaching critical thinking skills but that students did not have the capacity to

engage in this type of thinking as they had not gained foundation content knowledge from a young age. He stated: "We keep making excuses for their inability and continue to dumb down our education system to cater for the lowest kids. Many Māori and Pacific Island kids do not have the ability and blame the system" (Male geography teacher who identified as South African with 27 years of teaching experience).

A more positive response was reflected by participants who stated that students who have a strong cultural identity had a greater capacity for CT. Teachers described students that had a deep understanding of who they were, know their values; and are deeply involved within their culture and practices displayed ability to think critically. Conversely participants commented that students who find critical thinking more challenging, are those that don't articulate their values or do not actively participate in cultural practices. An English teacher commented, "They don't tend to have much wider world knowledge (I don't mean they have or haven't [travelled] these students aren't a part of anything other than their small circle - the only news they learn is from social media" (Female English teacher who identified as European/Pākehā who had four years' teaching experience).

Teachers commented that students who can identify their own place in the world, by being able to identify their own heritage/culture/identity and compare it to the culture around them, and are confident in doing so, are more likely to demonstrate good critical thinking skills. The same may also be said of a teacher who understands the differences/similarities between cultures, and though may not be fluent in a student's cultural heritage, is still able to compare different perspectives and approaches, which is in effect, the basis for being a critical thinker. In addition, a few teachers identified that the students' religion has an impact on their use of CT. This was not always positively expressed by teachers who felt that some students held religious beliefs which did not encourage critical thinking. A female mathematics teacher who identified as German with four years' teaching experience commented: "If people can be indoctrinated to believe something without evidence their critical thinking skills are undermined".

Interestingly, participants comments' regarding the influence of religion impacting on students' approach to CT were fewer than other international findings and may reflect that in the 2018 New Zealand census, 42.6% of those who participated in the census identified as having no religion (Statistics New Zealand, 2020). A further contributing factor could be that the religion of students is often invisible in the classroom compared to ethnicity and cultural identity. Teachers' non-identification of religion impacting students approach to CT may mirror the proportion of the New Zealand population as having 'no religion' and explain this anomaly in the findings when compared to international studies.

7. Discussion

This study sought to establish the extent to which mathematics, geography, and English school teachers in New Zealand believe their students' approach to critical thinking was influenced by their cultural identity. The findings from this study that revealed the greatest difference from the current empirical international research were the proportion of teachers who negatively identified the influence of the students' cultural identity and their ability to use CT. Over half (53%) of teachers expressed a view that the teachers' own cultural identity should play no role in the learning of CT endorsing assimilation cultural beliefs (Schotte et al., 2021). The respondents expressed stereotyped assumptions about cultural identity, endorsing egalitarian or colour blind cultural beliefs (Hachfeld et al., 2011). They expressed a view that students who were 'less able' academically were incapable of utilising CT in their learning. This diversity of beliefs and expectations from the New Zealand teachers on the effects of the cultural identity of students and their learning of CT is important to address because teachers' expectations of their students' capabilities of CT is likely to have considerable impact on their academic development. This finding is congruent with international studies and aligns with teachers' beliefs that language and literacy abilities affect students' ability to use CT (Rear, 2017).

The key finding of this study; that New Zealand secondary teachers believed a students' family and cultural identity had a big influence on their approach to critical thinking is not generally reflective of international studies, but is aligned with a recent study in Hong Kong (Wan, 2021). The diversity and inconsistency of answers from the teachers' reflections in this research project does not reflect mandated education policy such as the intentions described within the New Zealand Ministry of Education vision³ for teachers requiring them to recognise the importance of students' family and cultural identity. Government initiatives that have set out to address teachers' acknowledgement of students' cultural identity is Te Kōkiritanga, 2020-2023 and aims to achieve equity for ākonga Māori (children) and their family (New Zealand Qualifications Authority, 2020). International scholars have also shed light on why teachers embracing students' family cultural background is important in terms of their contexts for learning. According to Ab Kadir (2016) and Guo (2013), learners abstract what it is they are learning and make sense of it using their personal epistemologies. Their comments echo Coskun and Altinkurt's (2016) assertion that values from family affect the behaviour and decisions of individuals - inevitably affecting how one thinks and makes sense of themselves. It is crucial that teachers are cognisant of their student's cultural identity, knowledge and beliefs to support their engagement with CT within classroom settings.

Though many of the teachers who participated in this study held highly respectful and open-minded views on their students' capacity to use critical thinking (DeWaelche, 2015; McNeill et al., 2016), and align with multicultural cultural beliefs (Park & Judd, 2005) there were others who rejected the notion that students' family background, cultural background or identity served any purpose in their students' approach to critical thinking. A proportion (23%) of the teachers also expressed their assumptions about the student's cultural identity affecting their approach and ability to apply critical thinking. In a synthesis of personal attributes which describes the way teachers need to engage indigenous students effectively in learning, Bishop and Durksen (2022) explain that to identify and address deficit-based attitudes teachers need to be aware of their influence and of their own perceptions of learner success, particularly students who belong to minority groups. Lowe et al. (2014, p64) argue that 'it is the myth of primitivism that is at the heart of systematic low expectations and deficit logic'. Teachers, like all members of society, are influenced by the paradigm of unconscious bias (Blank et al., 2016). These deeply held and subconscious biases are based on social groupings that help explain patterns of discrimination (Blank et al., 2016). A range of teachers' who participated in this project provided comments that revealed racist and uninformed ideas, confirming that stereotypes and assumptions of cultures informed their beliefs around teaching critical thinking (Jones, 2005; Kumar & Lauermaun, 2018). Though many of the international studies looked to the "westernisation" of critical thinking as being problematic for minority students (Guo, 2013; Howe, 2004; Lun et al., 2010; Rear, 2017), only two of the teachers in this study raised these ideas as problematic within a critical thinking context. Interestingly the participants who raised these ideas were of indigenous Māori decent.

The New Zealand teachers in this study were more likely to comment on students not having the intellectual capacity to use CT compared to their international colleagues, and this may reflect (as indicated in the literature review) that New Zealand has one of the highest rates of streaming and banding for academic ability in the world (OECD, 2016). The ongoing history of categorisation of students based on perceived ability reflects a culture within secondary schools where groups of students, who often identify within a minority group, are both formally and informally labelled as under-achieving. This practice contradicts New Zealand government policies requiring culturally responsive teaching and learning and has prompted calls from Māori communities and academics for the New Zealand government to mandate against the practice of streaming³. Rubie-Davies (2014) explains when teachers have preconceived expectations of students, their expectations can lead them to deliver instruction they think is appropriate, based on their pedagogical beliefs. When those beliefs are deficit, the result is that students who identify within a minority cultural

³ <https://www.maorifutures.co.nz/stream/>

group are often under served by teachers who plan and deliver lessons that are not challenging enough to enhance their learning.

Within the critical thinking literature, it is widely acknowledged that culturally relevant pedagogy will increase the efficacy of CT skills in the classroom (Ab Kadir, 2016; Jones, 2005; Lu & Singh, 2017; Wu, 2020). This cannot be separated when we approach problems or analyse situations. Ab Kadir (2016) made clear that, by prioritising Western concepts within the classroom, diverse learners become compromised, as their epistemologies are not naturally congruent with these ideas. He stated that teachers need to find ways to mediate these tensions and clashes by developing a critical appreciation for learner diversity, and that teachers need to learn about their students' beliefs and worldviews (Ab Kadir, 2016). Wu (2020) suggested that teachers must draw on, and inquire into, students' socio-cultural experiences and situations and then explore appropriate materials to meet those needs. Although some of the teachers' who responded in this study supported facets of these concepts, many did not. Problematic to this notion is, as Guo (2013) pointed out, people from different cultures interpreting concepts through their own cultural frame of reference, and therefore paradigms such as individualism and collectivism, commercialism, femininity, and masculinity will all have an impact on the way in which we conceptualise problems for teaching of critical thinking.

The New Zealand governments' current programme to refresh the curriculum is requiring increasing and embedded understanding of critical thinking to be taught to students. If teachers hold beliefs that students cannot engage in this type of thinking either because of their SES, cultural identity, or prior learning there is little chance of students being provided with these types of learning opportunities in a way that supports their success. When teachers respectfully engage with students' cultural background, they should be comfortable and aware of their own cultural background and identity (Ladson-Billings, 1995). Many of the participants in this study also denied the importance of their own cultural background when engaged in the teaching of CT with their diverse students, reflecting both their egalitarian and assimilation beliefs (Hachfield et al., 2011)

The extent to which culture impacts the CT of students is nuanced. Teachers expressed views about their students' cultural identity being intertwined with the ways they problem solve and think critically. This study found diverse opinions of teachers and their beliefs about the cultural identity of students' and the impact on their ability to think critically. More than half the teachers dismissed the role of the students' family, cultural background and identity influencing the students' approaches to critical thinking and yet the research literature indicates that students learning should be contextualised within their own cultural milieu. This study reveals that all students should have equitable access to critical thinking and the provision of this opportunity needs to go beyond government policies to shift teachers' beliefs. Therefore, before engaging teachers in intervention programmes of professional development regarding critical thinking pedagogy, it is essential to understand what the teachers' existing beliefs are, and the extent to which they hold firmly entrenched biases and stereotypes. These types of beliefs are likely to be detrimental to minority students' opportunities to use critical thinking and could negatively affect their socio-emotional wellbeing. Shifts in teachers' practice are unlikely to occur if researchers and practitioners do not understand the underlying theories held by teachers and address these beliefs and assumptions.

7.1. Limitations

A limitation of the study was that the survey was completed online by a random population of secondary social sciences, mathematics and English teachers in New Zealand that will inevitably reflect the biases of a cohort of volunteers. It is highly likely that the teachers who chose to participate in the survey held strong opinions and views on the topic of the impact of cultural identity of their students' and their approach to CT and were therefore motivated to complete the

survey. This bias in the cohort in part could explain the results that have deviated from international studies.

8. Conclusion

Rombout and Volman (2021) claim that CT can be segmented into cognitive, metacognitive, and ethical considerations. Research on CT has focused mostly on teachers cognitive and metacognitive beliefs about how to teach CT. Little research has focused on ethical considerations related to the influence of teacher beliefs on their approach to teaching CT. This study revealed that consideration of students cultural identity, the intersection with their approach to critical thinking, and the influence of students own cultural identity context is important if equitable accessibility to CT for minority students is to be realised. Many teachers participants in this study held an assimilation view (Schotte et al., 2021) or egalitarian/colour blind view (Markus et al., 2002; Richeson & Nussbaum, 2004; Wolsko et al., 2005) which would impact students negatively when learning about CT. Whilst some teachers held multicultural views (Park & Judd 2005), new policies such as the refresh of the New Zealand curriculum that promotes the use of CT, requires considerable professional development for implementation to ensure culturally responsive access to CT for indigenous, diverse and minority students.

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