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From apathy through anxiety to action: Emotions as motivators for youth climate strike leaders.

Abstract

The climate strikes of 2019 motivated millions worldwide onto the street and provided a platform for youth voices that demanded global climate action. This paper explores the experiences of climate strike leaders in Aotearoa New Zealand questioning the motivational factors behind the youth action. In-depth interviews with 15 climate strike leaders identified emotions that influenced engagement and could motivate action. Climate strike leaders reported experiencing a series of turbulent emotional stages from apathy to action. Their experiences suggest that anxiety and anger are important stages in the emotional journey towards action. Using Boler's *Pedagogy of Discomfort*, this paper examines these emotional stages that can disable or enable action. Considering youth perspectives increases our understanding of a suitable climate change educational framework that potentially supports both educators and students on this challenging journey.

Introduction

The climate strikes, initiated in 2019, swiftly and succinctly globally highlighted the collective concern and frustration of youth at climate inaction. The orchestrated campaign engaged and technologically-connected youth, enabling the world to witness numerous global events of youth activism. Despite the predicted scale of the impact climate change may have on future generations, academic literature relating to youth perceptions and concerns surrounding climate change has been limited (Jones & Davison, 2021; Lee, Gjersoe, O'Neill, & Barnett, 2020). Research documenting the emotional and psychological toll that climate change discourse is having on youth, however, is rapidly increasing (Ojala, 2021; Panu, 2020; Verlie, Clark, Jarrett, & Supriyono, 2020). Formal education has a critical role to play in bringing about the changes needed (Gough, 2015). As interest in climate change education increases, so does a recognition of the inherent challenges for school education in this field. Monroe, Plate, Oxarart, Bowers, and Chaves (2019) argued the complexities and uncertainties surrounding climate change may require additional strategies to the educational approaches often seen in environmental or sustainability education. Consideration is needed towards expanding strategies and pedagogies that currently underpin sustainability and

climate change education to reflect the wide range of emergent emotions that are a typical response to the increasing awareness and concern in respect to climate change.

Educational research has increasingly advocated that students have a unique and important perspective regarding school and classroom-based education (Cook-Sather, 2018; Mansfield, 2014). It is acknowledged that managing student participation in the strikes was seen as problematic for many schools at the time. Furthermore, it is unlikely schools are able to emulate a global strike atmosphere in their classrooms. Nevertheless, the climate strikes provided an opportunity for adults generally, and educationalists specifically, to observe motivated youth who saw the need to challenge authoritarian expectations and demand political climate action.

As a secondary school teacher I observed a lack of engagement with sustainability and climate change education from both students and leadership. This research, as part of my doctoral thesis, questioned what educators can learn about motivation and engagement from the perceptions of those centrally involved in this significant climate movement. The participant climate strike leaders frequently reported their journeys as ricocheting through various emotional stages including apathy, awareness, anxiety, and anger before they were moved to action. They suggested the varying stages had the potential to dis-engage or motivate students.

Emotions, argued Boler (1999), echo the complexity and dynamics of a lived situation and according to Mizen (2015), it is emotions that often drive protest movements. The climate strike movement reflects the intense concern youth have for their vulnerable futures. This paper considers the emotional stages identified by strike leaders with reference to Boler's 'pedagogy of discomfort', and examines the motivational value that heightened emotions may have for pedagogical practice that is pertinent for today's youth in a climate altered world.

Literature review

For decades, debate and procrastination at local, national, and global levels have thwarted the action needed to mitigate and adapt to climate change. The education system has typically reflected society's apathy and has been reticent to prepare students for a climate-altered future (Bolstad, Joyce, & Hipkins, 2015). The discrepancy that exists between knowledge, attitudes, and behaviours has impeded climate change action (Kollmuss, Zink, & Polycarp, 2008; Ojala, 2012). This cognitive dissonance can result in behaviours conflicting with values and cognition (Hiser & Lynch, 2021). For example, even those who express great concern

about climate change may still indulge in carbon-intensive behaviours. Behaviour change is shaped by our emotional experiences that intuitively influences moral decision-making (Jasper, 2011). The conflation of morals with cognitive processing leads to a commitment to change and gradual behavioural transformations.

Today's youth, despite being the least responsible for the causes of climate change, are potentially the greatest victims (Winograd, 2016), equating to social and intergenerational injustices. Consequently, the climate crisis has been progressively reframed as a moral issue (Stuart, Gunderson, & Petersen, 2020), one that must address these historical injustices and bring about just transitioning practices.

Research is now documenting the psychological and emotional impacts climate change has on youth (Pihkala, 2020; Verlie et al., 2020), and how it is provoking emotions such as anxiety, grief, anger, frustration, panic, and sorrow, leaving youth feeling overwhelmed and hopeless. Terms such as eco-anxiety, solastalgia, biospheric concern, eco-guilt and ecological grief are appearing more frequently in psychology literature. Due to the complexity and relative newness of climate change Cianconi, Betrò, and Janiri (2020) suggested there is a lack of research on mental disorders associated with climate change. However, Hickman (2020), an eco-psychotherapist, contends that eco-anxiety should not be considered a mental disorder as it is an emotionally healthy response to the reality youth are facing and should be treated as such. Nevertheless, she suggests, it does offer new psychological and educational challenges for both adults and youth.

The challenge for educators to skilfully respond to the eco-anxiety youth are experiencing has created an additional barrier to implementing climate change education. Verlie (2020) reported that educators in Eastern Australia commonly feel overwhelmed with profound emotions around climate change. Further complications arise when youth are distrustful of older generations, feeling betrayed by those who, despite decades of warning, have historically proven reticent to take climate action (Hogan & Hickman, 2021; Jones & Davison, 2021; Ojala, 2021). What little climate change educational youth may have experienced has often left them feeling disempowered (Hickman, 2020). The challenge for educators, while navigating their own emotions, is to find strategies to enable and empower youth to find a way through their eco-anxiety towards agency and action.

Discussions concerning the power of emotions and cultivating an emotional awareness for both educators and students are expanding (Ojala, 2021; Pihkala, 2020). This requires educators to acknowledge the emotional aspects of controversial and sensitive issues

surrounding climate change. Emotional responses can be culturally manifested and intertwined with power suggests Boler (1999). She questions how emotional epistemologies intersect with education and reflect cultural norms. Western paradigms tend to consider emotion as naturalised, biological and fixed and it is implicitly understood that emotional sensitivity has no place within the classroom. An educational expectation is that emotions are mollified in the classroom to ensure student wellbeing, suggested Ojala (2021), and as a political device to undermine social criticism and disempower youth. This is perhaps why many schools and people in power tried to discredit the climate strikes. The founder of the strikes, 16-year-old Greta Thunberg, role-modeled visible emotion allowing youth to follow, break the shackles of society's expectations and challenge the status quo.

A shift is needed in the climate conversation when referring to anxiety, suggests climate activist, 20-year-old Hogan, (Hogan & Hickman, 2021). Hogan suggests anxiety does not show you are 'broken' but shows a need for reconciling the past with future possibilities. A suitable place to start, argues Hickman (2020), is reframing the concept of eco-anxiety. Anxiety should not be considered a deficit emotion, but one that shows awareness and could therefore be reframed as eco-empathy, as it is an emotionally congruent and healthy response to an individual's growing cognitive awareness of the climate crisis. If you have eco-anxiety, you show eco-awakening, eco-awareness, eco-compassion, and eco-agency, argues Hickman. Teachers may need a pedagogical framework that guides students to reflect on their emotional state, face their concerns, learn from their critical reflections, and transform their emotions into a catalyst for constructive action (Boler, 1999; Ojala, 2021).

The *pedagogy of discomfort*, a theoretical concept coined by Boler (1999) encourages students and educators to investigate feelings of discomfort. It is a pedagogy that invites both inquiry and calls for action. Educators and students are encouraged to critically evaluate their values and beliefs, with a central focus to consider and identify how their emotions define what they choose to see, or not see. It is a collective process, rooted in critical theory and encourages collective responsibility. A pedagogy of discomfort invites educators and students to collectively explore how our emotions and values are reflections or reactions to the dominant culture and to this moment in history. It asks us to consider; firstly, who we feel ourselves to be, and how we are interconnected with others. Secondly, it asks for flexibility or willingness to experience a transformation. There is no political agenda as it is the critical junctures created by reflecting on society's role and expectations that are of consequence. Individuals are encouraged to be more than spectators, to critically evaluate their emotions

interwoven with what they witness around them and it is this reflection, recommends Boler, that may awaken a need for transformation, encourage agency and inspire action.

The process outlined by Boler (1999) aligns with transformative theory that considers a disorientating dilemma as one that significantly disrupts a person's well-being and their current frame of reference becomes inadequate to explain their experiences or feelings (Howie & Bagnall, 2013). According to Mezirow (2012), "the justification for much of what we know and believe, our values and our feelings, depends on the context – biographical, historical, cultural in which they are embedded" (p73). Transformative theory explores the socio-cultural, pedagogical, philosophical and epistemological processes required to make meaning when our frame of reference is disorientated (Kokkos, 2019). The climate crisis and lack of global climate action is a disorientating dilemma for society generally and youth in particular. Youth have been led to believe the world they are growing up in is one full of promise when, actually, they may find severe, unpredictable and life threatening problems.

Youth have traditionally been under-represented in politics because the discourse has principally been determined by, and dominated by, adults. When youth do engage with political activism they have shown to be active and notable catalysts for change. At their age, however, youth voice is often dismissed (Blakemore, 2018). The thinking that leads to youth activism is often alternative to, or decades ahead of, adults, suggested Barret (2018). With governmental inaction and perceived injustice typically motivating activism, activists aspire to make societal changes (Richter, 2011). Radical societal transformation is urgently required if carbon emissions are to be reduced to net-zero by 2050 (Stuart et al., 2020). The unprecedented engagement of youth in this strike action begged deeper exploration into consideration of what educators may learn from the emotional journey that motivated youth towards climate action.

Research aims and methodology

The research aims were twofold. Firstly, to gain a greater understanding of youth engagement with climate change and climate action and secondly, to seek youth's perspectives on effective classroom pedagogy for climate change education in secondary schools. An interpretive approach was selected to explore the meanings that participants had from their experiences as climate strike leaders. Participants for this research were initially sourced from newspaper articles reporting the climate strikes and approached via social media. These leaders recommended other climate strike leaders creating a snowball effect. The 15 climate strike leaders interviewed, eleven female and four male, identified with diverse ethnicities

and lived in a range of urban or rural settings around Aotearoa New Zealand. In-depth, semi-structured interviews were conducted via Zoom over two months with youth climate strike leaders. Participants were able to review and edit their interview transcripts. All strike leaders, except for Lilly, were secondary school students at the time of the climate strikes. Lilly was an intermediate school student during the strikes but was attending secondary school at the time of the interview. Parental consent was gained for the students under the age of 16 and pseudonyms have been used to protect their identity.

Thematic analysis was the method used for analysis enabling identification of the key themes to be grounded in the data. Thematic analysis was chosen as a flexible process that allowed analytical rigour by highlighting similarities and differences as well as generating unanticipated insights (Nowell, Norris, White, & Moules, 2017). The original themes were based on my guiding research questions. During the transcription process unanticipated themes evolved (such as the high levels of youth anxiety), these themes were further refined and analysed using Nvivo software.

Findings and discussion

Climate strike leaders frequently recounted their climate journeys as having to navigate various emotional stages. These journeys included and ricocheted through the emotional stages of; apathy, awareness, anxiety, and anger. The steep learning curve experienced was often guided and motivated by these emotions, and while many reported commonly experiencing a decline in their emotional wellbeing, they believed successful negotiation of these stages empowered them towards greater agency and action. The participants' journey often appeared to begin with ignorance or, what many called, apathy.

Apathy

Apathy was considered by the strike leaders to be a result of either lack of exposure to climate change education or induced by over-exposure to a 'doom and gloom' discourse.

Many students chose not to strike because they were simply unaware of the climate crisis suggested 15-year-old Flora, "so many people from what I saw had no idea about the issue and didn't have any political or environmental understanding." Similarly, Josh, 16, commented, "I don't want to say apathy, but that is what it was, not quite understanding it is an issue that affects them." Believing youth had a lack of agency was also a cause for apathy suggested 16-year-old Catherine, "My friends at school, they don't feel anything can make a difference, it is a hopeless fight anyway." Distancing the problem is considered an intricate emotional management tool suggests Armstrong (2018), being used by individuals and

organisations to rationalise a lack of engagement and thus justify a minimal commitment to action.

Apathy was considered widespread as a defense or coping mechanism. For example, Tina said, “if it is too sad, some people choose to put their head in the sand.” Oliana commented, “it is easier to do nothing,” and 18-year-old Madison’s stated, “it starts with apathy because that is kind of a defence mechanism to everyone saying ‘this is your burden, this is your burden’ because if you thought about it too much it would be so terrifying.” Distressing issues, such as climate change, that affect youth should be discussed, states Hickman (2020), with gentle and sympathetic guidance. She recalled a young person advising a suitable technique. The child suggested to be truthful, but intersperse the negative issues, ‘bad stuff’, with positive issues, ‘good stuff’ (Hogan & Hickman, 2021). This childhood wisdom is supported by Macy and Johnstone (2012) who suggested an emotional bandwidth of uncomfortable conversations. The bandwidth can be stretched but if the conversation or issues extend too far beyond agreeable territory the likely response is a shutdown or denial of the issue.

Youth are not alone in the apathy or denial stage of the journey. For decades, governmental, corporate and individual denial or reluctance to take action, combined with the need to protect the status quo, has stymied fundamental behavioural and attitudinal changes needed to mitigate the climate crisis (Rapley, 2013). Nearly three decades have passed since Orr lamented the dangers of blithely ignoring the challenges of sustainability (Orr, 1992), and little appears to have changed. Youth have observed adults role modelling apathy, disabling awareness, and action. The apathy of youth, however, as suggested by strike leaders' comments and supported by Verlie et al. (2020), may arise, not from disengagement but as a protection strategy.

Recent literature is calling for climate change educators to develop strategies that validate emotions as both protecting and gauging the need for change (Hickman, 2020; Ojala, 2021; Verlie et al., 2020) to address the rising climate change anxiety. Formal climate change education was not part of their schooling for 13 of the 15 participants in this study. While this evidence is anecdotal it supports the NZCER *Climate Change and Sustainability in Secondary Schools Report* that reports the limited school-wide climate change programmes in secondary schools (Bolstad, 2020). A lack of formal educational opportunities available to strike leaders meant youth had to independently search for answers. The increased awareness also accelerated their emotional journey.

Awareness

The early gleanings of information regarding the climate crisis was a revelation for many of the strike leaders. For example, Catherine commented, "the more you learn about this crisis, the less you have time to think about anything else," and Marama, 18, described getting "obsessive". Before the climate strikes, five leaders reported having no interest in political issues and four indicated minimal environmental or climate change knowledge. But as their awareness increased, an emotional rollercoaster of understanding ensued. For example, Madison, 18, said, "we started learning more about it and once we are there, we can't stop… The [learning] growth was exponential, it was crazy." This promoted an upward spiraling of engagement, as strike leaders understood more about the science behind climate change and the entwined social injustices they were compelled to research more.

Cognisant of the importance increased awareness can mean for climate action, the strike leaders aimed for the strikes to include educational components, Madison, 18, recalled, "we tried our best to make it equal parts educational and equal parts motivating." As the strikes were led *by* youth *for* youth, they pitched their message primarily through social media, the source deemed most likely to reach youth. Simon, 17 was responsible for communications in his team, and he explained:

> It is all well and good for scientists and politicians to talk in the media about it [climate change], but I know a lot of my peers do not watch the news, do not engage with traditional media. So if we had students making waves, creating a protest that would be in their face, and seeing it on social media, they may be more interested in it and maybe more curious about it.

This technique proved successful and many interview participants highlighted the persuasive influences of youth leading youth to boost engagement. Lilly stated:

> I think the whole aspect of the movement is about youth organising things for youth, standing up for youth. I think that was really important because if you had an adult pushing that youth need to be out striking, it's like, well, 'that's easy for you to say'.

The climate strikes were described by Boulianne (2020) as the most influential and global movement of our time. Boulianne et al argued youth are far from apathetic but show their

engagement in ad-hoc ways preferring to connect via social media with personalised and issue-orientated concerns.

The climate strike movement was arguably issue-orientated. The Aotearoa New Zealand movement promoted youth engagement with the Zero Carbon Amendment Act (School Strike 4 Climate, 2019) and called for governmental prioritisation of social justice issues, such as supporting the submerging Pacific Island and just transitioning. Many strike leaders contended that approaching climate change from a social justice perspective was less confronting than ecological collapse and more likely to engage youth. Huia's comment was typical, "people just can't engage with the idea that the world will fall apart and that we are in the midst of an ecological breakdown. I really think the social implications are a large driver for action." While understanding the science of climate change was considered important, centring climate change education around social justice was believed to engage youth.

The climate strikes objectives encouraged youth, even those previously unengaged, to seek more understanding suggested Oliana, 18:

> I think a lot of them would have gone home and started conversations and done their own research, even kids who didn't come, would be thinking why are these kids in the streets and missing a day of school and what is the reasoning behind it, that sort of thing.

The strike leaders' growing awareness of climate-related issues was considered a key part of their journey from apathy to action. As students cognitively processed the science behind climate change, the potential ecological ramifications, the historical injustice, and ongoing social injustices, they were often propelled into anger or action. Conversely, however, heightened awareness could spiral them back to anxiety and hopelessness.

Anxiety

While improving understanding of the climate crisis can be considered crucial to engaging youth in climate action, it is increasingly evident that heightened awareness may also intensify anxiety (Hickman, 2020; Pihkala, 2020; Verlie et al., 2020). Many strike leaders discovered that as their awareness increased, so did their anxiety, "as you learn more the anxiety really kicks in, that is what happened to me and every advocate I know," said Madison, 18. Most strike leaders interviewed indicated that youth who are aware of the climate crisis feel overwhelmed. Oliana stated, "there is such a massive, massive, massive weight to hold." Psychologists are now reporting concern over ecological collapse and

environmental doom posing a very real risk to youths' mental wellbeing (Cunsolo & Ellis, 2018; Kowalski, 2019). These research findings support this assertion.

Furthermore, many participants felt adults had no idea of the current level of climate anxiety among youth. "I think it is difficult to be able to communicate the weight of everything that is going on with our generation," said Marama. Similarly, Lilly explained, "we care more than teens are given a lot of credit for, we care about our futures and we care about what is happening in the world." Implicit in these comments is not only concern for an unknown future, but also a sense of powerlessness many youths may feel. They are excluded from political decision-making and therefore beholden to adult attitudes and action, which often appear to be operating from a very different perspective. Mary expressed her frustration as, "my generation, we know more about it [climate change] than old people do." Hickman argued adults' emotional responses to the climate crisis differs from that of youth. She stated, "children have told me repeatedly that what is being done to the planet feels personal as if it were being done to them" (Hickman, 2020, p. 412). Whereas adults are more able to emotionally disconnect, as it is 'not our future'.

The conundrum facing educators is how to increase climate awareness but not anxiety. Interestingly, however, many strike leaders, as aligned with the literature (Hogan & Hickman, 2021; Verlie et al., 2020), believed that anxiety is an important motivator for action. For example, Flora said, "the worry, the anxiety motivated me more to make a difference," and Madison said, "I would rather be anxious about the climate crisis than let it just happen to me and roll over in defeat. I thought I had to do this and then it was just go, go, go." These comments hark back to Paulo Freire, a leading advocate of critical pedagogy, who believed that despair as a young man was a catalyst for what eventually emerged as hope (Shor, 1993). Hope is often discussed as a motivating emotion for climate action (Nairn, 2019). The concept of hope, however, was rarely mentioned by participants in the research, and when they did, it was in terms of others taking greater action, not personal hope for their future. For example, Madison, 18, said "I hope they [adults] learned there is a real urgency." While it may be argued that to take action, there must be a sense of hope in the outcomes of that action, the prevailing driver for action identified by these participants was not hope, but anxiety. Anxiety identified the need to act. By reframing eco-anxiety as eco-empathy, as suggested by Hogan and Hickman (2021), anxiety may be utilised as a catalyst to action rather than an inhibitor. For some students, however, the next stage in their emotional journey was often anger.

Anger

Anger can act functionally to redress injustices (Alberici & Milesi, 2016) and can be epistemically valuable as it directs attention towards a perceived injustice. Lajos, 18, felt most youth were "motivated by fear, and anxiety, and anger." In divided communities or groups some members may be oblivious or stubbornly naive to the injustices endured by other community members (Lepoutre, 2018). The anger expressed by strike leaders stemmed from a lack of climate action and the apparent lack of adult awareness around the intergenerational injustice of the climate crisis, "there is definitely a demand for intergenerational equity," said Huia.

Anger, along with anxiety, hope, and guilt are emotions that are pivotal to activism as they galvanise and orient actions (Kleres & Wettergren, 2017). The role of anger within social movements has historically been considered appropriate. The trade union movements considered anger to be an integral part of the framework used to address social inequities (Allison, 2014). Allison asserted, however, that while anger is considered a necessary component for social movements, it is not sufficient on its own and must be linked with hope to promote action. Hopefulness in this research was rarely mentioned or implied by strike leaders, when it was, it was in reference to others, not individual or personal hope. For example, Madison said, "I hope they learned there is a real urgency." Arguably, to take action there must be an element of hopefulness but hope did not emerge as a significant theme or motivator from the data in this research. It was anxiety and anger that strike leaders identified as key drivers.

The strikes enabled a public display of youth anger and this was considered a relief by some strike leaders. Madison, 18 suggested it was the anger that Greta Thunberg expressed during the climate strikes that resonated with so many youths:

> Greta allowed us to feel anger. I had never realised that was an option before… she mobilised kids into saying, 'hey, that's bullshit, you need to take responsibility for your actions because by the time we grow up it is going to be too late,' I think that is why she was so effective.

Hickman (2020) suggested adults may feel uncomfortable with the emotions expressed by youth as a result of the climate action movement. Nevertheless, it is important to validate their feelings to build hope and emotional resilience argued Hickman.

Youth have reasons to be angry, the intergenerational injustices do not just involve environmental catastrophes but also substantial social and economic burdens that will

disproportionately impact future generations, poorer and indigenous communities. The emotion of anger is often used as a defence against a realistic threat but used proactively, it too can act as a motivator towards goals, suggests Berkout, Tinsley, and Flynn (2019). The emotional journey the strike leaders underwent allowed not only anxiety but also anger to prompt personal research, raise their awareness of climate injustices, and further their political awareness. Madison explained:

> When I started this journey, I had a very limited understanding of environmentalism. I had about the same understanding as my parents and the general New Zealand public. Like, destroying the earth is a bad thing but it wasn't really linked to aspects of deeper social justice like colonialism and destroying indigenous understanding.

A deeper understanding of social justice motivated advocacy for disadvantaged communities and action.

Many strike leaders felt anger and anxiety may reverberate off each other, looping backward and forwards. Lilly, 13, described her experience:

> In my mind, it seems so obvious. I was really confused and angry why no one had done what needed to be done and why they prioritised the economy over our future when there will be no economy if we don't have a future because you can't eat money.

The strike leaders interviewed for this research largely identified as high achieving, highly motivated students, and they directed their growing awareness, anxiety, and anger into research and critical reflection of the status quo. Crucially, they considered their place in the biosphere and history, and, as their awareness and understanding of the climate crisis grew, so did their desire for action. Not all youth may have the physical or emotional resources or motivation required to direct their anxiety and anger into action, but they could be guided by educators. Emerging from this research was the notion that critical awareness and reflection were considered possible catalysts to break the anger-anxiety loop and promote action.

Action

The *pedagogy of discomfort* appeared to have spontaneously occurred for many of the climate strike leaders interviewed for this research. During their emotional journey the discomfort led them to research, evaluate, and synthesise knowledge on climate science, climate action (or lack of it), political motives, economic and social disparities, and future

imperatives that propelled them into action on an individual and collective level. Collective action often offered solidarity and helped to alleviate eco-anxiety (Pihkala, 2020), as Oliana recalled, “the strikes showed there were many people who felt just like you and were as passionate as you.” Individually and collectively the strike leaders engaged with the roots of their discomfort driving each towards greater climate awareness and motivating action, both of which led to an increased sense of political agency, resilience, and empowerment.

As theorised by the pedagogy of discomfort (Boler, 1999), the strike leaders discovered that by engaging with the discomfort of the climate crisis, acutely evaluating the intersection of their future hopes, their place in history and society’s values, enabled them to ‘see differently’ and consider the change they wish to see. Huia explained her vision:

> When I talk about my vision for climate action or transitioning to a zero-carbon society, I am talking about better ways of living, and I don’t know how anyone could disagree with that. Indigenous sovereignty, groups that have been oppressed for so long. It is systematic and societal actions that are needed.

Interviewees argued the global escalation of the strikes was primarily because it was driven *by* and *for* students. This heeds research that considers motivating factors within the classroom as issue-related as well as allowing student voice and decision-making (Nairn, 2019; Nelson, 2017) . Simon, 16, suggested, “there are issues you can’t ignore with climate change and that is where teaching it in schools, teaching that understanding, is really important. It is balancing all these issues to make a better world.” A culture of inquiry advocated by Boler’s (1999) pedagogy of discomfort allows an understanding of climate justice that goes beyond the science and considers the possible social causes of the climate crisis. It challenges colonial histories and industrialised countries to take ownership of the role they have played in climate change (Foran, Kurian, Munshi, & Bhavnani, 2019). Madison explained where her culture of inquiry led:

> We were not just for people to stop destroying the earth, we were advocating for minorities who would be affected the most. We were advocating because indigenous people had lost their voice and theirs was the voice we really needed to listen to.

Thematic analysis of the student voices revealed social justice concerns as a key recurring theme in their narrative. The concept of social and climate justice resonated with youth and

was identified by the strike leaders as a key motivator for increasing student engagement with climate change.

The pedagogy of discomfort invites students to scrutinise the dominant culture. Educators too may benefit from re-evaluating what counts as knowledge suggests Boler (1999). The strike action enabled student voice and youth-led learning, which led to strike leaders questioning current regimes. Pedagogically, Lajos suggested, "the importance of students having power and autonomy over themselves and their learning is actually what creates the best environment for them to achieve as high as possible." Education has traditionally been aimed at cultural reproduction rather than cultural transformation (Irwin, 2020). Transformational learning suggests educators open dialogue that critically reflects individual and societal assumptions to facilitate greater contextual understanding (Kokkos, 2019). The climate strikers called for systemic changes as Marama explained, "this concept of individual change has been pushed onto us completely negating the need for systemic change which is the only way to solve this issue and the only way to get things moving." Societal transformation and systemic changes within governmental and large organisations would lead to individual behaviour change. Individual action, it was argued, was best channelled into pressuring governmental and corporate commitment towards systemic changes.

The emotional journey strike leaders experienced empowered them towards political agency. Oliana, 18, suggested, "to be political means to care." Adolescence is considered a critical period in terms of values formation and environmental sensitivity (Ignell, Davies, & Lundholm, 2019). Ethical transformation requires an understanding of how political influences affect individual and societal choices and the subsequent impact of those choices over time (Beals & Wood, 2012). The combination of transformative learning, experiential placed-based learning, and action, asserts Mehmood (2018) leads to high socio-political engagement and becomes a catalyst for collective agency. This was the experience of the strike leaders who felt empowered as they believed their actions impacted legislation such as the Zero Carbon Amendment Act and the city of Auckland declaring a climate emergency (Our Auckland, 2019). The climate strikes showed "anyone our age could make a difference", said Flora, 16. For Marama, 18, "it was the first time I was experiencing being part of a movement that can bring about change." Successful progression through the emotional stages led to action for the strike leaders, but they also became more adept at dealing with the emotional challenges stemming from the climate crisis, arguably building resilience and wellbeing.

Formal schooling was considered by all strike leaders to be the most accessible and reliable resource for students to gain the necessary climate knowledge and skills. A future focused school curriculum, one would think, is morally obliged to include climate change education. A climate action focus, suggested strike leaders, would build personal resilience and prompt the necessary societal transformations, but such learning was considered rare in schools. When asked what educators could learn from the climate strikes Marama said " I think their idea of education is so outdated it needs a revamp, to be honest." Lilly expressed similar concerns, "being in the environmental movement makes you realise just how much they don't teach you in school." Most strike leaders gained their climate change information from independent research, not from school. It was acknowledged that schools provided a basic level of information, but this was not considered adequate. For example, Madison said, "I think schools do teach the baseline understanding like oxygen, water, we need our ecosystems but they don't teach about the deeper understandings, like, hey we might be fine but look at all these people who won't be fine." Classroom strategies that would potentially motivate students, Catherine suggested would engage "the head, the heart, and the hands."

Climate change education strategies that offer academic (head), emotional (heart) and practical (hands) elements with an emphasis on an issue or project-based learning were implied by most strike leaders. As Jake suggested, "it's integral that students have to do some sort of project-based learning and the delivery of it should have a really core academic level." Academic and cognitive learning was considered crucial to develop the critical thinking needed for the complex problems presented by the climate crisis, "we need to learn about the issues and develop solutions to those problems," said Moana. Engagement of the heart resulted from a greater understanding of social justice and indigenous knowledge. For example, Huia found she was "more inclined to action because I understood the social aspect of it." A practical, hands-on component triggered local action such as environmental projects. Josh, for example, said it was important "schools got involved with hands-on trapping [of pests] and riparian planting." Empowering youth to be politically active was considered the most far-reaching and practical action. Mary said she would "love to see more educated voters." These findings support Monroe, Plate, Oxarart, Bowers, and Chaves (2019) premise that students need to explore connections between their personal lives, local and wider environments for relevant and meaningful climate change education, and could foster the kinds of just transitions that these youth desired. Education for sustainability programmes operating outside schools, for example Enviroschools, often use strategies that involve problem-solving and guide students towards practical, hands-on, project-based learning

(Eames & Barker, 2011). Greater inclusion of such programmes focussed on climate change education, within a school environment, would respond to what these youth saw as important for their climate-altered futures.

Conclusion

The research documented here investigated climate strike leaders' perceptions of engagement and motivation towards climate action and supports existing literature that documents the rise of ecological anxiety that may disable or enable climate action. Many strike leaders found anxiety a motivational force endorsing the notion that climate change educational strategies may benefit from considering a framework, such as the pedagogy of discomfort, that critically explores distressing emotions rather than mollifying them (Ojala, 2021; Verlie et al., 2020). The credible threat of the climate crisis justifies these heightened emotions. Attempting to escape the discomfort brought on by climate change avoids the complexities of the climate crisis (Hickman, 2020), A pedagogy of discomfort as articulated by Boler (1999) encourages educators and students to utilise emotions such as anxiety and anger, to examine their and societies cultural values and beliefs engendering the courage to ‘see differently’. According to transformational theory new meanings and modified frames of reference have the potential to shift behavioural patterns towards innovative transformative practises .

The climate strike leaders interviewed for this research found their emotional journey directed cognitive growth that led them through anxiety to a place of action. It is improbable the motivating context of the climate strikes can be replicated in classrooms, nevertheless classroom strategies, suggested strike leaders, should offer holistic involvement that engages the head, the heart and the hands. Their perspectives offer educators insights into the role emotions may play in climate change education.

This research focused on strike leaders who generally considered themselves motivated and high achieving. While participants lived in diverse communities throughout Aotearoa New Zealand, all attended schools that drew students from higher economic communities. Youth are under-represented in studies regarding climate change concerns even though they represent a unique cohort that is key for climate change action (Stevenson, Peterson, & Bondell, 2019). Further research that focuses on youth perspectives and considers motivating factors for students from lower socio-economic communities, indigenous cultures, and students less academically engaged would add valuable insights to this important discourse.

The strike leaders in this research reported their journey as a compelling and extraordinary experience. Catherine, 16, described the climate strikes as a “beginning rather than an end,”

and Lajos recalled the strikes taught him "more last year than any other year I attended school." This emotional engagement provided an impetus for critical inquiry and heightened understanding around climate change science, social justice, economic and political processes. Madison's words summarised the students' journeys. "I would rather be educated about what is happening in the real world and then do something about it. All emotions are motivators, it started off as anger and turned into anxiety, then I thought I had to do this." This research supports emerging literature that indicates it is time for educators to consider classroom strategies that don't shy away from the emotional journey but gently embrace it, to enable the cultural transformation youth are now, quite rightly, demanding.

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