South African Journal of Childhood Education
ISSN: (Online) 2223-7682, (Print) 2223-7674

A review of trauma-informed neuroscientific theory to unpack the early childhood education teacher's pastoral role in South Africa

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Dates:
Received: 08 Dec. 2023
Accepted: 05 June 2024
Published: 29 Nov. 2024

How to cite this article:
Meier, C., 2024, 'A review of trauma-informed neuroscientific theory to unpack the early childhood education teacher's pastoral role in South Africa', *South African Journal of Childhood Education* 14(1), a1491. https://doi.org/10.4102/sajce.v14i1.1491

Background: This review explores the pastoral role of early childhood development (ECD) teachers through a trauma-informed lens, grounded in neuroscience. Traumatised learners experience neurobiological changes that hinder cognitive and physical functioning. The review highlights the importance of pastoral support in ECD because of learners' increasing mental health needs. Teachers must be equipped with various strategies to support emotional development, and collaborate with school nurses, counsellors, and psychologists, especially those specialising in ECD, to foster learners' well-being and growth.

Aim: This study aimed to examine the ECD teacher's pastoral role, informed by neuroscience, in supporting learners with childhood trauma.

Setting: The study focuses on ECD teachers in South Africa working with young learners affected by trauma.

Methods: A contextual and conceptual literature review was conducted using inclusion and exclusion criteria. Data were analysed through hermeneutics and interpretivism.

Results: Understanding neuroscientific principles can transform the ECD teacher's role, offering insights into trauma's neurological effects. Teachers can implement resilience-building strategies and create trauma-informed environments that support learners' emotional, cognitive, and social development.

Conclusion: Neuroscientific theories can reshape the ECD teacher's pastoral role, fostering safe, trusting spaces for learners' growth. This approach helps to mitigate the effects of trauma, promoting resilience and social competence in learners, and contributes to a supportive learning environment.

Contribution: Trauma-informed, neuroscience-based practices enable ECD teachers to prioritise empathy, safety, and trust, addressing the needs of traumatised learners and promoting resilience through early intervention.

Keywords: teacher's pastoral role; childhood trauma; ECD learners; South Africa; trauma-informed ECD support; neuroscientific theory.

Introduction

The Norms and Standards for Educators (Republic of South Africa [RSA] 2000) and the Minimum Requirements for Teacher Education Qualifications (MRTEQ) (RSA 2011) identify a clearly defined community, citizenship and pastoral role as one of seven roles of a competent and qualified teacher in South Africa. Teachers should be trained with a variety of teaching strategies to apply the pastoral role to learners who require emotional support. They require access to appropriate resources and expert assistance if necessary to support the overall well-being, growth and holistic development of the learner (Joubert 2023). As teachers engage daily with learners, they should deal with learners' psychosocial challenges when they arise and not wait for specialist help. However, the pastoral role of the teacher is often overlooked by schools and teacher education institutions (Schoeman 2012). Considering the mental health challenges present in the South African educational context (Artz et al. 2016), a key finding from the Annual Report of the South African Human Rights Commission (2017) was that there is considerable underinvestment in mental health by the South African government.

The pastoral role of early childhood development (ECD) teachers working in pre-schools as well as Grades R, 1–3 is of utmost importance when dealing with young learners who have experienced

trauma (Skeen et al. 2022). Data on child and adolescent mental disorders in South Africa, including childhood trauma, are limited (Tomlinson, Kleintjies & Lake 2022). Artz et al. (2016) found that almost half of the children in South Africa have experienced trauma as the result of some form of sexual victimisation. A recent national survey conducted by Wits/Medical Research Council Developmental Pathways for Health Research Unit (DPHRU 2022) shows that more than a quarter of adult South Africans have suffered early adverse childhood experiences (ACEs) or events of childhood trauma. These experiences include physical and emotional abuse, neglect, caregiver mental illness and household violence (DPHRU 2022). Symonds' (2020) comprehensive list of causes of childhood trauma includes sexual victimisation; physical abuse; witnessing violence including school violence; traumatic death of a loved one, including human immunodeficiency virus or acquired immunodeficiency syndrome (HIV or AIDS) deaths; internet-assisted victimisation; natural disasters; motor vehicle accidents; domestic violence; living with a parent with addiction; and family disruption caused by divorce or separation.

Traumatic experiences inevitably have a negative impact on the present psychological and physiological health of learners and may carry over into adulthood; such adults are at much greater risk for depression and anxiety later in life (Kaminer 2020). The meta-analysis of trauma carried out by Hogg, Gardoki-Souto and Valiente-Gómez (2023) indicates a continuum of trauma types ranging from physical trauma to anxiety and childhood-based trauma. Single acute traumatic events can be distinguished from sustained trauma which is the result of ongoing exposure to distressing conditions. The more traumatic events a child experiences, the more likely they will suffer from poor health in adulthood and even a reduced life span.

When learners experience trauma, they may become fearful of experiencing trauma again. In this process, learners may develop desperate, hyper-reactivity and harmful coping strategies that not only create more discomfort but put them at even greater risk of being rejected by their peers, teachers and the community. Furthermore, early childhood trauma, in particular complex trauma, can cause neurobiological changes that affect development and lead to important changes in the functioning of the brain which affect both cognitive and physical functioning (Conkbayir 2021; Dye 2018). The increasing mental health needs of learners necessitate the effective support of their pastoral needs (Tomlinson et al. 2022).

In fulfilment of their pastoral role, teachers in the ECD phase in South Africa are ideally located to follow a trauma-informed approach to provide support for young learners who have undergone traumatic childhood experiences. Skeen et al. (2022) point out that ECD teachers are generally well connected to communities and can facilitate contact among learners, parents, caregivers, community organisations and specialist services. Specialised mental health services tend to be difficult to access and ECD teachers are less stigmatised than mental health care experts when it comes to providing mental health support.

In the light of the above-stated background, the aim of this article was to develop a clear and accessible account of the pastoral role of the ECD teacher in meeting the needs of young learners who have suffered trauma against the insight obtained from a review of published work on neuroscientific theory and trauma-informed care in ECD in the period 1990 to 2023. Particular focus is placed on the work of Conkbayir (2021) on ECD and neuroscience.

Methods

The aim of the study was to expound the ECD teacher's pastoral role informed by neuroscience in meeting the needs of learners with childhood trauma through a systematic literature review which employed a fusion of *contextual* and *conceptual* review methods. A deliberate and informed assessment of relevant literature puts the researcher in a framework of apposite studies where material from a compelling body of finished and recorded work is assessed in light of the researcher's own concerns and position (Fraenkel & Wallen 2010). As a teacher trainer in ECD, the researcher's concerns on the high rate of trauma impacting young learners and their learning were juxtaposed in this study against neuroscientific theory and the pastoral role of the ECD teacher in meeting the needs of young learners who have suffered trauma by employing a trauma-informed approach.

To identify the most recent literature, commentaries and current developments on the topic, a systematic literature review was conducted by consulting scholarly books of seminal authors and edited books augmented with journal articles and government policies retrieved from the following databases: EBSCOhost, Sabinet, Wiley, SAGE and Taylor & Francis. Access was obtained through the library web portal[1]. The Internet, using the World Wide Web including Google Scholar, was also used. The advantages of using an internet search include currency, access to a wide variety of material and immediacy (24 hours a day) in searching for relevant literature. Keywords used in the search included 'neuroscientific theory', 'childhood trauma', and 'teacher's pastoral role'.

Inclusion and exclusion criteria were applied to journal articles. Articles published in English, between 1990 and 2023, with a content focus on South African *contextual* issues regarding childhood trauma and the pastoral role of teachers were selected. The review also included books, published nationally and internationally. Where published books and articles were more than 20 years old, the older references were backed up with more recent references for verification purposes.

1.https://www.unisa.ac.za/sites/corporate/default/Library

Some of the older references are, however, seminal works on the topics of 'trauma-informed' and 'neuroscientific theory'. The *contextual* review included a description of the ECD landscape in South Africa and the extent of trauma among ECD learners. The concept ECD includes children from birth to 9 years (pre-schools as well as Foundation Phase, Grades R, 1–3) as is used in the South African context. The *conceptual* review was limited to an analysis of trauma-informed neuroscientific theory which deals with the effects of trauma on the brains of young learners, as applied to the teacher in a pastoral relationship with young learners.

The above-mentioned keywords, namely 'neuroscientific theory', 'childhood trauma' and 'teacher's pastoral role', were also used as the topics for analysis. The topics were considered separately, the key parts were examined and then the parts were put together for a better understanding of how the conceptual review imprinted on the contextual review and vice versa to determine the pastoral role of the ECD teacher based on trauma-informed neuroscientific theory (Walker & Avant 2005).

Because hermeneutics is a viable philosophical approach for both textual and social science research, it was used in this study's data analysis. Hermeneutics is a type of interpretivism that aims to read textual materials, human behaviours, events, and circumstances in a way that promotes understanding. The dialectic between comprehending the text as a whole and interpreting its individual elements is referred to as analysis of textual data (ed. Maree 2016). The constant movement from the whole to the parts and back to the whole is called the 'cyclical process of ever deeper understanding' (Babbie 2014:137). It is important to note that hermeneutic data analysis forces scholars to consider the texts' meanings in great detail. Butler (1998) asserts that hermeneutics provides the essential ontological understandings that enable human interpretation and comprehension. The subjectivity of the hermeneutic approach constitutes the methodological shortcomings of the methodology (ed. Maree 2016).

To determine interpretation and comprehension, all the literature reviewed was scrutinised to identify three pre-determined topics, namely 'Neuroscientific theory'; 'The trauma-informed approach to childhood trauma'; and 'The pastoral role of the ECD teacher'. These topics were further analysed by identifying sub-topics as follows. For the first topic, 'Neuroscientific theory', the following sub-topics were identified: 'Childhood trauma and neural plasticity'; 'Childhood trauma and neurobiological mechanisms'; and 'Childhood trauma and mental health of ECD learners'. For full comprehension of the first topic, the topic of 'Implications of neurobiological impact of childhood trauma on ECD learners' was also discussed. The second topic, namely 'The trauma-informed approach to childhood trauma', was dissected and a sub-topic, namely 'Core principles of a trauma-informed approach' was presented. The third topic, namely 'The pastoral role of the ECD teacher', was analysed to determine key elements of an ECD teacher's pastoral role.

The dialectic between interpreting the individual elements of the topics and sub-topics, and comprehending the text as a whole was done in two phases. The first phase of the discussion reflects on 'The pastoral role of the ECD teacher in relation to a trauma-informed approach'. The key elements identified were 'critical, committed and ethical attitude'; 'sense of respect and responsibility towards others'; 'supportive and empowering environment'; and 'response to educational and other needs'. The second phase considers 'The pastoral role of the ECD teacher in relation to neuroscientific theory and a trauma-informed approach in ECD'. By ending the two-phase interpretation section with the implications and recommendations for ECD teachers and policy makers, the cyclical process for an ontological understanding that enables human interpretation and comprehension regarding the pastoral role of the ECD teacher using trauma-informed neuroscientific theory was completed.

Ethical considerations

Ethical approval to conduct this study was obtained from the University of South Africa College of Education Ethics Review Committee (No. 2019/05/21/1996878/03/MC).

Review findings

The findings of the review are discussed according to the three broad topics aforementioned: neuroscientific theory; the trauma-informed approach to childhood trauma; and the pastoral role of the ECD teacher. This is followed by the discussion of the relationship between the topics.

Neuroscientific theory

Neuroscience is the scientific study that explores the structure and function of the nervous system. It studies the brain, spinal cord and peripheral nerves. These structures coordinate awareness and response to environmental stimuli, assisting the individual in staying aware of the environment and keeping safe from danger. The brain is also responsible for the ability to think, plan, act and understand our well-being (Conkbayir 2021). Although the term neuroscience has been in existence since the 1960s, neuroscience can today be seen as an interdisciplinary field with different sub-divisions focussing on the structure and function of the different brain regions and how different areas of the brain affect behaviour. Healthy development of the brain is essential to general well-being (Conkbayir 2021).

An individual's physical and psychological well-being can be severely and permanently impacted by adverse events such as childhood trauma, which is frequently defined by events like physical or emotional abuse, neglect or dysfunctional families (eds. Ford & Cameron 2020; Van der

Kolk 2014). An increasing body of research has examined the effects of childhood trauma to understand how these events affect the developing brain and may be linked to a variety of mental health issues in later life (Conkbayir 2021; McCrory, Mattia & Viding 2017; Perry & Szalavitz 2006; Van der Kolk 2014).

The discussion focusses on the relationship between neuroscientific theory and exposure to childhood trauma. This overview aims to provide insight into how childhood trauma can influence the structure and function of the brain (neurobiology) and contribute to various mental health disorders that can influence classroom teaching and learning. Abnormalities in specific brain areas, related to memory and learning can occur as well as a diminished capacity in executive brain functions (impulse control and decision-making), emotional regulation, anxiety, stress and the ability to build trustworthy relationships (Conkbayir 2021; Long 2022). The relationship between childhood trauma and neurobiological impact will be discussed using the following sub-topics: childhood trauma and neural plasticity, childhood trauma and neurobiological effects, and childhood trauma and mental health of ECD learners.

Childhood trauma and neural plasticity

Neural plasticity describes the brain's extraordinary capacity to adapt and change in response to experiences (Blaustein & Kanniburgh 2019). The brain is especially pliable during childhood, leaving it open to the impacts of trauma (Conkbayir 2021). Awareness of the relationship between neuroscientific theory and childhood trauma requires mindfulness of the crucial roles that the following sections in the brain, namely the hippocampus, prefrontal cortex, and amygdala, play in processing and regulating emotions and memories (Conkbayir 2021).

Hippocampal atrophy: Because of its role in both memory processing and emotional regulation, the hippocampus is susceptible to the negative consequences of long-term stress related to traumatic childhood experiences. Extended exposure to high levels of stress hormones can cause hippocampus atrophy, which is linked to memory loss and a decreased capacity to handle stress (Morey et al. 2016; O'Doherty et al. 2015; Van der Kolk 2014).

Prefrontal cortex impairment: During childhood, the prefrontal cortex, which is in charge of executive processes including impulse control and decision-making, changes in growth. Trauma experienced as a child can interfere with the development of the prefrontal cortex, affecting an individual's capacity to control their emotions, reason through decisions and restrain impulsive conduct. Anxiety and sadness are two mood disorders that are associated with this impairment (McCrory et al. 2017).

Amygdala hyperactivity: The processing of emotional reactions, especially those involving fear and danger perception, is mediated by the amygdala. A heightened 'fight or flight' reaction and enhanced sensitivity to possible threats, can arise from childhood trauma-induced amygdala activity (Van der Kolk 2014). According to Teicher, Anderson and Polcari (2012), this increased responsiveness can last throughout adulthood and aggravate anxiety and post-traumatic stress disorder (PTSD).

In the context of childhood trauma, alterations in brain regions such as the amygdala, hippocampus and prefrontal cortex, can be linked to a heightened stress response, emotional deregulation and memory impairment formation. An adverse response by learners to these aspects can impact classroom teaching and learning negatively.

Childhood trauma and neurobiological effects

Neurobiology is the branch of biology that focusses on the structure and function of the nervous system, including the brain and its intricate network of neurons (Kandel et al. 2016). In the context of childhood trauma, neurobiology explores how adverse experiences during early development can affect the brain's structure and function, potentially leading to long-term changes in neural circuits and behaviour (Teicher et al. 2012). This section will discuss selected neurobiological effects on the young learner related to childhood trauma.

Structural brain changes: Multiple brain regions have shown structural changes linked to childhood trauma (Conkbayir 2021; Fisher 2001). For example, people who suffered trauma as children may have decreased volume in the prefrontal cortex, which is in charge of executive skills and impulse control (Teicher et al. 2012). The amygdala, a crucial area for emotion processing and threat detection, is known to undergo changes and frequently exhibits increased activity and volume (Cohen et al. 2006). The problems trauma survivors frequently experience controlling their emotions and impulses may be caused by these fundamental changes in the structure of the brain.

The stress response system: Traumatic events that cause chronic stress can cause the stress response system to become persistently activated, which increases the production of stress hormones, especially cortisol. Dysregulation of the stress response system is one of the main ways that childhood trauma affects the brain (Conkbayir 2021; eds. Ford & Courtois 2020; Perry & Szalavitz 2006). The hippocampus, a part of the brain essential for memory and emotion control, may suffer as a result. McEwen and Sapolsky's (1995) research demonstrates the connection between long-term stress and hippocampus damage, which may be a factor in the emotional dysregulation and cognitive impairments seen by those who have experienced childhood trauma.

Epigenetic modifications: To mitigate the long-term brain impacts of childhood trauma, epigenetic mechanisms are essential. Changes in epigenetics (changes that occur to gene expression as a result of influences external to the child)

can affect how the brain functions (Conkbayir 2021). Research has demonstrated that maltreatment of children is linked to changes in DNA methylation patterns of particular genes related to stress regulation and emotional processing, as demonstrated by the work of McGowan et al. (2009). These changes in the epigenetic code have the potential to maintain an elevated stress response and exacerbate mental health conditions (Van der Kolk 2014).

Neurotransmitter imbalance: The brain uses chemical messengers called neurotransmitters to transmit messages from one cell to the next. Childhood trauma has the potential to disturb the equilibrium of neurotransmitters inside the brain, hence exercising an influence on an individual's cognitive processes and emotional state (Perry & Szalavitz 2006). Individuals who have undergone childhood trauma may exhibit dysregulated levels of serotonin and dopamine, which are two neurotransmitters that play a critical role in mood regulation. This imbalance has been linked to an increased prevalence of depression and other mood disorders (Kaufman et al. 2018). Chronic depression, anxiety and impaired reward processing can arise from abnormalities in neurotransmitter balances.

Thus, childhood trauma induces neurobiological changes, impacting the structure and function of critical brain regions. These complex neurobiological effects highlight the intricate relationship between childhood trauma and enduring changes in brain structure and function.

Childhood trauma and mental health of early childhood development learners

Mental health in early childhood is a critical aspect of overall well-being and development. The formative years, from birth to around 8 years, lay the foundation for cognitive, emotional and social skills. Early experiences of adversity, neglect or trauma can significantly impact mental health, potentially leading to long-term consequences influencing learning outcomes and overall resilience. An overview of selected mental health issues includes PTSD, borderline personality disorder (BPD), depression and anxiety disorders, and neuroinflammation, to illustrate how these mental health issues can influence early learning.

Post-traumatic stress disorder

Post-traumatic stress disorder is a mental health condition triggered by experiencing or witnessing a traumatic event, characterised by persistent symptoms such as intrusive thoughts, flashbacks, hypervigilance and emotional distress. Childhood trauma represents a substantial risk factor in the pathogenesis of PTSD. Individuals who have undergone traumatic experiences throughout their formative years may display increased levels of arousal, recurring vivid recollections and intrusive memories because of the aforementioned alterations in neurobiology (eds. Ford & Curtios 2020). Neuroimaging investigations, exemplified by the study conducted by Bremner et al. (1997), have elucidated modified patterns of neural activation in patients diagnosed with PTSD, thereby emphasising the involvement of the amygdala and prefrontal cortex in the pathophysiological mechanisms underlying this condition.

Borderline personality disorder (BPD)

Borderline personality disorder is a mental health condition marked by pervasive patterns of instability in interpersonal relationships, self-image and emotions, often accompanied by impulsive behaviour and an intense fear of abandonment (eds. Ford & Curtious 2020). Childhood trauma frequently emerges as a prevailing element in the origin of BPD. Research carried out by Donegan et al. (2003) has revealed the presence of both structural and functional irregularities within the prefrontal cortex and limbic regions of the brain among patients diagnosed with BPD. The results of this study indicate a neurological foundation underlying the symptoms commonly observed in individuals with the disorder.

Depression and anxiety disorders

Childhood trauma significantly influences the development of depression and anxiety later in life (Heim et al. 2008). Individuals who experience trauma during their formative years often face a heightened risk of developing these mental health disorders. Adverse experiences may disrupt the normal development of coping mechanisms, leading to difficulties in regulating emotions and managing stress. Moreover, the neurobiological impact of trauma, such as alterations in brain structures and neurotransmitter imbalances, can contribute to the emergence of depressive and anxious symptoms (Baumeister et al. 2016).

Neuroinflammation

Neuroinflammation is the process of inflammation that occurs within the central nervous system (CNS), which comprises the brain and spinal cord (Guzman-Martinez, Maccioni & Andrade 2019). Childhood trauma has the potential to elicit neuroinflammatory reactions within the brain. The extended activation of the immune cells of the brain can lead to the development of chronic neuroinflammation, which has been associated with a range of neuropsychiatric diseases (Guzman-Martinez et al. 2019; Salim, Chugh & Asghar 2012; Dillon et al. 2009). The presence of inflammation has the potential to interfere with the regular functioning of the brain and has been found to be linked to a higher likelihood of experiencing mood disorders, anxiety disorders and cognitive decline (Baumeister et al. 2016; Frank et al. 2016).

The ensuing section discusses the implications of neurobiological effects of childhood trauma which are significant for the ECD teacher who may encounter them among young learners.

Implications of neurobiological impact of childhood trauma on early childhood development learners

Childhood trauma exerts striking neurobiological impacts, especially on the phenomenon of brain plasticity. The amygdala, prefrontal cortex and hippocampus, which play a critical role in the regulation of emotions and memory, experience considerable effects. The presence of increased amygdala activity is associated with an elevated level of reactivity, whereas dysfunction in the prefrontal cortex is linked to challenges in regulating emotions. There exists a correlation between hippocampal atrophy and impairment in memory function. Childhood trauma exerts an impact on the brain through several key processes, namely the stress response system, structural alterations in brain anatomy, epigenetic modifications and imbalances in neurotransmitter function.

Not only has childhood trauma been found to modify the structural composition of the brain but also to interfere with essential neurobiological processes. The mental health consequences arise from dysregulation of the stress response system, structural abnormalities, epigenetic modifications and neurotransmitter imbalances. Common effects include PTSD, depression, anxiety disorders, BPD and neuroinflammation. Comprehending the neurobiological alterations associated with childhood trauma is crucial in order for the teacher to formulate effective teaching and learning strategies aimed at improving the enduring effects on mental well-being.

Henning (2013) mentions that the field of neuroscience applied in education is fairly new. Conkbayir (2021) believes that although there is a growing body of evidence-based research, it still seems difficult to change long-held perceptions about the reasons and treatment of learners' adverse mental health. There still appears to be a gap in the acceptance of the relevance of neuroscience in the early childhood sector. Conkbayir (2021) further states that the implications of the developing research on the human brain and child development should be decoded into practical applications for teachers in their efforts to foster the well-being, growth and education of learners.

In the following section, an overview of a trauma-informed approach to childhood trauma is presented.

Trauma-informed approach to childhood trauma

A trauma-informed approach is a means of delivering services to those who have experienced trauma (Clark et al. 2014; Substance Abuse and Mental Services Administration [SAMHSA] 2014; King, Chen & Chokshi 2019). The origins of the trauma-informed approach may be traced back to the domain of mental health and has experienced recognition and refinement for recent decades. The concept has undergone a process of evolution and gathered increased attention during the 1990s and early 2000s. During this period, professionals across several disciplines, including education, started recognising the extensive influence of trauma on individuals' overall welfare (Cross et al. 2017; Long 2022; Perfect et al. 2016; Purtle et al. 2019; Sciaraffa, Zeanah & Zeanah 2017).

The SAMHSA in the United States has been instrumental in advocating for and spreading awareness of the fundamental tenets of the trauma-informed approach (SAMHSA 2014). Several trauma-informed approaches exist. The Sanctuary Model originated in the Philadelphia area in the early 1980s, and is frequently employed within organisational contexts, with a particular focus on fostering a culture that prioritises safety and support. The Trauma Systems Therapy (TST) is frequently employed within mental health contexts, with a primary emphasis on the establishment of trauma-informed systems of care (Saxe, Ellis & Kaplow 2007). The Seeking Safety strategy developed by Lisa M. Najavits (2002) is designed to properly target and address the complex interplay between trauma and substance abuse concerns. The Attachment, Self-Regulation and Competency (ARC) approach, developed by Blaustein and Kinniburgh (2019), presents a conceptual framework for engaging with children and adolescents who have encountered traumatic experiences.

It was only recently that neuroscientific theory was added to a trauma-informed approach. The Neurosequential Model in Education (NME) is a framework to assist teachers and learners in gaining a deeper understanding of brain development and the consequences of childhood trauma on a child's cognitive and behavioural capacities within an educational setting. The aim of the model accentuates the significance of acknowledging the sequential nature of brain development and the impact that traumatic experiences have on this progression. The NME, when utilised in educational settings, provides numerous significant benefits in generating well-informed reactions to traumatic experiences (Perry 2020).

Although a substantial number of young learners in South Africa have experienced trauma, insufficient studies have been done on the ways in which schools are responding to structured trauma-informed approaches in a South African context (Nicholson 2021). However, one study, conducted by the Optimus Foundation in 2013, provided data on child maltreatment and exposure to violence. The study included participants of 15–17 years of age and explored their experiences of several forms of maltreatment and violence (Burton et al. 2015).

According to Burton et al. (2015), child maltreatment is not inevitable and it can be prevented. This requires a multi-dimensional approach including South Africa's various laws, such as the *Domestic Violence Act (116 of 1998)*, the *Criminal Law (Sexual Offences and Related Matters) Amendment Act (32 of 2007)* and the *Children's Act (38 of 2005)* as well as other policies and protocols, such as the Service Charter for Victims of Crime in South

Africa (2004). These laws and regulations not only explicitly define the nature of offences that should be criminalised but provide for a range of mechanisms for the reporting and management of abuse of and maltreatment against children through positive legal duties prescribed within the substantive law as well as comprehensive regulations. However, for these laws to be effective, the following prevention and intervention measures need to be addressed and strengthened (Burton et al. 2015):

- Where a child has experienced abuse or neglect, services should be put in place to ensure that the child is safe and can receive the necessary physical and mental health treatment, so that the child victim is able to recover.
- Services also need to be in place to ensure that if abuse or neglect has occurred, it does not recur. This could mean removing a child from a dangerous situation permanently, removing the perpetrator, or working with parents so that they are able to keep their child safe in future.
- Parents and families also need support to ensure that they can assist their children. Reducing poverty (and hence the stress on families) is a key part of reducing child maltreatment, as is equipping parents with the skills for non-violent forms of discipline.

Nicholson (2021) is of the opinion that because children have limited support at home, they may turn to teachers for assistance. Schools offer the ideal environment to offer mental health treatments for trauma; yet, many schools do not screen or provide resources. Considering this, implementing a trauma-informed care system at all levels in schools is crucial (Overstreet & Chafouleas 2016). This approach emphasises understanding trauma effects, empowering children and preventing re-traumatisation (Clark et al. 2014; SAMHSA 2014).

From the foregoing presentation of various trauma-informed approaches which can inform the education sector, core principles of a trauma-informed approach have been distilled and are discussed next.

Core principles of a trauma-informed approach

While it is acknowledged that a comprehensive examination of these trauma-informed approaches exceeds the boundaries of this review, it is important to note that these approaches contribute to the establishment of a theoretical framework and the implementation of practical strategies associated with a trauma-informed approach. While there are no universally standardised trauma-informed strategies, several models and frameworks exhibit shared principles while potentially diverging in their particular emphases or uses.

The core principles of a trauma-informed approach generally include the following principles derived from the above-mentioned models (SAMHSA 2014; Saxe et al. 2007; Najavits 2002; Blaustein & Kinniburgh 2019; Perry 2020), as well as proponents such as Clark et al. (2014) and Ford and Courtois (eds. 2020). The principle of *safety* highlights the significance of providing physical and emotional security and acknowledges that a sense of safety is foundational to the recovery from traumatic experiences *Trustworthiness and transparency* require open communication and reliability, fostering a culture where individuals can rebuild *trust in relationships and community structures. Collaboration* highlights the importance of involving individuals in decision-making processes, acknowledging their agency, and promoting a sense of *shared responsibility*. *Empowerment, voice and choice* underscore the need to restore a sense of control and autonomy to those who have experienced trauma, fostering a path towards *healing and self-efficacy*. *Understanding the impact of trauma* broadens perspectives, fostering *empathy and compassion*. It encourages a *strengths-based approach* that acknowledges the resilience within individuals and communities. The principle of *peer support* recognises the value of peer support in the healing process. The principle of acknowledging recognises the impact of *cultural, historical and gender* factors on trauma experiences and responses where the school makes an active effort of looking past stereotypes associated with culture, race, ethnicity, sexual orientation, religion, age, identity, location, among others.

The following words of Ophrah Winfrey (Daily Maverick 2023) underscore the growing significance of the ECD teachers who employ trauma-informed learning approaches:

> Through the lens of a trauma-informed understanding, we can build a renewed sense of personal self-worth and ultimately recalibrate our responses to circumstances, situations, and relationships. It is, in other words, the key to reshaping our very lives. I have seen first-hand the long-lasting impact that trauma can have on a person, and my intention is to share this approach with every educator, counsellor, physician and parent so they have the opportunity to implement this in their daily lives. (n.p.)

Thus, trauma-informed approaches involve a comprehensive comprehension of developmental challenges and diverse traumatic encounters that affect children.

In summary, when looking at the fundamental principles of a trauma-informed approach (SAMHSA 2014) and neuroscientific theory (Conkbayir 2021), a collaboration of the two can represent a significant paradigm change in our comprehension and response to the effects of trauma on learners. A neuroscientific trauma-informed approach goes beyond conventional models by incorporating a child's cognitive and behavioural capacities tied by values such as safety, trustworthiness, collaboration, empowerment and the acknowledgement of the pervasive presence of trauma and its enduring consequences.

The following discussion juxtaposes an overview of the trauma-informed approach and the pastoral role of the ECD

teacher to determine if a trauma-informed approach will enrich the pastoral role of the ECD teacher.

The pastoral role of the early childhood development teacher

The question can now be asked how the pastoral role of the teacher (RSA 2000, 2011) aligns with the principles of the trauma-informed approach in education. The pastoral role of the teacher is defined as follows (RSA 2011):

> […*E*]nvisage a teacher to practise and promote a critical, committed and ethical attitude towards developing a sense of respect and responsibility towards others. Within the school, the teacher needs to demonstrate an ability to develop a supportive and empowering environment for the learner and respond to the educational and other needs of leaners. Furthermore, the teacher needs to engage in the development of supportive relations with parents and other key persons and organisations based on a critical understanding of community and environmental development issues. (p. 50)

In summary, this role comprises the teacher's appropriate attitude towards all stakeholders in education with due respect to constitutional and democratic values, the ability to contribute to an enabling environment in the school for all learners and the expansion of this role to include parents, significant role-players and organisations while not losing sight of the community context.

Discussion

The pastoral role of the early childhood development teacher in relation to a trauma-informed approach

The essential components of the ECD teacher's pastoral role, as previously established, demonstrate a significant relationship with the core principles of a trauma-informed educational approach, which are further discussed in the following section.

Critical, committed, and ethical attitude

Critical attitude: The adoption of a trauma-informed approach underscores the significance of teachers possessing a critical perspective about the potential ramifications of trauma. This necessitates cognisance of the potential impact of trauma on young learners and a continual assessment and adaptation of instructional methodologies to ensure sensitivity towards their requirements.

Committed attitude: The concept of commitment holds significant importance within the framework of a trauma-informed approach. A committed attitude encompasses the consistent implementation of trauma-sensitive methods, active advocacy for the welfare of children, and the establishment of an environment that cultivates safety and support.

Ethical attitude: Ethical issues play a pivotal role in the implementation of a trauma-informed strategy. Educators are required to uphold ethical principles when dealing with matters pertaining to trauma, by demonstrating respect for the privacy of learners and families, and fostering an environment that is free from judgement.

Sense of respect and responsibility towards others

A trauma-informed approach places emphasis on the establishment of a culture that prioritises respect and accountability. Teachers are advised to have a compassionate and empathetic stance when interacting with learners, appreciating and respecting their unique experiences and viewpoints. Developing a sense of responsibility necessitates acknowledging the crucial role of teachers in establishing a secure and nurturing educational setting.

Supportive and empowering environment

Trauma-informed approaches place significant emphasis on the establishment of environments that prioritise safety, support and empowerment. Teachers must possess a comprehensive understanding of the potential ramifications of trauma on the overall welfare of learners. Consequently, they should adapt their instructional approaches in order to establish an environment that cultivates a sense of empowerment among learners.

Response to educational and other needs

Teachers are strongly advised to exhibit responsiveness towards the varied requirements of learners, encompassing not solely scholastic assistance but also attending to social, emotional and additional non-academic necessities.

The teacher's pastoral role includes attitudes and activities that align with trauma-informed approaches in education. Teachers who possess these attributes are more skilled at establishing an educational setting that acknowledges and proficiently addresses the requirements of learners who may have undergone traumatic experiences. A trauma-informed teacher would incorporate a comprehensive comprehension of learners' needs, cultivate a secure and nurturing atmosphere, and prioritise ethical and respectful approaches. These attitudes would be integrated into the teacher's daily interactions and practices to establish an inclusive and healing-oriented learning environment.

Now that we have established that the pastoral role of the teacher fits the incorporation of the trauma-informed approach like a hand in a glove, it is appropriate to discuss how the trauma-informed pastoral role of the ECD teacher should also incorporate neuroscientific theory.

The pastoral role of the early childhood development teacher in relation to neuroscientific theory and a trauma-informed approach

Neuroscientific theories have a significant impact on the development and implementation of trauma-informed practices in educational settings, specifically in relation to the pastoral responsibilities of teachers (Conkbayir 2021).

Comprehending the intricate mechanisms of the brain's response to trauma, it is essential for establishing conducive circumstances that promote healing and development in learners who have undergone traumatic experiences (eds. Ford & Courtois 2002). Neuroscientific concepts offer valuable insights into the cognitive, emotional and behavioural functioning of individuals affected by trauma, particularly in the context of teachers' pastoral care responsibilities.

A trauma-informed approach, which is grounded in the field of neuroscience, acknowledges that trauma can alter the neural pathways inside the brain, thus affecting an individual's stress response and ability to participate in the learning process. Teachers, in their capacity as pastoral figures, assume a crucial role in establishing an environment that is both secure and nurturing, taking into account the neurological implications involved. Teachers have a significant role in regulating stress reactions in learners who have experienced trauma by cultivating positive connections, establishing consistent routines and creating a controlled learning environment.

Furthermore, the utilisation of neuroscientific knowledge will assist teachers in customising their approaches to pastoral care to address the unique requirements associated with trauma effectively. This may entail the use of mindfulness practices to augment emotional regulation or to acknowledge the influence of trauma on memory and focus (Siegal 2010) which are essential for classroom teaching and learning.

The incorporation of neuroscientific theory into a trauma-informed strategy within the pastoral responsibilities of ECD teachers yields transforming outcomes. This enables teachers to have a comprehensive understanding of the neurological foundations of trauma and to apply effective strategies that foster resilience and minimise the adverse consequences of trauma (Conkbayir 2021). By integrating pastoral care practices with the principles of neuroscience, teachers play a pivotal role in establishing loving and sympathetic settings that promote the comprehensive growth and welfare of all children (Ogina 2011). This approach cultivates a climate of understanding, healing and scholastic achievement. Trauma-informed practice is increasingly advocated to support children and young people (Long 2022; Nicholson 2021). But Nicholson (2021) argues that teachers often face challenges in adequately addressing the growing pastoral needs of learners because of insufficient training and resources.

The value of complementing neuroscientific theory with psychology in a trauma-informed approach

To reduce the negative effects of early childhood trauma and adversity and to support children and parents, ECD teachers in fulfilment of their pastoral role may try to do it alone. However, when providing support for traumatised learners and families, ECD teachers should not rely only on their own resources and ECD training, but should seek all available trauma-informed assistance and interventions from school nurses, school counsellors, educational psychologists and clinical psychologists, especially those who focus on ECD, to name a few (King, Chen & Chokshi 2019). Early childhood development teachers also require knowledge about the ethical issues related to dealing with childhood trauma, such as the need for confidentiality and privacy, as well as legal issues, such as when reporting of trauma to social workers or child protection units is required (Forsner, Elvhage & Ewalds-Kvist 2021). Ethical and legal compliance to these requirements is essential as ECD teachers are obliged to protect the integrity and dignity of the child as well as the family. Early childhood development practitioners in low-income communities in South Africa, especially those with very basic training, may find this a grave challenge (Smit, Van der Linde & Eccles 2020). In this regard, the World Health Organization (2019) calls for an intersectional, multidisciplinary approach to ensure the well-being of ECD children, which includes incorporating the expertise of psychologists especially those trained in trauma counselling. In South Africa, locating the right kind of help especially in low-income or rural communities is not easy. However, management of ECD centres or schools should inform their staff that all major hospitals are a resource for expertise for dealing with trauma by making databases and directories available as a matter of course (The South African Depression and Anxiety Group [SADAG] 2024). In addition, the Mental Health Information Centre of Southern Africa (2024) is tasked to assist the South African public and professionals with up-to-date mental health information as well as an accessible easy-to-use database of mental health professionals, including child and family psychologists.

Implications and recommendations

Implications for the pastoral role of early childhood development teachers

The pastoral responsibilities of an ECD teacher encompass more than just recognising and implementing strategies. It involves a paradigm shift that emphasises empathy, understanding and the overall well-being of learners who have undergone traumatic experiences. This shift is informed by a trauma-informed approach and neuroscientific theories. The integration of the pastoral role of the ECD teacher with a trauma-informed approach and neuroscientific theories is expected to contribute to the advancement of a more compassionate and inclusive society. This integration will involve recognising, acknowledging and providing support to children as they start their healing process after they have experienced trauma.

Additionally, the pastoral role of the ECD teacher highlights the significance of early intervention and assistance in mitigating the enduring effects of childhood trauma on the growing brain. Gaining insight into the neurological foundations of childhood trauma is of utmost importance to formulate effective and successful measures

for prevention and intervention, as well as to offer trauma-informed support to children who have encountered such adverse experiences.

Implications for policy makers

It is essential for policy makers to hold a comprehensive understanding of the neurobiological pathways implicated in childhood trauma. It is only then that it will become evident that a holistic and integrated approach is necessary within ECD programmes. Through the establishment of a strong emphasis on emotional well-being, the creation of surroundings that foster support and the integration of practices that are guided by an understanding of trauma, ECD programmes possess the capacity to assume a pivotal role in alleviating the adverse effects of childhood trauma on mental health. Further training of ECD staff and the presence of a psychologist who is acquainted with neuroscientific theory at every school are recommended for early intervention.

Future research

There is significant potential for future research to further our understanding and improve supportive practices for young learners who have experienced trauma by exploring the pastoral role of ECD teachers. This research should encompass a trauma-informed approach and incorporate neuroscientific ideas. Numerous potential areas of investigation can make substantial contributions to this particular academic discipline.

Neuroscientific applications in early childhood development classrooms

Examine how ECD teachers integrate neuroscientific theories into their daily interactions with children. Explore the effectiveness of specific neuroscientific-informed strategies in regulating stress, enhancing emotional well-being and promoting learning in young children.

Effectiveness of trauma-informed training programmes

Investigate the impact of specific trauma-informed training programmes on ECD teachers. Assess the effectiveness of these programmes in increasing teacher awareness, understanding and implementation of trauma-informed practices within their pastoral roles.

Teacher-learner relationship dynamics

Investigate the dynamics of the teacher-child relationship within a trauma-informed ECD setting. Understand how positive relationships contribute to the neurobiological regulation of stress in young learners and explore the factors that influence the development of secure attachments.

Teacher well-being and professional development

Explore the impact of engaging in trauma-informed practices on the well-being and professional development of ECD teachers. Investigate how ongoing professional development and support contribute to teacher resilience and the sustainability of trauma-informed approaches.

Long-term outcomes for trauma-affected learners

Explore the long-term academic, social and emotional outcomes for learners who receive pastoral care from ECD teachers employing trauma-informed approaches. This research could shed light on the lasting effects of early interventions.

Cultural considerations in trauma-informed practices

Explore how cultural factors impact the implementation of trauma-informed practices in diverse ECD settings. Investigate the cultural nuances that influence the effectiveness of these practices and how they can be adapted to different cultural contexts.

Integration of technology in trauma-informed early childhood development practices

Examine the potential of integrating technology, such as virtual reality or interactive apps, to enhance trauma-informed practices in ECD classrooms. Investigate how technology can be used as a tool to support neuroscientific principles in the pastoral care of young learners.

Through an in-depth exploration of these study domains, researchers can contribute to an understanding of neuroscientific trauma-informed practices within the pastoral responsibilities of ECD teachers. This, in turn, facilitates the promotion of optimum development and well-being among young learners with childhood trauma.

Conclusion

The pastoral responsibilities of ECD teachers, enhanced by a trauma-informed methodology and informed by neuroscientific principles and complemented by the role of psychology, embody a paradigm shift that has the potential to significantly impact the comprehensive well-being of young learners in South Africa. By comprehending the neurobiological impacts of trauma, teachers who apply trauma-informed practices emerge as indispensable fighters for the emotional, social and cognitive growth of young learners.

Early childhood development teachers play a crucial role in forming the neural architecture of young learners' minds by creating environments that prioritise safety, trust and teamwork. The use of trauma-informed strategies not only cater to the immediate needs of learners with childhood trauma but also establish the groundwork for enduring resilience.

Moreover, the incorporation of neuroscientific ideas offers a theoretical structure for customising pastoral care practices to

address the distinct requirements of individual learners. The aforementioned approach acknowledges the inherent adaptability of the developing brain and emphasises the significance of favourable connections, regular routines and attentive interactions in alleviating the consequences of trauma.

It is imperative to conduct further study on the intricate relationship between trauma-informed practices, neuroscientific understanding, and the pastoral responsibilities of ECD teachers to make progress. It is furthermore essential to engage in a discourse concerning the necessity of establishing foundational relationships between psychologists and educators in order to prevent any potential compromise on the efficacy of trauma treatments. This research has the potential to improve current strategies, discover novel interventions and deepen comprehension of the intricate dynamics between teacher-child interactions and neural development.

The essential pastoral role of the ECD teacher, rooted in the principles of trauma-informed techniques and guided by neuroscientific understanding, is crucial for cultivating a cohort of resilient, emotionally regulated and socially competent learners in South Africa. As we further enhance our comprehension and application of these principles, we not only contribute to the welfare of individual learners but also facilitate the establishment of empathetic and nurturing early childhood environments that serve as the foundation for a prosperous society.

Acknowledgements

Competing interests

The author declares that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Author's contributions

C.M. is the sole author of this research article.

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data availability

The data that support the findings of this study are available from the corresponding author, C.M., upon reasonable request.

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