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Shame, entitlement, and the systemic racism of mathematics "ability" grouping in Aotearoa New Zealand

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Abstract
Decades of research has documented the consequences of allocating school students into a hierarchy of classes with narrow ranges of mathematics attainment, a process known as streaming, tracking, setting, or "ability" grouping. The purported benefits of streaming are inconsistent and disputed, but the harms are clear, in particular, (1) the limiting curriculum often available in low streams and (2) the loss of self-confidence that results from being positioned in a low stream. Building on this foundation, we discuss streaming in mathematics as tied to systemic racism in Aotearoa New Zealand, where the harmful effects of streaming fall most heavily on Māori and Pasifika students. Previous analyses of race and streaming have focused primarily on the racial composition of streamed classes, bias in stream allocation, and racialised teacher expectations in streamed settings. In contrast, we focus on the emotional consequences of streaming, arguing that streaming produces racialised emotions of shame and entitlement as unintended but predictable consequences. We illustrate the racialised production of entitlement and shame through collaborative storying, interweaving our own biographies with a re-analysis of student interviews from two prior studies.

Keywords Systemic racism · Racialised emotions · Ability grouping · Mathematics · Shame · Entitlement

1 Introduction

In over 90% of secondary schools in Aotearoa New Zealand[1] (OECD, 2016), students are allocated into mathematics classes with peers who have similar test results; a set of related processes (Domina et al., 2019) known as tracking, setting, banding, "ability" grouping,

[1] *Aotearoa* is used in the Māori language and increasingly in New Zealand English to refer to the modern state widely known as New Zealand.

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and, henceforth in this article, *streaming*. Recent research on streaming in mathematics affirms that it does not benefit learning overall and actively reinforces existing achievement inequalities (e.g., Francis et al., 2020; Jaremus et al., 2020). Streaming continues to be a social filter, especially in terms of race, ethnicity, and social class, and has been found to impede social mobility (Boaler, 2005; Clandfield et al., 2014; Herbel-Eisenmann et al., 2011). Whilst streaming occurs in other curriculum areas, it tends to be most common in mathematics (Francis et al., 2020). Building on previous research (Anthony & Hunter, 2017; Turner et al., 2015), we argue that streaming in mathematics produces racialised forms of entitlement and shame, often systematically privileging Pākehā[2] (white) students and disadvantaging Māori (Indigenous) students.

Prior research has explored racialised outcomes of streaming, including racial bias in stream allocation (Connolly et al., 2019) and opportunities to learn rigorous mathematics (Oakes, 2005), and racialised teacher expectations that are exacerbated by streaming (Turner et al., 2015). Other studies explore the ways in which streaming interacts with social class and gender inequities (Archer et al., 2018; Jaremus et al., 2020). Building on this much broader body of research about streaming and equity, the current article focuses on the way in which the emotional consequences of streaming are racialised in Aotearoa New Zealand.

Racialised emotion was one of a number of themes that emerged from our broader work on streaming and Indigenous students. We chose this focus because we believe that in order to address racism, "the racially dominant […] must acknowledge racial domination and its concomitant feeling order as well as the real racial history of the world that produced them" (Bonilla-Silva, 2019, p. 14). Drawing on Sayer's (2005) framing of emotions as reasonable responses to circumstances that matter to us, we argue that mathematics streaming engenders an emotional response of entitlement for high-stream students, especially if they are Pākehā (white), and shame for low-stream students, especially if they are Māori. We acknowledge that streaming may engender shame for low-stream students and entitlement for high-stream students of any race. Similarly, we recognise that students of all racial backgrounds are present in both low and high streams. However, our point here is that there is a specific and self-reinforcing interaction between the effects of streaming mathematics and the effects of wider racism. That is, not all students will experience shame and entitlement in racialised ways; Indigenous students' racialised emotions reflect broader experiences of racism in school in an already racialised context of settler colonialism.

2 Racism and emotions

We theorise systemic racism drawing on Goldberg's (2002, p. 4) argument that "the apparatuses and technologies employed by modern states have served variously to fashion, modify, and reify the terms of racial expression, as well as racist exclusions and subjugation". Education systems are one manifestation of state presence in modern society and are therefore also sites in which forms of power and oppression, including racism, are reproduced. Whilst racism is a socio-historic phenomenon that has been theorised by different disciplines (Dei, 2005; Feagin, 2013; Gill et al., 1992; Goldberg, 2002), in this article, we

[2] *Pākehā* is used in the Māori language and in New Zealand English to refer to white/European settlers living in Aotearoa New Zealand.

specifically examine "socially engendered emotions in racialised societies" (Bonilla-Silva, 2019. p. 3). We locate the analysis of racialised emotion as part of a broader analysis of structural racism and the material conditions that inform it, rather than an exploration of personal bias, prejudice, or ignorance (Bonilla-Silva, 2019; Dei, 2005). To see racism as a result of individual moral failure results in a re-signification of racism as a universal, ahistorical, and above all individual problem rather than "being structurally engendered" (Lentin, 2020, p. 63).

Racialised power structures operate through other makers of difference, such as class, gender, and nationality. Thus, racial rule is predicated on disadvantage for racialised groups[3] as well as "white advantage". In this article, we thus focus on how streaming produces shame and entitlement in the context of racialised society. Focusing on outcome rather than intent helps move away from understandings of racial discrimination that seek to locate racism as a question of ignorance and personal prejudice. Such individualisation of racism as personal moral failure (Azarmandi, 2017; Lentin, 2020) removes "state and institutional responsibility for racism, instead turning it into a 'natural' social phenomenon independent of material conditions" (Lentin, 2020, p. 11). We must therefore evaluate institutional practices that might cause inequitable outcomes, including emotional outcomes.

Streaming has been widely argued to contribute to unequal outcomes for students (Francis et al., 2020; Oakes, 2005). We argue here that in the context of Aotearoa New Zealand, Indigenous students are disproportionately impacted by streaming. As such, we are focusing on the impact of streaming and not its intent, and in particular its emotional impact in terms of the experience of entitlement and shame. In framing this argument, we highlight the distinction between impact and intent not to deny that some teachers may have racist intent, but to emphasise that streaming is implemented at the school level and that its structural effects are beyond the control of individual teachers' day-to-day practices.

Following Sayer (2005) and Bonilla-Silva (2019), we conceptualise emotions not as "irrational" feelings, but as responses to circumstances that matter to us. As Bonilla-Silva points out, without understanding the significance of racial emotions in particular "the struggle against racism will always be incomplete" (2019, p. 2). Circumstances that matter to us include how others treat us, for example, the extent to which others show respect for our capabilities, but also our position within institutional power structures. *Shame* is an emotional response to a perceived failure to live up to our expectations of ourselves, resulting in the perception that there is something wrong with us (Sayer, 2005). Shame is most acute when we hold individualised explanations for our perceived failure, and when the expectations that we have failed to meet are set by those whom we respect or with whom we must regularly cooperate (Sayer, 2005). Shame becomes humiliation when a negative judgement of an individual or group is publicly affirmed, and hierarchies that systematically affirm such negative judgements lead to what Sayer (2005, p. 161) calls "structural humiliation". In the context of racialised society, the feeling of shame is racialised when students' expectation is shaped by racist stereotypes and colonial views of Indigenous people. Conversely, we argue that public affirmation that we have succeeded in living up to our expectations for ourselves can engender *entitlement*, for example, the feeling that allocation to a top stream is a fair response to our hard work and/or mathematical talent. Entitlement may include pride in prior achievement, but can also be forward-looking, as seen

[3] We understand that whiteness is also a racial position, but in line with the literature on race critical research, we use the term *racialised* to refer to racialised non-white or negatively racialised people (Lentin, 2020).

in students' expectation of entering well-paid professions as adults. Thus, we frame both shame and entitlement as emotional responses to our perceived success or failure in relation to our own and others' expectations, and to the reasons we provide for our perceived success and failure.

Scholars of race have turned significant attention in recent years to the affective or emotional dimensions of racism in interracial encounters (Bonilla-Silva, 2019; Eriksen, 2022; Zembylas, 2015). For example, Ahmed (2004, p. 119) argues that "rather than seeing emotions as psychological dispositions, we need to consider how they work, in concrete and particular ways, to mediate the relationship between the psychic and the social, and between the individual and collective". In addition to race critical research, we draw on Sayer's (2005) framework to analyse how structural hierarchies such as streaming can engender emotional responses. We bring Sayer's work together with race critical research and argue that racialised emotions "do things" (Ahmed, 2004) and are constitutive forces in already racialised societies.

Therefore, whilst the limitations and problems of streaming have been pointed out (Clandfield et al., 2014; Herbel-Eisenmann et al., 2011; Jaremus et al., 2020), we are focusing on how shame and entitlement as racialised emotions are one way in which the racist outcomes of streaming can be seen. We start this article with a brief historical overview of education and mathematical knowledge in Aotearoa, followed by the methodology, then the empirical analysis of racialised emotions, racism, and mathematics streaming. We conclude by highlighting the importance of structural responses to institutional racism, that is, moving beyond approaches that seek to address intent rather than outcome.

3 History of mathematics and education in Aotearoa New Zealand

Mathematical knowledge played a vital role in the navigation of Oceania (Moana nui a kiwa[4]). Māori understandings of mathematics and science were often passed down through oral traditions (Trinick et al., 2015). These stories included detailed information about how to gauge direction and angles by using the sun as a compass and thus functioned as mathematical guides. Hongi (1909) states that mathematics for Māori included a decimalised numeration system and an elaborate form of multiplication. However, these forms of science were often diminished in the process of colonisation and seen as inferior to European knowledge (Trinick et al., 2015). Indigenous epistemologies and cosmologies were represented as inferior and less advanced, and Indigenous people were constructed as lacking "reason" (Hokowhitu, 2009). Such deficit tropes about the physical rather than intellectual nature of Indigenous people have prevailed over time and are reproduced in current racial discourse about Māori (Hokowhitu, 2008), including in relation to mathematics (Pomeroy, 2021). Such assumptions about the nature of Māori are reflected in the history of schooling.

The predecessors to state schooling in Aotearoa were the missionary schools, first established in the Bay of Islands in 1814, which taught literacy almost exclusively in the Māori language (Benton, 2007). By 1840, there were significant numbers of Māori literate in their own language. In the following two decades, the demographic milieu changed dramatically, and the Māori population was equalled, then surpassed by the white settler population—half from England and the rest from the wider UK, Europe, and America (Benton, 2007). Formal schooling was established under The Education Ordinance Act 1847 which

[4] This is the Māori language term for the greater Pacific region and a concept that acknowledges the connection between different Polynesian islands.

provided government funding for mission schools to teach English to Māori students. By the turn of the century, white settlers outnumbered Māori almost twenty to one, primary education was compulsory for all children, and Māori language was banned from the classroom and often from the playground (Waitangi Tribunal, 1986).

George Grey, governor of New Zealand from 1845 to 1853 and again from 1861 to 1868,[5] propagated the dominant pattern of Māori education which prevailed until the 1930s, namely amalgamation of the races. In practice "amalgamation" looked a lot like assimilation. Under the Education Ordinance Act 1847, Grey funded the existing network of mission schools to provide an education for Māori children that was rooted in four principles: religious instruction; industrial training; instruction in English; and government inspection.

Māori were seen by a cash-strapped colonial administration as well suited to providing a potential labour force for the young colony (Hokowhitu, 2008). The foundations of Māori education policy were based on the racist assumption that Māori were not suited to academic pursuits, including mathematics, which might lead to roles of leadership, influence, and civil service. Such roles were to remain the exclusive domain of white, wealthy New Zealanders. The assumptions behind this early "amalgamation" policy resemble those underpinning streaming in schools today. Both policies assume that those responsible for designing and implementing the curriculum already know what is best for students and have the right to predict the likely outcome for students before learning has begun.

The overt racial discrimination of historical education policies in Aotearoa continues to haunt contemporary schooling in several ways. The racial distribution of work and income still shows Māori over-represented in poorly-paid, working-class jobs (Waikato-Tainui et al., 2020), giving Pākehā a positional advantage in terms of the financial and cultural capital required to effectively "play the game" of educational success. Racialised academic expectations of teachers obstruct upward educational mobility for Māori (Turner et al., 2015). The revitalisation of Māori mathematical knowledge has lagged behind Māori language revitalisation (Allen & Trinick, 2021) and the positioning of Māori as "physical" (Hokowhitu, 2009) remains a barrier in school mathematics, particularly for Māori boys (Pomeroy, 2020). The interplay of such factors results in an over-representation of Māori students in low mathematics streams. In summary, the origins of streaming in the New Zealand education system have parallels with the earliest forms of social control exerted upon Māori via the exercise of patronising forms of European dominance over Māori aspirations. Thinking about mathematics streaming in light of its political and historical past leads us to suggest that streaming is a contemporary expression of a much older theme: white veto over Māori educational potential.

[5] See https://teara.govt.nz/en/maori-education-matauranga/page-2 for an explanation of Governor George Grey's influence on Māori Education.

4 Methodology

The writing team includes four authors who identify as Māori, one tauiwi (non-Māori) woman of colour, one Pākehā (white) woman, and one Pākehā (white) man. All of us have experienced some form of streaming for mathematics, and across the group, we have experience of both low and high streams. All authors but one have been school teachers, although only one as a mathematics specialist. There was therefore a wide range of personal experience in terms of both racialisation and streamed mathematics within the group. We generated the argument contained in this article through collaborative storying (Bishop, 1997). We engaged in a gradual process of critical reflection and sharing of our own experiences and stories of schooling, as students and in some cases as parents, then read and reflected on student interview and focus group transcripts from two prior studies.

Study One (Pomeroy, 2016) used a multiple case-study methodology to understand the mathematics learning experiences of about 450 year nine (age 13–14) students in three secondary schools and addressed the question of how gender, social class, and race influence mathematics learning in Aotearoa New Zealand secondary schools. Study Two, part of a wider mixed-methods study of secondary schools removing streaming in mathematics (TLRI, 2023), used a semi-structured focus group to explore year 13 (age 17–18) students' memories of learning mathematics in streams. We wove these data together as part of a process of methodological bricolage, or "patchwork" methodology (e.g., Deleuze & Guattari, 1987; Lowan-Trudeau, 2015). That is, we have intentionally brought together methods and stories from quite different and distant sources (ourselves, as well as more recent students of secondary mathematics) in ways that we think can help (re)configure a persistent problem (Higgins et al., 2017; Tolbert & Bazzul, 2020). Over time, our reflections converged on the emotional consequences of streaming, particularly shame and entitlement, and how such consequences are racialised.

Bishop (1997) points out that "we as researchers need to acknowledge our participatory connectedness with the other research participants, and promote a means of knowing that denies distance and separation and promotes commitment and engagement" (p. 30). Our process and method for this article began with our own reflective conversations as authors and researchers, sharing stories and asking questions of each other about our contrasting personal experiences with streaming in mathematics. Whilst Bishop's collaborative storying approach has generally applied to researchers and participants within the same research setting, we have extended the method of collaborative storying to bring in the voices and perspectives of researchers (the authors) and participants (the authors, and high school mathematics students) across contexts, space, and time, within the shared context of schooling and mathematics learning in Aotearoa New Zealand. Whilst we acknowledge that this is a liberal interpretation of collaborative storying, particularly given that the high school participants were not able to engage in dialogic interaction with the authors, we maintain that the spirit of collaborative storying, i.e., a commitment to dialogicality and minimising distance, is consistent across the multiple sources, contexts, and points in time. Furthermore, our methodological experiments in collaborative storying are theoretically grounded in Indigenous, feminist, and post-qualitative scholarship, embodying a patchwork methodology (Deleuze & Guatarri, 1987; Haraway, 2016; Higgins et al., 2017; Lowan-Trudeau, 2015). Following Higgins and colleagues (2017), we seek to patch together our "situated and partial accounts"–for us, in the context of mathematics education and streaming– "sequenced and juxtaposed with intent and purpose" as we "differently work against the suturing over of pedagogical possibilities in diverse educational settings" (p. 19).

As part of our patchwork approach, we include our own personal reflections alongside more traditional student interviews due, in part, to the difficulty of articulating experiences of entitlement and shame. Sayer (2005, p. 157) argues that "shame often cannot be articulated, indeed it can *lead to* withdrawal and inarticulacy in terms of feeling a lack of authority to speak" (emphasis in original). Similarly, it can be difficult to articulate one's own entitlement due to embarrassment, a need to justify, or simple lack of awareness, and difficult to name the privilege and luck of others for fear of appearing mean-spirited (Sayer, 2005). Furthermore, drawing from multiple sources allowed us to "collaboratively story" (Bishop, 1997) how shame and entitlement are engendered across a variety of contexts and communities. We recognise these emotions as racialised and not as "'substances' in the interior of individuals but transacted between actors who are already shaped by social relationships and history" (Bonilla-Silva, 2019, p. 3). That is, these articulations of racialised emotions speak to the broader issue of racist outcomes and streaming.

For Study One, the student participants were in year nine (age 13–14) and 40 students were interviewed individually or in friendship pairs as part of a study of racial, socio-economic, and gender inequities in secondary mathematics learning (Pomeroy, 2016, 2021). They also completed a questionnaire ($n = 451$) which included the mathematics self-confidence subscale of the shorter Attitudes Towards Mathematics Inventory (Lim & Chapman, 2013) and the question "what job would you most like to do when you leave school?" Students attended three co-educational suburban state secondary schools that served multiracial communities from across the socio-economic spectrum. Students were purposively selected for interviews to maximise diversity in terms of race, gender, stream, and mathematics attainment. The semi-structured interviews explored students' perceptions and emotional experiences of learning mathematics. There were no direct questions about streaming; however, all three schools streamed mathematics and students frequently discussed streaming in relation to learning experiences. Transcripts were coded for emotional responses to mathematics and for any explicit reference to streaming.

For Study Two (TLRI, 2023), we use a single hour-long focus group with seven Māori and Pasifika students in year 13 (age 17–18) in a secondary school that had removed streaming. Students were asked to reflect on their experiences of learning mathematics in streamed and non-streamed settings. For this article, we analysed students' recollections of learning mathematics in streamed classes for references to emotional experiences and race or racism.

5 Findings and discussion

The following two sections use our patchwork methodology to analyse racialised emotions in low and high streams, respectively. We draw on student data and author reflections to examine the emotional consequences of being in a low or high stream and discuss how such emotions are racialised. We argue that shame and entitlement, whilst they may be experienced by students of any race, have particular racialised forms in relation to mathematics streaming.

5.1 *Racialised emotions in low streams*

Racialised emotions are not simply embodied individual feelings that "remain within" (Kim, 2016, pp. 457); instead, they are generated collectively and structurally and within particular places and spaces.

> The analytic point of departure for transforming racialised emotion is the fact that our subjectivities are deeply racialised and buttressed by exclusionary practices in schools, neighborhoods, the job market, our racist culture, and segregated lifestyles (Bonilla-Silva, 2019, p. 14).

As Bonilla-Silva (2019) points out, race is not only produced ideologically but also emotionally and spatially. In the research data, this connection of feeling and space was indicated in how students described their experience of being located in what some described as the "cabbage[6] class" (low-stream class). This strong awareness of the "Māoriness" of bottom streams and the "whiteness" of top streams featured strongly in all Māori authors' recollections of our English-language secondary schooling. For example, Kay-Lee (Māori woman) wrote, "my observation was that there were a lot of brown faces in the room, in a school with very few brown faces overall". Similarly, a student from Study Two recalled that "when I came into college, I had such a low self-esteem when it came to math because with the streaming, I was in, you know, the dumb class, and a lot of my peers around me were my Pasifika brothers and sisters, my Māori brothers and sisters." The imperative for Māori students in low streams to "live out these stereotypes" suggests that the stigma of low streams (Archer et al., 2018) intersects with and reinforces racist stereotypes of Māori as "physical" and non-mathematical (Hokowhitu, 2008; Pomeroy, 2021).

Students' understanding of being seen as achieving or not achieving was reflected in how they related to mathematics. When asked whether he would continue with mathematics once it became optional, "Callum", a 13-year-old Māori boy responded:

> It depends, like if I still suck at maths, oh like, you know, if I still am the same as I am now at maths I'll probably just drop it, I probably won't see the point of doing maths, but if I'm pretty good at maths, getting the hang of it and then I'll probably keep doing maths. (Callum, student interview, Study One)

Callum also pointed out being perceived as a "troublemaker" in class, an observation that Māori colleagues shared in our collective story-telling session. They pointed out that their "disruptive" behaviour was a result of not understanding what they were asked to do or of teachers' low expectations.

> I've probably been a bit of a troublemaker in maths, but probably because I get bored because I don't know what to do, even if I ask the teacher for help, I don't know what to do so I just start doing random stuff, talking and stuff. (Callum)

In Callum's narrative, we see many of the structural characteristics that Sayer (2005) argues lead to shame. Firstly, there is a clear sense that being in a low stream is perceived as a failure to produce a desired and valued behaviour and that this perception is shared by students in low streams, who identify their own class as "cabbage", and by students

[6] *Cabbage* in English slang means "of low intelligence". In Aotearoa, "cabbage class" often refers to a low-stream class and has derogatory connotations of low academic ability.

in higher streams who make jokes about them. Callum's comments expose a theme that recurred in our discussions, namely the perception by low-stream students that the teacher thought that the students were "dumb" and did not enjoy teaching the class. This perceived judgement from teachers relates to a second determinant of shame mentioned by Sayer (2005), namely that the judgement came from someone in authority and with whom students needed to cooperate regularly.

What also became clear from the authors' collaborative storying (Bishop, 1997) is that the experience of Māori students in low streams was complicated and exacerbated by race. The notable over-representation of Māori students in low streams (Tokona te Raki, 2021; Pomeroy, 2016) contributed to a feeling of failure that was collective and racialised as well as individual. For example, a year 13 (age 17–18) Māori student in Study 2 reflected on her experiences of streamed mathematics saying "it was the brown kids in the lower class and then, I don't want to sound racist, but the Pākehā kids in the smart classes, and it always just made me feel so down". As Bonilla-Silva (2019) argues, such emotions are tied to historical and social relations and "actors' racial subjectivities and their accompanying emotions are the product of historically-specific dynamics and do not generate innocent identities" (p. 5). This perception of racialised underperformance is exemplified in a recent report that Māori students in low-stream mathematics and science classes in an Aotearoa secondary school refer to such classes with the Māori word for "cabbage", i.e., as "kāpeti maths" and "kāpeti science" (Waikato-Tainui et al., 2020, p. 15).

However, we also recognise that students demonstrate agency when choosing to follow their peers into lower streams. For example, students would choose to stay in class with their peers because they did not want to be on their own or the only Indigenous person in the higher stream. Here, students choose a feeling of safety and belonging over being seen as "smart" by their teachers. Their choice to stay with peers however is also connected to a lack of cultural safety and recognition in higher streams. "Individuals have agency, but in a racialised world the odds are stacked, which explains why most people comply with existing racial norms" (Bonilla-Silva, 2019, p. 4). That is, even when students show agency in choosing a stream over the other, the motivations are still often connected to racialised emotions and navigating an already racialised school setting. Such students are caught in a bind in which membership of a low stream may engender structural humiliation (Sayer, 2005) because of the streaming hierarchy but also confers safety and solidarity in contrast to the "white space" of the top stream. Racialised space means that certain subjects feel an emotional sense of belonging, and others are positioned as being at odds with the space they are in (Ahmed, 2007; Milne, 2016). Yet, this "spatial comfort/discomfort is not symmetrical given that Whites, as the dominant race, rule most of the social real estate" (Bonilla-Silva, 2019, p. 12). For white students, these white spaces will reinforce a sense of belonging and structural entitlement (Sayer, 2005), normalising existing hierarchies of power that position Indigenous students as less capable and white students as intelligent. Our point here is that whilst students of colour may demonstrate agency in streamed settings, to choose a feeling of belonging may come at the cost of experiencing structurally engendered shame.

5.2 Racialised emotions in high streams

A racialised feeling of entitlement was evident in the student interview and questionnaire data from Study One. Questionnaire data showed that students in the top streams were the most likely to have professional career aspirations and had the highest self-confidence in

mathematics (Pomeroy, 2016, 2021). Ella, a Pākehā (white) girl in a top-stream class, wrote "accountant???" as her preferred future job in her questionnaire, the same job as her father. In her interview, Ella reflected positively about being in a top-stream class, commenting, "I think it's better because in a mixed class down in Intermediate [a Year 7–8 school] I felt like I was being used because everyone wanted to know the answers, so it's good to be around people who are actually doing their own work as well". When asked how she would feel if she found out that she had achieved lower mathematics grades than her peers, she explained that she would feel "really annoyed", elaborating, "I like to do good! I don't want to be lower, I guess everyone likes to be, you know, at the top. You don't really say that you like to be at the top, but you always like it when you are". Andrew, a Pākehā boy in Ella's class, wanted to be an engineer or lawyer and saw hard work and high academic standards as the pathway to achieving these aspirations. He contrasted his own efforts to excel with students who aim to "just" pass, an approach which he jokes will earn them "a job at McDonald's". Both students represent their imagined future academic and professional success in individual, meritocratic terms; they are silent about the racialisation of their position at the top of the streaming structure, unlike those previously quoted who were aware of the dominance of "brown faces" in low streams.

David (author), a Pākehā man with a mathematics degree and university-educated parents, identified with Ella's and Andrew's apparent enjoyment and pride in being positioned as capable mathematicians. David writes:

> As early as age seven I recall positive feedback, especially from my parents, when I showed an interest in or 'ability' with mathematics. I also recall relatives talking about how 'clever' my father is (he has a PhD in zoology) and speculating that I had also inherited his 'cleverness'. I felt a sense of positive expectation that I would be good at maths and that this was something to be celebrated. At my small Steiner/Waldorf school I was consistently one of a handful of students in the top mathematics group. I recall feeling a deep sense of pride and satisfaction in gaining the top grade in my class in our final year mathematics exam, but no awareness of privilege, gratefulness, or luck. I do not recall experiencing others' or my own perception of my mathematical ability as related to my being white or male. However, what became clear as the authors discussed our contrasting experiences of learning mathematics was that not everyone had the luxury of being unaware of their race and gender in the mathematics classroom.
>
> Entitlement played out in the way I imagined my future – at age 15 I seriously wanted to become a NASA astronaut, via a PhD in physics. Although my knowledge in mathematics and sciences was below that of my age cohort entering university, the *confidence* that I 'had what it takes' was an incredible asset in terms of subsequent persistence as I played the game of academic catch-up and eventually gained a degree in mathematics. (David, author, written reflection)

Ella's and David's feeling of "fit" contrasts with the experiences of Ella's non-white classmates: Detroit, a working-class boy with Māori and Chinese heritage, and Anna, a working-class girl with Cook Island and Pākehā heritage. Speaking about what it is like being in the top stream, they had this exchange:

> Detroit: Like we only stay on a topic very quickly because he [the teacher] thinks that
> Anna: Since we're in [top] streamed
> Detroit: Oh well I think that because we're, well, I don't know, above average I guess, I would put it, [Anna laughs] that he wouldn't want us to stay on a topic for so long

because he thinks that we would get it quicker than most people I guess.

Detroit's tentative framing, "well, I don't know" and "I guess", as well as Anna's laughter in response suggests that these students feel that they do not belong and are not "entitled" to be in a high stream, a theme that was apparent in several narratives from Māori and Pasifika students in top classes. The only group of students who expressed no ambivalence in their interviews about being in a top class were middle-class white boys, consistent with this group's very high mathematical self-confidence in the questionnaires. Questionnaire and interview data in Study One suggest that white, middle-class boys feel the most at ease in a top-stream mathematics class, the most "entitled" to be there.

Matiu (author), a Māori man with an urban upbringing, and working-class parents, was also a high mathematics achiever at school, but his experience of high achievement was very different to David's. Matiu writes:

> I sat School Certificate (10th Grade/Year 11) Maths in the late 1980s and got an 'A2', the second highest grade possible and considered an excellent result. When results were posted, my Maths teacher, an elderly white man, for the first time all year, made his way down to the back of the class where I sat. He pulled up the chair next to me, leaned over and said "you really surprised me!" He may have intended it as a compliment. It just didn't feel like one to me. At the time I wasn't sure what it meant or how I really felt about it. Now looking back, it seems obvious. He had utterly no clue who I was or what I was capable of, but he had made assumptions based on (I can only assume) what I look like, how I behaved, and probably where I sat and who I chose to associate with (the other four Māori students in the class). His opinion was clearly not based on any kind of evidence of my mathematical abilities.
>
> My personal experience of Year 11 maths was one of being misunderstood and undervalued, and largely ignored by my teacher. I succeeded at Maths in spite of him, and thanks to my mother's determination that I should. Through the course of the year, I watched as one by one the other Māori students who were my social group dwindled, as each turned 16 and left school. When I returned to school the following year, I was the only Māori in a school of 1000 who took calculus and maths with statistics. (Matiu, author, written reflection)

David's and Matiu's reflections demonstrate how differently high achievement was experienced by two boys with contrasting racial and class identities, and how the emotions felt were still easily recalled over 20 years later. David's narrative reflects emotions of pride and satisfaction, being recognised as mathematical, and blindness to the role of race and class privilege in how he was perceived. Matiu's narrative reflects a difficulty in articulating emotions at the time, being ignored and written off, and a conscious awareness of "not fitting" as other Māori students disappeared around him. Only David developed the entitlement that came with public celebration and affirmation of his mathematical success.

The analysis above suggests that Māori students in top streams experience a greater level of discomfort and imposter syndrome than their white peers, and may be a small minority in such classes. In contrast, David's narrative and Ella's interview reflections show how comfortable and proud they felt about being positioned in a top mathematics group. There is no evidence in their accounts that they experienced being in a top group as an unearned privilege; it was experienced as a result of mathematical ability and hard work. Therefore, although being positioned publicly at the top of the streaming hierarchy may potentially provide conditions that lead to emotions of pride, confidence, and entitlement, we suggest that such emotions are experienced most readily by Pākeha (white) students, especially if

they are middle-class boys, whereas Māori students are more likely to express ambivalence about whether they are legitimate members of top classes, in other words, to feel that they do not belong.

We acknowledge that not all white students will have positive experiences being placed in top streams, especially if they are not achieving academically (Ingram, 2011). However, what stands out in these different accounts of emotions in top streams is that white and Indigenous students tend to experience such classes in contrasting ways. Here, Bonilla-Silva (2019, p. 6) points out that whilst all subjects in racialised societies will experience racialised emotions, these emotions will not be experienced equally. Bonilla-Silva writes "the dynamic through which the emotions of the dominant race become authoritative [is] as 'feeling power.'" "The dominant race's feelings are normalized, producing 'emotional domination' (Matias, 2016), whereas those of the subordinate are deemed dubious" (2019, p.6). Students' emotional sense of belonging in the top stream is mediated through their racialised experience as Māori, often making them feel a sense of being "out of place". That is, white students who do not achieve academically in the top stream did not mediate these feelings as reaffirming existing racial stereotypes about their ability and intelligence.

We have argued that relationships exist between streaming in mathematics, race, and the production of the emotions of shame and entitlement. We acknowledge that being in a low stream may be shaming to students of any race, that streaming is only one of many structures within school that may lead to racialised emotions, and that some students have positive experiences in low streams. Nevertheless, we suggest that the racialised production of shame and entitlement, through streaming mathematics, is a predictable and mostly harmful emotional consequence of the structure of streaming itself. For this reason and others, mathematics streaming produces racist outcomes in Aotearoa New Zealand.

6 Challenging streaming and racist outcomes: possibilities and limitations

Whilst colonial education has always included a component of "streaming", whereby colonised subjects were socialised into the new settler colonial order and/or delineated towards manual labour, today all learners are supposed to have equal access and opportunity. Explicit racism is neither legally permissible nor socially acceptable. Teachers in Aotearoa New Zealand are required to embed culturally affirming practices and infuse Indigenous language and culture into their teaching (Ministry of Education, 2020). In 2018, the Ministry of Education released *Te Hurihanganui: A Blueprint for Transformative System Shift*, a document designed to support educational communities in developing approaches to "address bias" (Ministry of Education, 2018, p. 4). It states that "eradication of harmful education practices such as streaming and ability grouping is required" because "these practices negate the potential of all learners and fail to acknowledge that all children are born of greatness" (p. 13). The most recent educational policies for Māori education expand on the issue of discrimination by declaring that Māori have a right to be "free from racism, discrimination and stigma in education" (Minstry of Education, 2020, Outcome Domains section). Too often, however, culturally responsive practice and language alone are represented as anti-racist solutions to an entrenched racial problem. Thus, racist outcomes are reduced to "thoughtlessness" or "ignorance" about cultural knowledge, rather than a systemic problem of power and unearned advantage (i.e., entitlement). Bonilla-Silva reminds us that "perhaps the most inclusionary act of exclusion is not being incorporated

into the all-important informal networks of power, a practice documented in many fields" (2019, p.18). Cultural competency and language "infusion", whilst important, do not address underlying issues of power and access to resources (Azarmandi et. al., under review; Macdonald, 2022; Pomeroy, 2020, Tolbert et al., 2022). As outlined earlier, in order to address racism, "the racially dominant must adopt a politics of recognition for progressive racial change to occur" (Bonilla-Silva, 2019. p. 14). Today, racism in Aotearoa New Zealand education is most likely to be reproduced by institutional practices that privilege some learners and disadvantage others. Using racialised emotions of shame and entitlement as an example, we have outlined one of the racist outcomes of mathematics streaming. We have also argued that these racialised emotions cannot be seen in isolation from structural racism outside the classroom.

Whilst there are sufficient references to equity in education policies, responses to discriminatory practice largely focus on those disadvantaged, but rarely interrogate structural *advantage* (Sayer, 2005). If structural entitlement is the flipside of structural humiliation, then simply having more "brown faces" in high mathematics streams cannot be the solution. Streaming assumes certain learners but not others to be "good at math" and others as "not having a math brain", reifying colonial logics that position white subjects as having full potential and others in need of additional support or "remediation" (Hokowhitu, 2008; Milne, 2016). Institutionally racist procedures and policies about how students are placed into streams (Connolly et al., 2019; Turner et al., 2015) are masked as a single high-stakes assessment, and/or teacher recommendations are used as "official and unbiased" tools to sort students into high or low streams. In particular, this veneer of objectivity represents streaming as a logical response to variations in prior attainment and, in doing so, conceals the racialised emotional outcomes that we have highlighted.

7 Conclusion

We recognise that there is already strong evidence for the fact that streaming produces racist outcomes. It has been well documented that opportunities to learn rigorous mathematics and exposure to high-quality teachers and teaching are unequally distributed according to race, and that the process of allocating students into streams is often racially biased (Connolly et al., 2019; Domina et al., 2019; Francis et al., 2020; Oakes, 2005; Tate, 2001). Martin (2009) has pointed out that mathematics education research has largely failed to acknowledge the sociopolitical dimensions of race and the role of racism in students' mathematical experiences and has called for more research on the "everyday nature of racism" in students' mathematics educational experiences "as well as the institutional and structural forces that allow racism to function in these experiences" (p. 298). In this article, we have articulated how institutional and structural forces, in particular streaming, shape students' everyday emotional experiences of learning mathematics. We have deliberately attended to how the seemingly individualised responses of entitlement and shame are in fact highly racialised aspects of students' everyday mathematical experiences. This article points towards the need to further examine the ways in which other school structures, such as the policing of space, time, and "behaviour" may engender emotional responses in racialised ways. Furthermore, in attending to the emotional consequences of streaming, we have not examined the racialisation of the process of allocating students to streams, or the opportunities to learn rigorous mathematics that students experience once streamed. Both of these

have been shown to be institutionally racist aspects of streaming internationally but are not well-researched in Aotearoa New Zealand.

Against this backdrop, a growing Māori-led destreaming movement in Aotearoa has called attention to streaming as a racist practice (Waikato-Tainui et al., 2020; Tokona te Raki, 2021), and historically, Māori have often led the way in suggesting alternative models of education. Māori have historically and continue to resist a system built upon assimilation and inequity. For example, grass-roots initiatives encouraged the establishment and evolution of kaupapa Māori education that have seen Māori thrive as Māori in Māori-language schools. Other forms of resistance and renaissance have included New Zealand's first Māori-led tertiary institution Te Wānanga o Raukawa in 1981, Te Kōhanga Reo (Māori-language early childhood education) in 1982, and the first Kura Kaupapa Māori (Māori-language school) Te Kura Kaupapa Māori o Hoani Waititi in 1985. In a system constituted through the oppression of Indigenous languages, cultures, and identities, Māori-language education is a platform in which the ancestral taonga (treasures) of Māori are cherished and nurtured and where Māori can authentically indigenise their space, free from the constraints of colonial schooling. A vast range of inspirational leaders and movements have informed and effected transformational change in the educational arena and beyond. As we have learned from these multi-pronged efforts among Māori communities, destreaming alone is not enough to dismantle the institutionalised racism of a settler-colonial schooling system and the shame and humiliation that this system has produced. It is, however, an important and necessary anti-racist practice in the larger struggle to decolonise education, including the emotional experience of schooling, for and with Māori.

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Declarations

Conflict of interest The authors declare no competing interests.

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