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Mindfulness, neurodiversity, and the purpose of education in polycrisis times

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Abstract

Education systems globally are increasingly shaped by conditions of polycrisis, where overlapping social, economic, and psychological pressures intensify learners' experiences of uncertainty and overwhelm. Within this context, questions about the purpose of education extend beyond academic achievement to include how young people are supported to participate, to belong, and to become. Drawing on Gert Biesta's conceptualisation of education as encompassing qualification, socialisation, and subjectification, this article explores what adapted mindfulness practices reveal about the educational conditions that support neurodivergent learners. The paper presents a qualitative case study of three autistic adolescents who participated in a flexible adaptation of mindfulness-based attention training (MBAT) within a South African school context. Data were generated through pre- and post-intervention focus group interviews and analysed using thematic analysis. Participants described the programme as accessible, flexible, and responsive to their sensory and emotional needs. Flexibility, autonomy, and caregiver involvement emerged as central to meaningful engagement, while participants reported increased emotional awareness, moments of self-regulation, and greater ownership of the mindfulness practices. Rather than evaluating MBAT primarily as a therapeutic intervention, the findings are interpreted through Biesta's three educational purposes. The study argues that adapted mindfulness practices may contribute to qualification by developing practical emotional competencies, to socialisation by strengthening educational relationships across home and school, and, most significantly, to subjectification by creating conditions in which autistic adolescents are supported to participate as active subjects of their own educational lives. In doing so, the article reframes mindfulness as an educational practice that contributes to more humane, neurodiversity-affirming approaches to inclusive education in complex and uncertain times.

Keywords: polycrisis, subjectification, neurodiversity, Inclusive education, mindfulness-based attention training (MBAT), educational purpose

Introduction

We are educating young people in what is increasingly described as a time of polycrisis—a period in which social, economic, environmental, technological, and psychological crises converge to shape everyday life (Morin, 2008; Tooze, 2022). For many learners, schooling now unfolds alongside rising mental health concerns, digital overstimulation, social fragmentation, and profound uncertainty about the future (Twenge, 2017; World Health Organization, 2025). Such conditions invite a reconsideration not only of how young people learn, but also of what education is ultimately for. Biesta (2010, 2015, 2020) argues that contemporary education has become increasingly preoccupied with measurable learning and performance, often at the expense of broader educational purposes. Rather than reducing education to the acquisition of knowledge and skills, he proposes that education should also support learners' participation in the social world and, importantly, their emergence as subjects capable of acting in and with the world in thoughtful and responsible ways (Biesta, 2020). Within the South African context, where systemic inequalities, resource constraints, and limited access to psychosocial support further intensify learners' experiences of vulnerability (Franz et al., 2018; Spaull, 2013; Swart & Pettipher, 2019), questions about the human purposes of education become particularly urgent.

For neurodivergent learners, including autistic adolescents, these conditions may be experienced with particular intensity. Autism spectrum disorder (ASD) is a lifelong neurodevelopmental condition characterised by differences in social communication, sensory processing, emotional experience, and patterns of behaviour. While these characteristics are often associated with support needs, many of the challenges experienced by autistic learners emerge through the interaction between individual differences and educational environments that are not designed with neurodiversity in mind (Dwyer, 2022; Pellicano & den Houting, 2022). Rigid classroom routines, sensory demands, and expectations of normative social behaviour may therefore make schooling particularly difficult to navigate. Emotional regulation, identified as an important aspect of educational participation and well-being, influences autistic learners' engagement with learning, relationships, and everyday school experiences (Beck et al., 2020). Although numerous interventions have sought to support emotional regulation, many continue to be grounded in deficit-oriented assumptions that prioritise behavioural correction and compliance over understanding, agency, and learner participation (McKeering & Hwang, 2019; Porter et al., 2024). This raises a broader educational question: "Should interventions primarily seek to help autistic learners conform to existing educational expectations, or should they create conditions in which learners can participate, make choices, and develop as themselves?"

Biesta (2010, 2015) argues that contemporary education has become increasingly dominated by what he terms the learnification of education, where educational success is reduced to measurable learning outcomes and performance. In contrast, he proposes that education is always concerned with three interconnected domains of purpose: qualification, through which learners acquire knowledge, skills, and dispositions; socialisation, through which they are

introduced into cultural, social, and educational traditions; and subjectification, through which they come to exist as subjects of their own lives rather than objects of educational interventions (Biesta, 2015, 2020). While qualification and socialisation often dominate educational policy and practice, Biesta (2020) argues that subjectification has increasingly been neglected. Yet it is precisely this dimension that concerns learners' freedom to respond to the world in thoughtful, responsible, and authentic ways. For learners who do not easily conform to normative educational expectations, including many neurodivergent learners, this imbalance may result in schooling experiences that prioritise fitting in over participation, compliance over agency, and performance over personhood (Milton, 2012; Walker, 2021). This invites a reconsideration of how emotional well-being is supported in schools and what kinds of educational practices create conditions not only for learning, but also for learners to develop agency, autonomy, and meaningful participation within more humane and inclusive educational environments (Boler, 1999; Noddings, 2013).

Mindfulness-based approaches have gained increasing attention as educational practices that support emotional regulation, well-being, and learner engagement (Gkintoni et al., 2025; Keng et al., 2011; Stockall & Blackwell, 2022). Kabat-Zinn (2015) defines mindfulness as paying attention intentionally, in the present moment, with openness, curiosity, and without judgement. Although rooted in contemplative traditions, mindfulness has increasingly been adapted for educational contexts to support attention, emotional awareness, and self-regulation. However, many conventional mindfulness programmes rely on extended stillness, abstract language, and highly structured practices that may not align with the sensory, cognitive, and communicative profiles of autistic students (Beck et al., 2020). Without thoughtful adaptation, such approaches risk reproducing the very forms of compliance and normative participation they seek to address. In contrast, flexible, sensory-attuned, and autonomy-supportive adaptations offer a different educational possibility. Rather than functioning simply as techniques for changing behaviour, they create educational conditions in which students can exercise agency, make meaningful choices, and engage with learning in ways that are authentic to themselves. Viewed through Biesta's (2020) concept of subjectification, mindfulness is therefore understood not as a means of producing calmer or more compliant students, but as a pedagogical practice that supports young people in becoming active subjects of their own educational lives.

This article draws on a qualitative case study originally conducted as a master's research project (Gillespie, 2024) in a South African school context to explore how autistic adolescents experienced a flexible adaptation of mindfulness-based attention training (MBAT). Three adolescents, together with their parents and teachers, participated in the programme, offering insight into how mindfulness practices were taken up, adapted, and experienced across home and school contexts. Rather than evaluating the efficacy of MBAT, the present paper explores what these experiences reveal about the kinds of educational practices that support emotional regulation in ways that affirm neurodiversity, learner agency, and meaningful participation. In this sense, emotional regulation cannot be understood solely as an individual skill to be developed or corrected. Rather, it is shaped by the educational environments in which learners are situated and the kinds of subjectivities those environments make possible.

The study therefore asks not simply whether MBAT supported emotional regulation, but what participants' experiences reveal about the educational conditions that enable autistic learners to participate as subjects rather than objects of educational practice. This question is informed by Biesta's (2020, p. 89) understanding of subjectification as supporting "the existence of the child or student as subject of his or her own life, not as object of educational interventions." In doing so, the article uses this empirical case to consider a broader question: "What do practices such as MBAT reveal about the purpose of education in times of polycrisis?" It is argued that when mindfulness is adapted in ways that prioritise flexibility, autonomy, and relational support, it offers more than a strategy for managing behaviour. Rather, it illustrates how educational practices can create the conditions under which neurodivergent learners are recognised not simply as recipients of educational interventions, but as persons capable of agency, relationship, and becoming.

Literature review

Autism, emotional regulation, and educational participation

Emotional regulation refers to the processes through which individuals influence the emotions they experience, when they experience them, and how these emotions are expressed (Gross, 1998). For autistic individuals, differences in emotional processing, sensory integration, and cognitive flexibility can make these processes more complex, often resulting in experiences of emotional dysregulation. These may present as heightened emotional reactivity, difficulty recovering from distress, or internalised experiences such as anxiety and withdrawal (Mazefsky & White, 2014; Samson et al., 2015). Mazefsky et al. (2012) observed that even individuals with cognitively and socially higher-functioning ASD, have shortcomings in their processing and integration of complex information in dynamic and unpredictable contexts. This results in many adverse, externally presented behaviours such as meltdowns, emotional outbursts, irritability, aggression, as well as internally presented behaviours such as anxiety and depression (Ballaban-Gil et al., 1996; Conner et al., 2023).

Within educational contexts, challenges with emotional regulation can significantly impact participation, peer relationships, and academic engagement. Importantly, these difficulties are often interpreted through deficit-oriented lenses, positioning the learner as the problem to be fixed rather than considering how schooling environments may contribute to or exacerbate dysregulation. This framing is increasingly challenged by neurodiversity perspectives, which emphasise that differences in emotional experience and regulation are not simply deficits, but reflect variations in how individuals interact with their environments (Dwyer, 2022; Pellicano & den Houting, 2022).

Various psychologically based therapies and interventions have been developed to alleviate these co-occurring symptoms of depression and anxiety in individuals with ASD, however, evidence for their efficacy remains limited (Sizoo & Kuiper, 2017). To date, cognitive behavioural therapy (CBT) has been considered as the most effective non-medical treatment for co-occurring symptoms of anxiety and depression in individuals with ASD (Sizoo & Kuiper, 2017). There are, however, numerous limitations to CBT that have not yet been

accounted for. These limitations include time constraints, training abstractions, model complexities, and applicational limitations. As a result, it has become increasingly necessary to consider other intervention strategies for individuals with ASD (Sizoo & Kuiper, 2017). From this perspective, the educational task is not simply to reduce emotional dysregulation but to create environments that enable autistic learners to participate meaningfully in learning and school life.

Mindfulness and emotional regulation in neurodivergent populations

Mindfulness is the practice of intentionally paying attention to present-moment experiences with openness, curiosity, and without judgement (Kabat-Zinn, 2015). Rather than analysing or changing thoughts and emotions, mindfulness encourages individuals to acknowledge internal experiences as they arise. A growing body of research demonstrates that mindfulness-based training supports emotional regulation, attention, and socio-emotional well-being across child and adult populations (Broderick & Jennings, 2012; Stockall & Blackwell, 2022). Mindfulness practices are typically simple, accessible activities, such as focusing on the breath, walking mindfully, or directing attention to bodily sensations (Baer & Krietemeyer, 2006).

For autistic learners, mindfulness may be particularly beneficial because it emphasises present-moment awareness through concrete sensory experiences rather than abstract cognitive analysis (Stockall & Blackwell, 2022). By encouraging awareness of thoughts, emotions, and bodily sensations without judgement, mindfulness offers an alternative approach to emotional regulation that aligns with the cognitive and sensory profiles of many autistic individuals. Studies have reported improvements in emotional well-being, anxiety, attention, and self-regulation among both autistic adolescents and adults following mindfulness-based programmes (Ridderinkhof et al., 2018; Spek et al., 2013; Wisner et al., 2010).

Although the evidence supporting mindfulness-based approaches continues to grow, most studies have focused on whether these programmes improve emotional regulation, anxiety, or attention. Far less attention has been given to what mindfulness might reveal about the broader purposes of education, particularly for neurodivergent learners. The present study addresses this gap by considering mindfulness not only as a means of supporting emotional regulation, but also as an educational practice that may create conditions for agency, participation, and subjectification.

Consistent with this shift, recent neurodiversity scholarship has increasingly questioned educational approaches that position autistic learners primarily as objects of intervention or behaviour management (Dwyer, 2022; Pellicano & den Houting, 2022). These critiques resonate strongly with Biesta's (2020) concept of subjectification, which argues that education should create opportunities for learners to exist as subjects of their own lives rather than objects of educational practices. From this perspective, educational success is measured not only by behavioural change or academic performance, but also by whether learners are supported to exercise agency, participate meaningfully, and develop authentic relationships within their educational communities. It is within this conceptual space that the present study situates

MBAT, exploring how an adapted mindfulness programme may contribute not only to emotional regulation, but also to more humanising forms of educational practice.

Mindfulness-based attention training (MBAT) as a flexible approach

MBAT, developed by neuroscientists Jha and Rogers (2019), is a structured programme designed to enhance mental resilience and attention control, especially under high-stress conditions. Stress often pulls attention away from the present moment, leading to mental clutter and overstimulation. MBAT addresses this by improving working memory and focus through consistent, brief mindfulness practices. The programme typically includes four weekly sessions of two hours, supplemented by at least 12 minutes of daily practice (Jha, 2021). It targets three key cognitive processes: meta-awareness (monitoring present experiences), decentring (viewing thoughts and emotions with psychological distance), and attentional control (sustaining focus and resisting distraction). Strengthening these processes has been shown to reduce distractibility, emotional dysregulation, and feelings of disconnection.

In our adaptation of MBAT, we emphasised practices particularly suited for adolescents with autism, combining traditional mindfulness with creative expression through art, commonly referred to as mindfulness-based art therapy. This approach draws from mindfulness-based stress reduction, and supports emotional awareness, self-regulation, and sensory integration. Central to our intervention were two exercises: the body scan and the "flashlight of attention." The body scan guides attention systematically through different parts of the body to cultivate present-moment awareness. The flashlight exercise, drawn from attention research, uses the metaphor of a mental beam of light to help participants focus attention selectively on internal or external experiences, while learning to resist being "yanked" away by more compelling stimuli. Together, these tools provided a structured yet flexible way to support attentional and emotional development in our adolescent participants.

The South African context and the need for accessible interventions

Within the South African context, access to specialised psychological and therapeutic support for autistic learners remains uneven, shaped by systemic constraints such as limited resources, long waiting lists, and shortages of trained professionals (Franz et al., 2018; Pillay et al., 2021). While inclusive education is promoted through national policy frameworks such as Education White Paper 6, schools often lack the infrastructure and support required to implement sustained psychosocial interventions (Department of Education, 2001; Swart & Pettipher, 2019). These conditions highlight the importance of low-cost, adaptable practices that can be integrated into everyday school and home environments without reliance on intensive specialist input. Mindfulness-based approaches, particularly when delivered in collaboration with caregivers and educators, may offer a context-responsive way of supporting emotional regulation across settings. Framed in this way, MBAT is positioned not as a stand-alone therapeutic solution, but as a complementary, accessible regulatory practice that may support inclusive schooling within resource-constrained contexts. Within this context, educational practices that are flexible, low-cost, and relationally embedded become particularly important,

not only because they are feasible, but because they create opportunities for participation, agency, and belonging within inclusive education.

Methodology

This study was conducted within a social constructivist paradigm using a qualitative case study design. This approach enabled close collaboration between the researcher and participants, allowing participants to share their lived experiences in a meaningful way (Baxter & Jack, 2008). The research took place at an independent high school in the Western Cape, South Africa. The school, which falls under the Metro South Department of Education, follows the National CAPS curriculum but caters to learners with a range of learning difficulties, including ADHD, dyslexia, dyspraxia, speech and language delays, motor and sensory difficulties, and ASD. Situated in an affluent suburb of Cape Town, the school maintains small class sizes, typically no more than 15 students per class.

Three adolescents diagnosed with ASD requiring Level 1 or Level 2 support were selected to participate in the study. A small sample size was intentionally selected to facilitate an in-depth exploration of each participant's experiences. Inclusion criteria required that participants (1) have a formal ASD diagnosis, (2) be enrolled in high school (ages 13–16 years), (3) attend a special needs school, (4) show signs of overstimulation or emotional dysregulation, and (5) attend the same school. Exclusion criteria included (1) limited English proficiency, (2) severe behavioural challenges, (3) active suicidal risk, or (4) psychotic disorders, as identified in educational psychologist reports. Alongside the adolescents, their parents or guardians and teachers were also included to provide a comprehensive understanding of each learner's experience.

Parents participated in an initial individual training session, conducted either in person or online, to introduce the MBAT intervention. During this session, the mindfulness exercises were demonstrated, the purpose of the intervention was explained, and guidance was provided on facilitating daily mindfulness practice at home. Throughout the eight-week intervention, parents were encouraged to contact the researcher should they have any questions or require clarification. They were also asked to maintain reflective journals documenting observations of their child's engagement with the programme, as well as any comments or reflections shared by the adolescent about their experiences of the intervention.

Data were collected through baseline and post-intervention interviews guided by five open-ended questions exploring participants' understanding of mindfulness, their experiences of the training, and any observed changes. Follow-up prompts were used to deepen understanding. Focus groups were selected to capture shared experiences of implementing MBAT across home and school contexts and to explore how adolescents, parents, and teachers understood the intervention from their respective perspectives. Each focus group included one adolescent, their parent or guardian, and their teacher. Although this format may have influenced participants' willingness to disclose sensitive experiences, it enabled discussion of the programme as a shared educational practice across settings.

All interviews were audio-recorded, transcribed verbatim, and analysed using thematic analysis (Corbin & Strauss, 2015). Initial codes were generated inductively from the interview transcripts before being organised into broader themes. These themes were subsequently interpreted through Biesta's (2020) concepts of qualification, socialisation, and subjectification. Trustworthiness was strengthened through triangulation of perspectives across adolescents, parents, and teachers, the use of verbatim quotations to illustrate the findings, and the inclusion of multiple participant groups to develop a richer understanding of each learner's experiences.

During the intervention period, all three participants experienced a change in classroom teacher. Consequently, the post-intervention teacher interviews were interpreted with caution because the new teachers had not worked with the adolescents long enough to establish a comprehensive understanding of their baseline functioning or to reliably evaluate changes over time. In contrast, the baseline interviews conducted with the participants' original teachers provided a more informed account of their functioning prior to the intervention. Greater interpretive weight was therefore given to the perspectives of the adolescents and their parents, who had observed the participants consistently throughout the intervention period. It was also acknowledged that the change in classroom teacher represented a significant disruption to the adolescents' established routines and relationships, which may have influenced their emotional regulation and adjustment during the intervention.

Conceptually, this study is informed by Biesta's (2020) understanding of education as serving three interconnected purposes: qualification, socialisation, and subjectification. While these purposes are mutually constitutive, subjectification—the process through which learners come to exist as subjects of their own lives rather than objects of educational intervention—provides the primary interpretive lens through which participants' experiences are understood. This framework enables the study to move beyond evaluating the effectiveness of MBAT towards considering what the programme reveals about the educational conditions that support neurodivergent learners' agency, participation, and becoming.

The MBAT intervention ran for eight weeks, with participants practising daily for approximately 12 minutes. Two key mindfulness exercises were used: the body scan and the flashlight of attention. The body scan helped adolescents develop awareness of physical sensations by slowly directing attention through various parts of the body. The flashlight exercise used the metaphor of a mental spotlight to help focus attention on thoughts, emotions, or bodily sensations, supporting the development of attentional control. These brief, structured practices were designed to be accessible and appropriate for autistic adolescents with diverse cognitive and sensory needs. Parents supported the daily mindfulness practice at home to ensure learners practised in a familiar and comfortable environment. Teachers were encouraged to reinforce the strategies during moments of emotional distress, helping learners apply the techniques in real-world classroom situations. This collaboration between home and school aimed to strengthen the transfer of mindfulness skills across contexts and support emotional regulation.

Ethical clearance was granted by Stellenbosch University (Reference: EPSY-2023-26680). All ethical procedures were followed, including obtaining informed consent, ensuring confidentiality, and protecting participants' anonymity throughout the study.

Findings

The participants in this study were students enrolled at an independent school designed to meet the needs of adolescents facing barriers to success in mainstream educational settings due to various learning challenges. Located in an affluent suburb of Cape Town, South Africa, this school maintains small class sizes, with no more than 15 students per class. The school caters to students from Grade 7 through Grade 12 and offers an alternative stream tailored for those who are better suited for vocational training.

The three adolescent participants in this study, all female and enrolled in an alternative education stream for learners with special needs, presented with varying signs and intensities of emotional dysregulation. Participant 1 (Bec), aged 15 and in Year 3 of the alternative stream, exhibited the most intense symptoms, including skin picking, emotional meltdowns, loud crying or screaming, and a tendency to retreat when overwhelmed. Bec was already receiving weekly therapy and engaged in karate, a physical outlet that may support emotional regulation. Her mother described the following factors as contributing to meltdowns:

> Father teasing, being rushed, being interrupted, having too much to do, wanting food she can't have, unexpected changes or events, task switching, being forced to share an activity if she doesn't want to. (Bec's mother, pre-interview response, 2023)

At school, Bec's teacher reported that she had a designated space to which she could retreat during periods of emotional overwhelm. Attempts by adults to intervene during these episodes were often experienced as increasing her distress and embarrassment, highlighting her preference for minimal interaction while self-regulating. The teacher also noted difficulties with interoception, explaining that Bec often struggled to recognise the physiological cues preceding emotional overwhelm, limiting her ability to implement self-regulation strategies. Outside of school, Bec benefited from consistent support from two stable caregivers and ongoing weekly therapy, which appeared to buffer the impact of school-related challenges.

> There was a little bit of bad timing for the study because she got a new teacher at the same time. (Bec's mother, post-interview response, 2023)

> It overlapped with the time we were doing the mindfulness training so obviously it would have affected, you know, other behavioural issues that we had and the new teacher was . . . well . . . (Bec's mother, post-interview response, 2023)

Participant 2 (Mira), aged 13 and in Year 2, displayed externalising behaviours such as shouting and occasional aggression toward others. Mira's mother also highlighted that she struggled to identify feelings before they intensified:

> Not able to identify the feeling of being overwhelmed, but can self-soothe and calm down. (Mira's mother, pre-interview response, 2023)

Mira participated in horse-riding and other sensory activities as part of her existing support programme. At school, her teacher described her as highly anxious and inclined to mask her emotions, rarely displaying anger or emotional outbursts. Instead, she frequently sought reassurance and positive affirmation from adults. In contrast, Mira experienced more intense emotional meltdowns at home, suggesting that considerable effort was invested in maintaining socially acceptable behaviour during the school day. According to her mother, both parents worked full-time, and the absence of a trusted adult after school may have contributed to heightened emotional volatility in interactions with her siblings.

Participant 3 (Ella), aged 14 and in Year 2, demonstrated more internalised symptoms of emotional dysregulation, often becoming withdrawn or visibly irritated. She was already receiving monthly therapy and regularly used self-regulation strategies such as yoga, mindfulness, and breathing exercises. According to her teacher, Ella's responses to situations of overwhelm varied from day to day. When distressed, she typically cried or sought support from a trusted teacher, which appeared to assist her in processing her emotions. In contrast to the other participants, Ella demonstrated good awareness of her emotional and sensory needs and was generally able to advocate for the support she required. Although her symptoms were less intense than those of the other participants, her tendency to internalise stress highlighted the need for ongoing emotional support.

The range of behaviours and coping mechanisms observed among the three participants highlights the diverse ways in which adolescents with autism may express and manage emotional experiences and regulation, underscoring the importance of individualised and multimodal interventions. The parent participants were all mothers, two of whom were employed full-time. Only one parent reported previous experience with mindfulness-based practices. These contextual factors were considered when interpreting participants' engagement with the intervention. The themes presented below illustrate how participants experienced the MBAT programme and provide the basis for interpreting these experiences through Biesta's concepts of qualification, socialisation, and subjectification.

Personalised adaptation and flexibility

Participants consistently described appreciating the flexibility to choose when, where, and how they engaged with the MBAT programme. Rather than following a rigid routine, adolescents incorporated the mindfulness practices into their existing daily schedules in ways that suited their individual preferences and family routines.

> So, Mira quite liked if I was out or busy, then she would climb into bed and play her meditation. (Mira's mother, interview response, 2023)

> She loves schedules, so she's always creating schedules for herself. Every evening at quarter past eight she would do her meditation. (Ella's mother, interview response, 2023)

Most participants preferred practising in the evening, describing the mindfulness exercises as a calming way to end the day. Although some initially found the 12-minute duration and prolonged sitting challenging, these difficulties generally reduced over time as participants became more familiar with the programme.

> The sitting ones were challenging as I found I wanted to fidget and I would lose concentration. (Mira, interview response, 2023)

> I struggled to keep awake and stay awake and sit still and just breathe normally for 12 minutes. (Bec, interview response, 2023)

For one participant, the practices became closely associated with sleep. While initially viewed as a challenge because she regularly fell asleep during the sessions, both she and her mother later described this as a beneficial strategy for managing difficulties falling asleep.

> For me, I said to Bec it was very helpful because if she is struggling to fall asleep, she knows what to do. (Bec's mother, interview response, 2023)

> It can maybe help me to do this if I can't fall asleep. (Bec, interview response, 2023)

Across participants, MBAT was experienced as a flexible practice that could be adapted to individual routines and preferences. Participants differed in when and how they engaged with the programme, suggesting that flexibility formed an important part of their overall experience of the intervention. Rather than following a standardised routine, participants adapted the practices to fit their individual preferences, daily routines, and sensory needs.

Features of MBAT that supported engagement

Participants consistently identified the body scan as the most enjoyable and easiest mindfulness exercise to follow. Both adolescents and their parents described the technique as engaging and reported that it was easier to sustain attention during the body scan than during the other mindfulness activities.

> She likes the body scan the best. I think it was the easiest for her to visualise and keep track of what's going on. (Bec's mother, interview response, 2023)

> Yes, same. I would say the same. (Mira's mother, interview response, 2023)

> Ella also loved the body scan. That was her favourite. (Ella's mother, interview response, 2023)

The adolescents similarly described the body scan as their preferred activity, while also identifying other techniques that they found useful.

> I enjoyed the flashlight and it was very nice, peaceful and relaxing and the body scan I enjoyed even more than the flashlight. But I did also enjoy doing the connection practice. (Bec, interview response, 2023)

> I really enjoyed the body scan. (Ella, interview response, 2023)

Although the body scan was preferred overall, participants highlighted different aspects of the programme that they found helpful. Mira described the breathing exercises as calming and reported that the flashlight exercise helped her maintain concentration.

> The breathing helped calm me down. (Mira, interview response, 2023)

> Concentrating on my torch helped me to focus more. (Mira, interview response, 2023)

Parents also suggested that visualisation played an important role in maintaining engagement. For example, Bec's mother explained that visual elements helped her daughter remain focused during the exercises, whereas activities without a visual component were more difficult to sustain.

> Because you know what I mean . . . if it's not visual . . . she sits still, but she either skin picks or falls asleep. (Bec's mother, interview response, 2023)

Overall, participants appeared to engage most readily with mindfulness techniques that incorporated visualisation, concrete imagery, and bodily awareness. While preferences varied across individuals, these features were consistently described as making the practices easier to follow, more engaging, and more meaningful.

Emotional awareness and self-regulation

Participants described becoming more aware of their emotions and increasingly using the MBAT techniques to support emotional regulation in everyday situations. Several adolescents reported that the practices helped them recognise emotional experiences, particularly feelings of anger, and provided practical strategies for responding to these emotions.

> It helps me recognise when I am feeling angry. (Mira, post-study interview response, 2023)

> Helps me when I am feeling angry. (Mira, interview response, 2023)

> It was helpful to sit and focus on one thing. (Bec, post-study interview response, 2023)

Parents similarly described the mindfulness practices as providing adolescents with additional strategies for managing emotional experiences. Ella's mother explained that the programme had given her daughter "an extra tool" for emotional regulation, while Ella herself reported feeling happier and more confident in using the techniques independently.

> She just said she really loves doing it. So, I think it's given her . . . like, an extra tool maybe for self-regulation and emotional management. (Ella's mother, interview response, 2023)

> I feel a lot happier and I have lots of tools to now use to calm myself down. (Ella, interview response, 2023)

Parents also observed subtle changes in the way adolescents responded to emotional distress. Although emotional outbursts continued to occur, several parents described shorter periods of distress, quicker recovery, or greater use of self-regulation strategies.

> Mira still gets upset . . . and when she's upset, she's upset. But . . . maybe it was slightly shorter at times, the length of time. But I think just in general . . . unless something really upsets her, she's calmed down. (Mira's mother, interview response, 2023)

Experiences of the programme were generally positive. While Bec's mother noted that her daughter initially found some of the exercises difficult and frequently fell asleep during the sessions, participants consistently described the programme as enjoyable, and no adverse effects were reported.

> She actually found it really hard to do, apart from the fact that she fell asleep every time. (Bec's mother, interview response, 2023)

> I think it's the same for Mira . . . mean, she quite enjoyed it, not that she is very familiar with yoga, or usually she does more aerobic activities . . . but funny enough, she quite enjoyed it. It was challenging to focus on breathing (Mira's mother, interview response, 2023).

The findings show that the participants described MBAT as providing practical strategies that supported greater emotional awareness and emotional regulation. Although emotional dysregulation remained part of their everyday experiences, the adolescents and their parents reported greater awareness of emotions and increased use of self-regulation strategies across different contexts.

Perceived cognitive and physiological benefits

In addition to emotional regulation, participants described several cognitive and physiological benefits associated with the MBAT programme. Parents observed improvements in attention, alertness, and energy levels, particularly during the afternoon when their adolescents would typically experience a decline in concentration. Although they were cautious about attributing these changes solely to the intervention, they consistently described these observations as meaningful.

> I think maybe one thing I noticed a change in Ella was, and I don't know if it was coincidental—but she sometimes gets quite a slump in the afternoon where she's very

> tired and she didn't seem to be as exhausted in the afternoon, and I think her falling asleep at night improved. (Ella's mother, interview response, 2023)

Participants also described improvements in sustained attention and concentration during the mindfulness activities.

> It was helpful to learn to sit and focus on one thing. (Bec, interview response, 2023)

An unexpected finding was that parents also reported experiencing personal benefits from participating in the programme. Several parents described greater awareness of mindfulness, improved concentration, and a better understanding of how the practices could support their own well-being.

> It was interesting to take part, and I think I learnt quite a lot too, because I hadn't done it before either. I definitely found if I was having a very busy day, and I'd switch off for a while, it was actually quite helpful. (Bec's mother, interview response, 2023)

> I mean, I have a much better understanding of it, and for me personally, I felt like it could be helpful. (Ella's mother, interview response, 2023)

The participants described benefits that extended beyond emotional regulation to include improvements in attention, concentration, sleep, and general well-being. Parents also reported personal benefits from engaging with the mindfulness practices, suggesting that the programme had value not only for the adolescents but also for the families supporting them.

Discussion

Qualification: Supporting learning through emotional awareness and self-regulation

Biesta (2015, 2020) argues that one of the central purposes of education is qualification: supporting learners to acquire the knowledge, skills, and dispositions needed to participate meaningfully in the world. However, qualification extends beyond academic achievement alone. As Biesta (2015, p. 76) reminds us, "the point of education is that students learn *something*, that they learn it for a *reason*, and that they learn it from *someone*." This distinction is important because it shifts the focus from whether learners simply acquired mindfulness techniques to what those techniques enabled them to do within educational contexts. Qualification therefore concerns not only what learners know, but also the educational competencies they develop through meaningful relationships and purposeful learning experiences. Viewed in this way, the value of MBAT lies not only in the acquisition of emotional regulation strategies, but also in the development of practical competencies that support meaningful participation in learning.

The findings highlight that MBAT supported the development of practical strategies that participants could use across different contexts. The body scan, flashlight of attention, and breathing exercises were consistently described as accessible and engaging, with participants

reporting increased awareness of their emotions, improved concentration, and greater confidence in recognising and responding to feelings of distress. Importantly, participants did not describe using a single strategy uniformly. Rather, they selected different mindfulness practices according to their individual preferences, routines, and emotional needs. This suggests that qualification involved not only acquiring regulatory strategies but also learning when and how to use them in personally meaningful ways. Parents also observed shorter periods of emotional dysregulation and, in some cases, improvements in attention, sleep, and sustained focus. These findings are consistent with previous research demonstrating that mindfulness-based practices strengthen emotional regulation, attentional control, and socio-emotional functioning in autistic learners (Beck et al., 2020; Ridderinkhof et al., 2018; Stockall & Blackwell, 2022).

Importantly, these findings suggest that the educational value of MBAT lies not simply in reducing emotional distress, but in equipping learners with practical strategies that support participation in learning. The preference for visual, sensory-based, and concrete practices also aligns with previous research demonstrating the importance of designing learning experiences that reflect the cognitive and sensory profiles of neurodivergent learners (Ashburner et al., 2008; Crane et al., 2009; Newbutt et al., 2016). Rather than being optional adaptations, these features appeared central to meaningful engagement with the programme. Within this study, participants engaged most meaningfully with mindfulness when practices were flexible, visually supported, sensory-based, and responsive to their individual preferences. This suggests that accessibility is achieved not through inclusion alone, but through educational practices that are intentionally designed around learners' ways of processing and experiencing the world.

Viewed through Biesta's (2015, 2020) lens of qualification, MBAT therefore contributed to more than emotional regulation. It supported the acquisition of practical skills that helped the participants participate more effectively within their educational settings. Emotional awareness, attentional regulation, and coping strategies became educational resources that enabled learners to participate more meaningfully in learning, illustrating that qualification encompasses not only academic achievement but also the capabilities required for educational participation.

Socialisation: Mindfulness as a relational educational practice

Biesta (2015, 2020) argues that education is not only concerned with developing individual competencies but also with socialisation, that is, the ways in which learners come to participate in relationships, communities, and shared ways of being. As he reminds us, education must always engage with questions of "content, purpose and relationships" (Biesta, 2015, p. 76). This distinction reminds us that educational practices should not only cultivate individual competence, but also strengthen the relationships through which learning, belonging, and participation become possible. This emphasis on relationships is particularly important because it shifts attention from learning as an individual process to learning as something that is shaped through participation with others. Viewed in this way, the value of MBAT extended beyond individual emotional regulation by fostering educational relationships that supported collaboration, shared understanding, and participation across home and school contexts.

The findings suggest that emotional regulation developed not in isolation, but within relationships. Parents facilitated daily mindfulness practice at home, teachers reinforced the strategies during moments of emotional distress, and together they created opportunities for adolescents to apply mindfulness across different contexts. An unexpected finding was that parents also reported benefiting from the programme, describing increased awareness, concentration, and understanding of mindfulness in their own lives. Rather than functioning as an intervention directed solely at the adolescent, MBAT became a shared language of co-regulation that strengthened connections between learners and the adults who supported them. This reciprocal benefit suggests that mindfulness was not transmitted from adult to child in a one-directional manner. Rather, the programme became a shared educational practice through which adolescents and adults developed a common language for recognising and responding to emotional experiences. This finding reinforces previous research demonstrating that parental engagement enhances mindfulness intervention outcomes and contributes to the successful transfer of regulatory strategies across settings (Ridderinkhof et al., 2018).

These findings also resonate strongly with relational perspectives on education. Noddings (2013) argues that meaningful learning occurs within caring relationships characterised by attentiveness, responsiveness, and mutual recognition. Similarly, inclusive education extends beyond physical placement within mainstream classrooms to the creation of educational environments in which learners experience belonging, participation, and authentic engagement (Swart & Pettipher, 2019). From this perspective, the significance of MBAT lies not only in supporting emotional regulation, but also in creating opportunities for collaborative learning, shared responsibility, and relational support across home and school contexts.

Viewed through Biesta's (2015, 2020) concept of socialisation, the significance of MBAT extends beyond individual emotional development. The programme fostered educational relationships in which learners, parents, and teachers participated together in practices of awareness, reflection, and co-regulation. Rather than positioning emotional regulation as the sole responsibility of the learner, the findings suggest that it emerged through supportive educational relationships that promoted participation, belonging, and shared meaning-making. In this way, MBAT illustrates how educational practices strengthen not only individual learning but also the relational conditions through which learning becomes possible.

The relational nature of these findings also raises important questions about their transferability across different educational contexts. These findings emerged within a specialised independent school characterised by small class sizes, strong family involvement, and access to ongoing psychosocial support. Similar implementation may be more challenging in resource-constrained public schools, where teachers often work with much larger classes and have limited access to specialist support. Nevertheless, the flexibility, low cost, and adaptability of MBAT suggest that many of its underlying principles (such as brief mindfulness practices, learner choice, and opportunities for co-regulation) could be incorporated into teacher education and inclusive classroom practice without requiring specialist resources. Rather than proposing MBAT as a standardised programme, these findings highlight the potential value of adapting its underlying educational principles to diverse South African school contexts.

Subjectification: Creating conditions for agency and becoming

While qualification and socialisation are important purposes of education, Biesta (2020) argues that subjectification represents education's most distinctive contribution. Rather than focusing solely on what learners know or how they become part of existing social orders, subjectification concerns "the existence of the child or student as subject of her or his own life, not as object of educational interventions" (Biesta, 2020, p. 89). This distinction is particularly significant for neurodivergent learners, whose educational experiences have often been shaped by expectations of normalisation, compliance, and behavioural correction (Dwyer, 2022; Milton, 2012; Pellicano & den Houting, 2022; Walker, 2021). Viewed through this lens, the question is no longer simply whether educational practices produce desired behavioural outcomes, but whether they create opportunities for learners to exercise agency, make meaningful choices, and participate as active subjects in their own educational lives.

Viewed from this perspective, the most significant contribution of MBAT was not simply improved emotional regulation, but the creation of educational conditions in which autistic adolescents could participate as active subjects of their own lives. Flexibility emerged as a defining feature of the programme, with participants choosing when, where, and how they engaged in the mindfulness practices. Rather than following a rigid intervention protocol, adolescents adapted the practices to suit their own routines, preferences, and sensory needs. Equally significant was the fact that the programme itself remained adaptable. Participants did not simply comply with a predetermined intervention but actively modified the practices to fit their own sensory preferences, daily routines, and ways of engaging with the world. Educationally, this is important because it represents a shift away from asking learners to adapt themselves to educational practices and towards educational practices adapting to learners.

Such reciprocity reflects Biesta's understanding of subjectification as creating opportunities for learners to exist as subjects who respond to the world in their own ways rather than as objects expected to conform to predetermined norms. For some, mindfulness became part of an evening routine; for others, it became a strategy they independently used to fall asleep or manage moments of emotional distress. This sense of ownership reflects a shift from participation based on compliance towards participation characterised by agency, autonomy, and personal meaning. As Biesta (2020, p. 94) argues, subjectification is ultimately about "being a self, being a subject of your own life." The participants' willingness to adapt, personalise, and independently use mindfulness practices suggests that they were not merely following instructions but were actively incorporating these practices into their own ways of being and responding to the world.

These findings also challenge traditional deficit-oriented approaches that position autistic learners primarily as problems to be managed or behaviours to be corrected. Instead, they align with neurodiversity-affirming perspectives that recognise autistic individuals as active meaning-makers whose differences should be understood rather than normalised (Dwyer, 2022; Pellicano & den Houting, 2022). Rather than asking adolescents to adapt themselves to predetermined educational expectations, MBAT was adapted to the learners. This reversal is educationally significant. It suggests that inclusive education is not achieved simply by

providing access to existing practices, but by designing educational experiences that respond to learners' diverse ways of sensing, engaging, and participating in the world. In doing so, the programme shifted attention from behavioural compliance towards understanding, presence, and learner agency.

The findings suggest that the educational value of MBAT lies not primarily in producing calmer behaviour, but in creating opportunities for autistic adolescents to develop greater self-awareness, exercise meaningful choice, and participate in educational experiences on their own terms. In this sense, mindfulness becomes more than a strategy for emotional regulation; it becomes a humanising educational practice that supports learners in becoming active subjects of their own lives. As Biesta (2020, p. 95) explains, education as subjectification is about "bringing the subject-ness of the child or young person 'into play,' so to speak; helping the child or young person not to forget that they can exist as subject." The present findings suggest that adapted MBAT may contribute to precisely these educational conditions. In times of polycrisis, when education is increasingly called upon to respond not only to academic demands but also to complexity, uncertainty, and human vulnerability, this may represent its most significant contribution.

Rather than asking how educational practices can produce calmer or more compliant learners, this study invites educators to ask a broader question: "What should it mean for an educational intervention to work?" In contexts characterised by increasing uncertainty and complexity, success cannot be judged only by whether an intervention changes behaviour or reduces emotional dysregulation. It must also be considered in relation to whether learners are supported to understand themselves, exercise judgement, participate authentically, and develop meaningful relationships. The significance of this study therefore extends beyond MBAT itself. It demonstrates how Biesta's framework can provide a valuable conceptual lens for evaluating educational interventions in terms of the opportunities they create for qualification, socialisation, and subjectification. Viewed in this way, adapted MBAT offers one example of how neurodiversity-affirming educational practices may enable learners not only to acquire useful skills, but also to participate, belong, and become. This broader understanding of educational value is particularly important in times of polycrisis, when education is required to respond not only to academic demands but also to uncertainty, vulnerability, and human complexity.

While these findings offer important insights into the educational potential of adapted mindfulness practices, they should also be interpreted in relation to the context in which the study was conducted. The participants attended a specialised independent school characterised by small class sizes, strong family involvement, and access to ongoing psychosocial support, all of which may have facilitated the implementation of MBAT and the collaborative relationships observed in this study. Whether similar experiences would emerge in mainstream schools remains uncertain, particularly in resource-constrained South African contexts where teachers often work with larger classes and have limited access to specialist support (Spaull, 2013). Nevertheless, the flexibility, low cost, and adaptability of MBAT suggest that many of its underlying principles—including learner choice, sensory responsiveness, brief mindfulness

practices, and opportunities for co-regulation—could be incorporated into teacher education and inclusive classroom practice without requiring specialist resources. Rather than advocating a standardised programme, the present findings highlight the potential value of adapting these educational principles to diverse South African school contexts.

Limitations and future research

This study should be interpreted in light of several limitations. The findings are drawn from a small qualitative case study involving three autistic adolescents and therefore are not intended to be statistically generalisable. Rather, the purpose of the study was to provide an exploration of participants' experiences of an adapted MBAT programme within a particular South African educational context. While the inclusion of adolescent, parent, and teacher perspectives strengthened the richness of the data, future research could explore these educational processes with larger and more diverse samples, across different educational settings, and over longer periods of time. Further research could also examine how educational practices that prioritise qualification, socialisation, and subjectification contribute to the participation and well-being of neurodivergent learners in inclusive school contexts.

Conclusion

Biesta (2020, p. 102) argues that "it is only when subjectification enters the scene that we are in the domain of education." The present study suggests that adapted mindfulness practices may contribute to this educational purpose by creating conditions in which autistic adolescents are supported not only to regulate emotions, but to participate as subjects of their own educational lives. Viewed through Biesta's three educational purposes, MBAT contributed to the development of practical competencies (qualification), strengthened relationships across home and school (socialisation), and, most importantly, created opportunities for learners to exercise agency, make meaningful choices, and participate as active subjects in their own learning (subjectification).

When mindfulness is viewed through the lens of education rather than therapy, its potential shifts. Rather than functioning solely as a strategy for emotional regulation, mindfulness becomes an educational practice that invites a move beyond efficiency and performance towards presence, awareness, agency, and relational ways of being. The findings suggest that when autistic adolescents are provided with flexibility, choice, and supportive relational contexts, emotional regulation becomes less about behavioural control and more about understanding, responding to, and participating in their own lived experiences. Rather than offering generalisable claims, this study contributes qualitative insight into how flexibility, autonomy, and sensory attunement can create educational conditions that enable meaningful participation.

From an inclusive education perspective, the study points towards the importance of educational practices that are responsive to neurodiversity and attentive to the conditions in which learners develop. Within the South African context, where access to specialised

psychosocial support remains uneven, the findings highlight the value of adaptable, low-cost approaches that can be integrated into everyday school and home environments. In this way, MBAT is positioned not as a specialist intervention, but as a context-responsive educational practice that complements existing supports while affirming learner agency and participation.

This study argues that the contribution of MBAT extends beyond the question of whether mindfulness "works." Instead, it invites a broader reconsideration of what education is for in times of polycrisis. If education is concerned not only with what learners know, but also with who they are becoming, then practices that cultivate awareness, agency, participation, and authentic engagement deserve greater attention within inclusive education. In this sense, mindfulness does not simply support learning; it offers one example of how educational practices can create the conditions in which neurodivergent learners are recognised not merely as recipients of educational interventions, but as active subjects capable of participating in education and in the world on their own terms

Declaration

The authors used ChatGPT to assist with language refinement, clarity, organisation, and the consideration of possible ways to structure the manuscript's argument. The authors critically evaluated and revised all AI-assisted suggestions and take full responsibility for the accuracy, integrity, analysis, interpretation, and conclusions presented in the article. Generative AI was not used to generate, analyse, alter, or fabricate research data, nor was it used as a substitute for the authors' scholarly judgement.

References

Ashburner, J., Ziviani, J., & Rodger, S. (2008). Sensory processing and classroom emotional, behavioral, and educational outcomes in children with autism spectrum disorder. *The American Journal of Occupational Therapy*, *62*(5), 564–573. https://doi.org/10.5014/ajot.62.5.564

Baer, R. A., & Krietemeyer, J. (2006). Overview of mindfulness- and acceptance-based treatment approaches. In R. A. Baer (Ed.), *Mindfulness-based treatment approaches: Clinician's guide to evidence base and applications* (pp. 3–27). Elsevier. https://doi.org/10.1016/B978-012088519-0/50002-2

Ballaban-Gil, K., Rapin, I., Tuchman, R., & Shinnar, S. (1996). Longitudinal examination of the behavioral, language, and social changes in a population of adolescents and young adults with autistic disorder. *Pediatric Neurology*, *15*(3), 217–223. https://doi.org/10.1016/S0887-8994(96)00219-6

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, *13*(4), 544–559. https://doi.org/10.46743/2160-3715/2008.1573

Beck, K. B., Conner, C. M., White, S. W., & Mazefsky, C. A. (2020). Mindfulness "here and now": Strategies for helping adolescents with autism. *Journal of the American Academy of Child and Adolescent Psychiatry*, *59*(10), 1125–1127. https://doi.org/10.1016/j.jaac.2020.07.004

Biesta, G. J. J. (2010). *Good education in an age of measurement: Ethics, politics, democracy*. Routledge.

Biesta, G. (2015). What is education for? On good education, teacher judgement, and educational professionalism. *European Journal of Education*, *50*(1), 75–87. https://doi.org/10.1111/ejed.12109

Biesta, G. (2020). Risking ourselves in education: Qualification, socialization, and subjectification revisited. *Educational Theory*, *70*(1), 89–104. https://doi.org/10.1111/edth.12411

Boler, M. (1999). *Feeling power: Emotions and education*. Routledge.

Broderick, P. C., & Jennings, P. A. (2012). Mindfulness for adolescents: A promising approach to supporting emotion regulation and preventing risky behavior. *New Directions for Student Leadership*, *2012*(136), 111–126. https://doi.org/10.1002/yd.20042

Conner, C. M., Elias, R., Smith, I. C., & White, S. W. (2023). Emotion regulation and executive function: Associations with depression and anxiety in autism. *Research in Autism Spectrum Disorders*, *101*, Article 102103. https://doi.org/10.1016/j.rasd.2023.102103

Corbin, J. M., & Strauss, A. L. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). SAGE.

Crane, L., Goddard, L., & Pring, L. (2009). Sensory processing in adults with autism spectrum disorders. *Autism: The International Journal of Research and Practice*, *13*(3), 215–228. https://doi.org/10.1177/1362361309103794

Department of Education. (2001). *Education White Paper 6: Special needs education: Building an inclusive education and training system*. https://www.gov.za/sites/default/files/gcis_document/201409/educ61.pdf

Dwyer, P. (2022). The Neurodiversity approach(es): What are they and what do they mean for researchers? *Human Development*, *66*(2), 73–92. https://doi.org/10.1159/000523723

Franz, L., Adewumi, K., Chambers, N., Viljoen, M., Baumgartner, J. N., & de Vries, P. J. (2018). Providing early detection and early intervention for autism spectrum disorder in South Africa: Stakeholder perspectives from the Western Cape province. *Journal of Child and Adolescent Mental Health*, *30*(3), 149–165. https://doi.org/10.2989/17280583.2018.1525386

Gillespie, M. (2024). *Mindfulness in countering dysregulation in adolescents with autism spectrum disorder* [Unpublished master's dissertation]. Stellenbosch University.

Gkintoni, E., Vassilopoulos, S. P., & Nikolaou, G. (2025). Mindfulness-based cognitive therapy in clinical practice: A systematic review of neurocognitive outcomes and applications for mental health and well-Being. *Journal of Clinical Medicine*, *14*(5), 1703. https://doi.org/10.3390/jcm14051703

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, *2*(3), 271–299. https://doi.org/10.1037/1089-2680.2.3.271

Jha, A. P. (2021). *Peak mind: Find your focus, own your attention, invest 12 minutes a day*. HarperOne.

Jha, A. P., & Rogers, S. L. (2019). The science of mindfulness and the practice of law. *GPSolo, 36*(3), 32–37.

Kabat-Zinn, J. (2015). Mindfulness. *Mindfulness*, *6*(6), 1481–1483. https://psycnet.apa.org/doi/10.1007/s12671-015-0456-x

Keng, S.-L., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, *31*(6), 1041–1056. https://doi.org/10.1016/j.cpr.2011.04.006

Mazefsky, C. A., & White, S. W. (2014). Emotion regulation concepts practice in autism spectrum disorder. *Child and Adolescent Psychiatric Clinics of North America*, *23*(1), 15. https://doi.org/10.1016/j.chc.2013.07.002

Mazefsky, C. A., Pelphrey, K. A., & Dahl, R. E. (2012). The need for a broader approach to emotion regulation research in autism. *Child Development Perspectives*, *6*(1), 92–97. https://doi.org/10.1111/j.1750-8606.2011.00229.x

McKeering, P., & Hwang, Y.-S. (2019). A systematic review of mindfulness-based school interventions with early adolescents. *Mindfulness*, *10*(4), 593–610. https://doi.org/10.1007/s12671-018-0998-9

Milton, D. E. M. (2012). On the ontological status of autism: The "double empathy problem." *Disability & Society*, *27*(6), 883–887. https://doi.org/10.1080/09687599.2012.710008

Morin, E. (2008). *On complexity*. Hampton Press.

Newbutt, N., Brosnan, M., Parsons, S., Good, J., & Yuill, N. (2016). How can participatory design inform the design and development of innovative technologies for autistic communities? *Journal of Assistive Technologies*, *10*(2), 115–120. doi:10.1108/JAT-12-2015-0033

Noddings, N. (2013). *Caring: A relational approach to ethics and moral education* (2nd ed.). University of California Press.

Pellicano, E., & den Houting, J. (2022). Annual research review: Shifting from "normal science" to neurodiversity in autism science. *Journal of Child Psychology and Psychiatry*, *63*(4), 381–396. https://doi.org/10.1111/jcpp.13534

Pillay, S., Duncan, M., & de Vries, P. J. (2021). Autism in the Western Cape province of South Africa: Rates, socio-demographics, disability and educational characteristics in one million school children. *Autism: The International Journal of Research and Practice*, *25*(4), 1076–1089. https://doi.org/10.1177/1362361320978042

Porter, B., Oyanadel, C., Betancourt, I., Worrell, F. C., & Peñate, W. (2024). Effects of two online mindfulness-based interventions for early adolescents for attentional, emotional, and behavioral self-regulation. *Pediatric Reports*, *16*(2), 254–270. https://doi.org/10.3390/pediatric16020022

Ridderinkhof, A., de Bruin, E. I., Blom, R., & Bögels, S. M. (2018). Mindfulness-based program for children with autism spectrum disorder and their parents: Direct and long-term improvements. *Mindfulness*, *9*(3), 773–791. https://doi.org/10.1007/s12671-017-0815-x

Samson, A. C., Hardan, A. Y., Podell, R. W., Phillips, J. M., & Gross, J. J. (2015). Emotion regulation in children and adolescents with autism spectrum disorder. *Autism Research*, *8*(1), 9–18. https://doi.org/10.1002/aur.1387

Sizoo, B. B., & Kuiper, E. (2017). Cognitive behavioural therapy and mindfulness based stress reduction may be equally effective in reducing anxiety and depression in adults with autism spectrum disorders. *Research in Developmental Disabilities*, *64*(NA), 47–55. https://doi.org/10.1016/j.ridd.2017.03.004

Spaull, N. (2013). Poverty & privilege: Primary school inequality in South Africa. *International Journal of Educational Development*, *33*(5), 436–447. https://doi.org/10.1016/j.ijedudev.2012.09.009

Spek, A. A., van Ham, N. C., & Nyklíček, I. (2013). Mindfulness-based therapy in adults with an autism spectrum disorder: A randomized controlled trial. *Research in Developmental Disabilities*, *34*(1), 246–253. https://doi.org/10.1016/j.ridd.2012.08.009

Stockall, N., & Blackwell, W. (2022). Mindfulness training: Reducing anxiety in students with autism spectrum disorder. *Early Childhood Education Journal*, *50*(1), 1–9. https://doi.org/10.1007/s10643-020-01116-7

Swart, E., & Pettipher, R. (2019). Perspectives on inclusive education. In E. Landsberg, D. Krüger, & E. Swart (Eds.), *Addressing barriers to learning: A South African perspective* (4th ed., pp. 3–20). van Schaik.

Tooze, A. (2022, October 28). Welcome to the world of the polycrisis. *Financial Times*. https://www.ft.com/content/498398e7-11b1-494b-9cd3-6d669dc3de33

Twenge, J. M. (2017). *iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy—and completely unprepared for adulthood (and what this means for the rest of us)*. Atria Books.

Walker, N. (2021). *Neuroqueer heresies: Notes on the neurodiversity paradigm, autistic empowerment, and postnormal possibilities*. Autonomous Press.

Wisner, B. L., Jones, B., & Gwin, D. (2010). School-based meditation practices for adolescents: a resource for strengthening self-regulation, emotional coping, and self-esteem. *Children & Schools*, *32*(3), 150–159. https://doi.org/10.1093/cs/32.3.150

World Health Organization. (2025, September 1). *Mental health of adolescents*. https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health