

Do I know and feel what you feel? A review of empathy as a multidimensional construct in preschool children

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Abstract: Empathy is increasingly recognized as a fundamental component of early childhood development that has a decisive influence on children's social, emotional and academic development. However, despite its importance, empathy in the preschool context remains under-theorized and inconsistently assessed, particularly in terms of its multidimensional nature. This article advances an integrative developmental systems framework that conceptualizes empathy as a dynamic, plastic system that emerges from the interplay of two core, co-calibrated facets: affective resonance, the capacity to emotionally "feel with" others, and cognitive perspective-taking, the ability to understand and infer others' mental and emotional states. Drawing on recent advances in neuroscience, developmental psychology, and educational research, we argue that treating empathy as a dynamic, multidimensional system offers deeper insights into its developmental trajectory and its role in school readiness. The article provides an overview of theoretical models, developmental stages from 3 to 6 years of age, individual-difference predictors, and current assessment methods. Despite this increasing recognition, there is still a major gap in the understanding of empathy as a construct. This gap limits the ability of researchers and educators to fully understand the developmental trajectory of empathy, its assessment, and the development of appropriate assessment measures, in order to design targeted, developmentally sensitive interventions. In response, the article outlines actionable implications for educators, policymakers, and intervention designers. It advocates for approaches that treat empathy not just as a fixed trait, but view it as a multidimensional, contextually embedded system shaped by neurodevelopmental, relational, and environmental influences. Particularly in the post-pandemic era marked by rising social-emotional challenges, adopting such integrative frameworks is essential for promoting equitable social and academic outcomes.

Keywords: Empathy, Affective resonance, Cognitive perspective-taking, Preschool, Early childhood, Assessment, Intervention

Introduction

Empathy has emerged as a central construct in early childhood education and developmental science, gaining heightened attention in light of increasing classroom

diversity, growing social-emotional challenges following the COVID-19 pandemic, and a broader policy shift toward holistic, whole-child development frameworks. Educators, researchers, and policymakers are prioritizing social-emotional learning (SEL) competencies that foster

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inclusion, equity, and well-being, with empathy frequently identified as a foundational skill (Collaborative for Academic, Social, and Emotional Learning (CASEL)).

The COVID-19 pandemic has had a significant impact on children's social and emotional skills. Early childhood settings have reported an increase in peer conflict, aggression, and social withdrawal, particularly among children with disrupted early care experiences or those from socioeconomically disadvantaged backgrounds (Ng & Ng, 2022). In response, policy frameworks such as the Head Start Early Learning Outcomes Framework (ELOF) of the U.S. Department of Health and Human Services (2022), have underscored the importance of prosocial behaviours, perspective-taking, and emotional understanding as critical markers of school readiness and equitable development.

Empathy, here defined as the capacity both to affectively resonate with others' emotions and to cognitively understand their mental states, is uniquely positioned to address these emergent needs. However, empathy is too often conceptualized as a unitary trait or reduced to overt behaviours such as helping or sharing, which limits the precision of its assessment and intervention.

This review advances a developmental-systems perspective in which affective and cognitive empathy are separable but mutually reinforcing processes. Their co-development across early childhood represents a critical mechanism for achieving social-emotional competence, school adjustment, and psychological resilience (Eisenberg et al., 2014; Denham et al., 2014). By better understanding this interplay, we can design more precise assessments and more effective educational interventions.

Yet despite this growing policy relevance, empathy is often treated as a monolithic trait. We argue that affective and cognitive empathy are separable but developmentally intertwined components whose interplay - and not just their presence - is important for understanding children's social-emotional competence. Identifying how these facets co-emerge, interact, and predict adaptive functioning will allow for the development of more precise, developmentally sensitive tools and interventions. We propose a multidimensional systems model of empathy that integrates neurodevelopmental, relational, and contextual factors and provide a roadmap for researchers and practitioners. Our aim is not to exhaustively summarize all empirical studies but rather to evaluate and synthesize theoretical frameworks, developmental trajectories, and assessment practices to clarify how empathy should be conceptualized, studied and promoted in early childhood. The unique contribution of this review lies in three aspects:

- Integration of perspectives - We bring together developmental, theoretical, and assessment-based approaches to illustrate empathy's multidimensional nature in the preschool years.
- Identification of gaps - We critically highlight limitations in current conceptualizations and tools, particularly regarding cultural responsiveness and practical applicability in educational settings.

- Policy and practice alignment - We link empathy development to existing social and emotional learning (SEL) frameworks, such as CASEL's five core competencies and the EU LifeComp framework, and propose recommendations for equitable and inclusive educational practices.

In doing so, we seek to provide a roadmap for researchers, educators, and policymakers interested in advancing empathy research and practice in early childhood.

This article is a critical narrative review, synthesizing theoretical frameworks, empirical findings, and policy perspectives on empathy in preschool-aged children. It is not a systematic review; instead, it critically evaluates existing models, developmental trajectories, and assessment practices with the goal of clarifying conceptual boundaries, identifying research gaps, and offering directions for educational practice and policy.

Defining empathy in early childhood

The construct of empathy has long been the subject of interdisciplinary inquiry, with scholars from psychology, philosophy and neuroscience offering different but overlapping frameworks. Martin Hoffman (2000) conceptualized empathy as a developmental phenomenon rooted in early affective arousal that is gradually regulated and differentiated. Nancy Eisenberg and colleagues (2014) emphasized the distinction between affective and cognitive components, highlighting that both contribute to prosocial behaviour but may emerge and operate in different ways. Jean Decety (2015, 2011), drawing on social neuroscience, describes empathy as a neurobiologically based ability that includes affective participation, distinguishing between self and others, and mentalizing.

For the purposes of this review, we adopt a multidimensional definition of empathy that includes:

- Affective empathy: The capacity for emotional resonance with others, encompassing early-emerging processes such as automatic emotional contagion and the gradual development of emotional self-regulation (Decety & Svetlova, 2012).
- Cognitive empathy: The ability to understand and infer another's emotional state through perspective-taking and situational appraisal, which builds upon theory-of-mind (ToM) development (Wellman, 2014).
- Prosocial action tendency: While not a component of empathy per se, empathic concern frequently results in prosocial motivation and behaviour (Eisenberg, 2007).

This definition emphasizes that empathy is not a single ability but a composite, co-regulated system that develops in parallel with other core domains such as executive functions, language and emotion regulation.

Empathy is often lumped together with related but distinct constructs. Sympathy, for instance, involves concern for the suffering of another but lacks the shared affective resonance. Compassion implies a motivational component to alleviate another's distress, while compliance often

stems from external authority rather than intrinsic social understanding. Understanding these distinctions is crucial, especially in early childhood, when emotional responses are fluid and easily shaped by socialization processes. Affective empathy without cognitive perspective-taking can lead to personal distress, while cognitive empathy without affective concern may foster manipulative or detached behaviour (Decety, 2020).

By age six, children typically show increasing integration of both affective and cognitive components, though individual differences remain substantial depending on temperament, socialization, and neurocognitive development. Establishing clear conceptual boundaries and a developmentally appropriate definition is essential for both accurate assessment and effective intervention.

Theoretical frameworks

Understanding the emergence of empathy in early childhood requires a multilevel theoretical framework that takes into account both biological maturation and contextual influences. Three dominant paradigms - the neuroconstructivist, the social learning/attachment-based, and the ecological systems - provide complementary insights into the mechanisms by which empathy develops during the preschool years.

The neuroconstructivist approach emphasizes the dynamic interaction between neural maturation and environmental experience in the development of socio-emotional capacities (Johnson, 2011). Within this view, empathy is not localized to a single brain region but emerges through the co-activation and refinement of multiple systems, including the medial prefrontal cortex (mPFC), the anterior insula and the amygdala (Decety & Jackson, 2006). The mPFC, which is involved in perspective taking and discriminating between self and others, grows rapidly between the ages of 3 and 6, a period that coincides with advances in cognitive empathy (Thompson & Meyer, 2007). Affective resonance is linked to the mirror neuron system and limbic structures, including the amygdala and anterior cingulate cortex (Carr et al., 2003).

This theoretical lens highlights neuroplasticity, suggesting that empathy-related circuits are particularly malleable in early childhood and responsive to both nurturing and adverse environments (Tottenham et al., 2010). It supports the idea of sensitive periods, wherein appropriate stimulation - such as emotional mirroring and mental-state discourse - can scaffold empathic development.

Building on the work of Hoffman (2000) and Eisenberg et al. (2014), Social-Learning and Attachment Perspectives posit that empathy is socially constructed through repeated interactions with caregivers and peers. Emotion coaching, secure attachment, and parental modelling of concern for others facilitate children's internalization of empathic scripts. For example, children whose caregivers label and validate emotions are more likely to develop nuanced

emotional understanding and prosocial concern (Denham, 2023).

Attachment security has been linked to greater empathic responsiveness in both naturalistic and structured settings (Murphy & Laible, 2013; Kestenbaum et al., 1989). Conversely, emotionally dismissive or punitive caregiving can disrupt self-other differentiation and lead to either empathic under arousal or overarousal, manifesting as detachment or personal distress.

Bronfenbrenner's ecological systems theory (Bronfenbrenner & Morris, 2006) broadens the perspective to include distal influences on the development of empathy, such as the climate in the classroom, cultural norms and community context. At the microsystem level, peer interactions and teacher discourse play a pivotal role in reinforcing or inhibiting empathic responses. Classrooms rich in conversations about mental states and emotional scaffolding promote both affective resonance and perspective taking (Garner, 2010).

Cultural expectations also shape the rules for the display of empathy, for example, in collectivist societies, empathy may be more closely associated with social harmony and compliance (Trommsdorff, 2012). At the beginning of the preschool years, children's empathy skills are filtered and shaped by institutional norms, curricula, and peer feedback loops. Thus, the development of empathy is a transactional process that is shaped by nested systems.

Together, these theoretical lenses underscore that empathy is not a fixed trait but a context-sensitive developmental system, responsive to neural, relational, and sociocultural inputs. Another complexity of the empathy as a construct comes from the changes that occur in the course of development.

Developmental trajectory of affective and cognitive empathy (ages 3–6)

Empathy in early childhood is not monolithic; rather, it undergoes a patterned progression shaped by biological maturation, socialization, and individual variability. Between ages 3 and 6, key developmental shifts occur in both affective resonance and cognitive perspective-taking, gradually enabling children to respond to others' emotions with increasing appropriateness, flexibility, and concern. Below, we outline age-graded milestones, identify critical individual-difference predictors, and describe windows of heightened plasticity (Figure 1).

Age 36–42 months - emotional contagion and egocentric distress

In the third year of life, affective empathy is often characterized by emotional contagion, where children automatically mirror the emotional expressions of others, especially distress (Zahn-Waxler et al., 1992). However, this affective arousal may not yet be accompanied by cognitive differentiation between self and other. Consequently, young

children may exhibit egocentric distress - becoming upset in response to another's pain but being unable to regulate or redirect this arousal (Hoffman, 2000).

Cognitive empathy remains rudimentary in this period. Children typically fail standard false-belief tasks, and their attempts at helping or comforting others are often inappropriate or self-centred (e.g., offering a toy to a crying adult). These limitations reflect a lack of both representational theory-of-mind and emotional self-regulation.

Age 42–54 months - emerging differentiation and perspective-taking

During this transitional phase, preschoolers begin to decouple their emotional states from those of others, allowing for a more differentiated empathic response (Brownell et al., 2012). Efforts to comfort others become more targeted and effective, suggesting growing cognitive insight into the causes and meanings of distress.

This period coincides with key advances in explicit perspective-taking, including the beginnings of theory-of-mind (ToM) reasoning. Around age 4, children begin to succeed on Level 1 false-belief tasks (Wellman & Lui, 2004), allowing them to attribute different mental and

emotional states to others. This shift supports cognitive empathy, enabling children to anticipate how another person might feel in a particular situation.

Age 54–72 months - integration and selectivity

By age 5 or 6, many children demonstrate the integration of affective and cognitive empathy. Their responses to others' emotions are both resonant and context-appropriate, and they can verbalize explanations for their prosocial actions (Eisenberg et al., 2010a). Empathy becomes increasingly selective, with children showing heightened responsiveness to familiar or ingroup peers (Eisenberg et al, 2014), and evidence of moral rule integration, such as justifying prosocial behaviour with appeals to fairness or kindness.

However, individual variation is pronounced, particularly in children's ability to generalize empathic concern across diverse social contexts. Language proficiency, emotion understanding, and executive functioning become increasingly predictive of empathic sophistication (Ensor & Hughes, 2008). Having outlined developmental milestones, we next turn to individual predictors of empathy development.

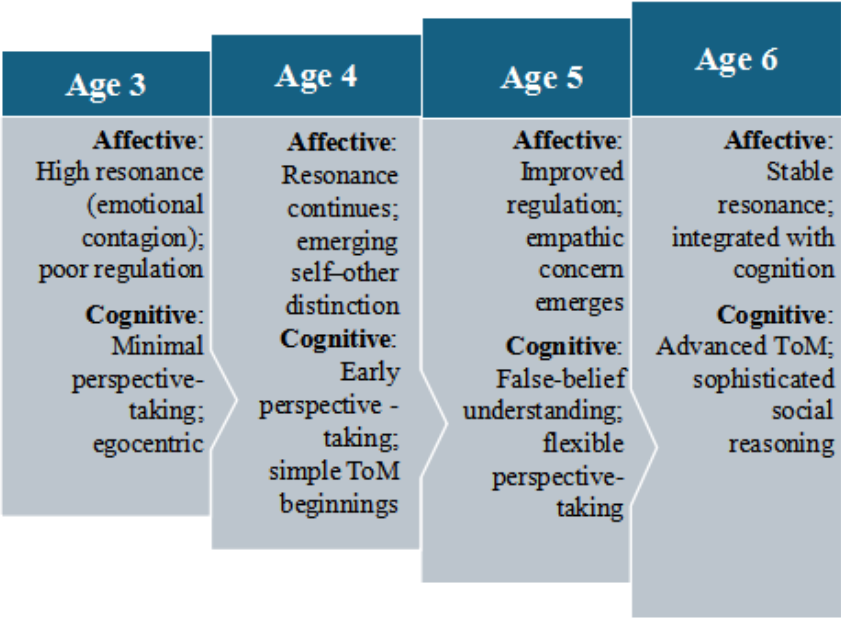


Figure 1. Preschoolers' developmental trajectory of affective and cognitive empathy

Individual-difference predictors of empathy development

Understanding the development of empathy in early childhood requires a close examination of the child characteristics and contextual factors that influence the emergence and refinement of both affective and cognitive empathy. A growing body of research points to several key individual-difference predictors that influence the

development of empathy in the preschool years. Temperament, particularly the effort control dimension, plays a crucial role in development of empathy. Children who are better able to regulate their attention and suppress dominant responses are more likely to effectively manage empathic arousal effectively so that they can respond with appropriate prosocial behaviours rather than being overwhelmed by others' distress (Rothbart et al., 2001; Eisenberg et al., 2010a). Effortful control facilitates the modulation of emotional responses and underpins the

regulation necessary for empathic concern and helping behaviour.

Language ability is another important predictor. Children with stronger language skills - especially those exposed to rich "internal state talk" (e.g., discussions about feelings, thoughts, and desires) - are better equipped to label and differentiate emotions, a foundational skill for both affective resonance and cognitive perspective-taking (Ensor & Hughes, 2008). Language supports the mental representation of others' emotional experiences, enabling young children to reflect on and respond to others' internal states with greater precision and empathy.

Exposure to early adversity, such as chronic stress, maltreatment, or poverty, can significantly alter the developmental trajectory of empathy. Such experiences are associated with reduced neural responses to others' distress and impairments in social cognition, possibly due to adaptive survival mechanisms that decrease emotional reactivity in high-stress environments (McCrory et al., 2011; Blair & Raver, 2012). These changes may compromise both the affective resonance and cognitive processing needed for empathic responding.

Caregiver responsiveness also plays a central role in shaping empathic capacities. Children who experience consistent, attuned caregiving are more likely to develop secure attachments and benefit from emotion coaching, which supports the development of both emotional understanding and regulation (Kestenbaum et al., 1989; Kochanska et al., 2005). Responsive caregivers model empathic behaviour and provide feedback that helps children interpret and manage emotions in themselves and others.

Finally, the quality of peer interactions during early childhood provides a natural context for practicing and refining empathy. Positive peer relationships promote the development of perspective-taking and moral reasoning through shared experiences, negotiation, and conflict resolution (Brownell et al., 2012). Through cooperative play and social problem-solving, children learn to consider others' viewpoints and emotional states, further reinforcing empathic tendencies.

Neuroscientific research suggests that early childhood represents a sensitive period for the development of socio-affective neural networks. Key structures involved in empathy - such as the anterior insula and prefrontal cortex - undergo rapid synaptogenesis and pruning between ages 3 and 6 (Tottenham et al., 2010). These neural changes are experience-dependent: warm, responsive caregiving can enhance empathic circuitry, while neglect or harsh parenting can impair its development.

Importantly, experience-expectant processes during this period make early interventions particularly effective. Emotional scaffolding, secure attachment, and enriched peer environments can have cascading effects on empathy and broader social-emotional competence (Shonkoff & Phillips, 2000).

Empathy does not develop in isolation. It is shaped by an

interplay of biological dispositions (such as temperament), cognitive capacities (like language), relational experiences (with caregivers and peers), and contextual influences (such as adversity). Understanding these predictors is critical for identifying children at risk for empathy-related difficulties and tailoring early interventions to support their social-emotional growth.

Assessment approaches

Empathy assessment in preschool-aged children relies on a range of tools that differ in methods, objectives, and degree of directness. These measures can be broadly classified into three categories: (1) adult-report questionnaires, (2) observational approaches, and (3) experimental or neuropsychological tasks. While each provides insights into aspects of empathic behaviour and development, most remain indirect and are limited in their ability to capture children's internal emotional experiences.

Among the most widely used tools in empathy research are parent- and teacher-report questionnaires. These instruments depend on adults' observations of children's everyday behaviour and provide accessible, broad perspectives on children's empathic tendencies. However, their indirect nature introduces limitations, particularly due to reliance on subjective interpretations and the inability to capture the child's own felt experience.

Observational approaches offer another widely used, though still indirect, method for assessing empathy in young children. These methods are designed to capture spontaneous or structured behavioural expressions of empathy in response to emotionally salient situations.

A smaller number of studies use experimental or neuropsychological tasks to investigate the internal mechanisms of empathy. These methods aim to go beyond behaviour and adult reports by directly assessing children's understanding and emotional processing. However, they are relatively rare in preschool populations due to their cognitive demands and complexity.

Theory of Mind (ToM) tasks are frequently used to examine children's capacity for cognitive empathy. These include classic false-belief tasks that assess whether a child can understand that another person may hold beliefs different from their own. Although ToM and empathy are distinct constructs, performance on ToM tasks has been correlated with the development of perspective-taking and cognitive empathy in preschool-aged children (Wellman et al., 2001).

This range of methods illustrates both the richness and the limitations of existing approaches to empathy assessment in preschoolers. While parent and teacher reports, observations, and experimental tasks each contribute to our understanding, few tools provide direct access to the child's internal empathic experience. As a result, the field continues to rely heavily on proxy indicators, underscoring the need for developmentally appropriate, child-centred,

and ethically sound tools that prioritize the child's perspective in empathy research.

Despite the centrality of empathy in early childhood development, the tools used to assess it in the preschool years (ages 3–6) remain fragmented, methodologically inconsistent, and often fail to capture its multidimensionality. A robust assessment landscape should ideally evaluate both affective resonance and cognitive perspective-taking, using developmentally appropriate, culturally sensitive, and ecologically valid tools. However, a review of existing measures reveals three major limitations: (1) overreliance on proxy reports, (2) limited integration of affective and cognitive components, and (3) insufficient validation for use in diverse early childhood populations (Koltcheva et al., 2022a).

The gaps in current assessment are: (1) Heavy reliance on adult reports (parents, teachers), which limits the ecological validity of findings; (2) Few tools that different dimensions; (3) Cross-cultural validation, restricting global applicability. We consider the following practical criteria essential when selecting or developing tools for preschool populations:

- Developmental appropriateness – Items should match children's linguistic, cognitive, and socio-emotional abilities.
- Multidimensional coverage – Both affective and cognitive components should be assessed.
- Feasibility and inclusivity – Tools should be time-efficient, culturally adaptable, and accessible across diverse educational settings.

To advance the field, future empathy assessments for preschoolers should:

- Use multimodal approaches, combining behavioural tasks, observational ratings, and physiological markers.
- Incorporate play-based and visual methods (e.g., cartoons, picture stories) that engage young children.
- Ensure cross-cultural validation, including adaptation and testing in non-Western contexts.
- Address equity and inclusion by considering children with developmental differences in validation studies.

Such innovations would provide more reliable, comprehensive, and equitable tools to capture empathy in early childhood and support evidence-based practice. The interaction of both affective and cognitive empathy is an essential issue.

Affective and cognitive empathy interact to predict key outcomes

Empathy's predictive power for social, emotional, and academic functioning in early childhood lies not in its isolated components but in the dynamic interaction between affective resonance and cognitive understanding. Although affective and cognitive empathy can emerge independently, their co-activation facilitates more adaptive behaviour, supporting a developmental synergy with

meaningful implications for early intervention, social-emotional learning (SEL) programming, and school readiness.

Empathy plays a foundational role in peer interactions by facilitating prosocial behaviour, conflict resolution, and inclusive play. Affective empathy can prompt immediate emotional concern when a peer is distressed, while cognitive empathy enables the child to discern the cause and appropriate response (e.g., comforting vs. giving space). Children who show high levels of both facets tend to be rated by teachers and peers as more socially competent and are more likely to be accepted in playgroups (Denham et al., 2012; Eggum et al., 2011).

Importantly, affective empathy without cognitive regulation may lead to personal distress or withdrawal, particularly in emotionally reactive children (Eisenberg et al., 2010). Conversely, cognitive empathy without affective engagement may result in calculated or strategic behaviour rather than genuine concern. Thus, the synchrony between feeling and understanding others' emotions supports reciprocity, cooperation, and moral reasoning—key building blocks of peer competence. Longitudinal studies show that children with high levels of integrated empathy at preschool age are more likely to form mutual friendships, display leadership behaviours, and resist social withdrawal or aggression in later childhood (Spinrad et al., 2007).

Empathy development is closely linked to children's capacity for emotion regulation. Affective empathy sensitizes children to others' distress, while cognitive empathy enables them to modulate their emotional responses to avoid becoming overwhelmed (Zahn-Waxler et al., 1992). Conversely, cognitive empathy without sufficient affective engagement may lead to emotional detachment, and in some cases, manipulative behaviours (Decety, 2020). For instance, a child who understands that a peer is sad because they lost a toy (cognitive empathy) and feels concern (affective empathy) is more likely to offer help rather than become anxious or disengaged.

Children with stronger empathic skills also exhibit more adaptive emotion regulation, particularly when both empathy components are engaged. Affective empathy sensitizes children to others' feelings, but cognitive empathy allows them to modulate their emotional responses, preventing overwhelm. For example, a child who understands that a peer is sad because they lost a toy (cognitive empathy) and feels concern (affective empathy) may respond helpfully rather than becoming anxious or dysregulated.

Empathic concern is inversely related to externalizing behaviours (e.g., aggression, defiance), especially in children with better inhibitory control and perspective-taking abilities (Eisenberg et al., 2010). Conversely, deficits in empathy - particularly in its affective form - have been linked to callous-unemotional traits and early conduct problems (Frick & White, 2008). Children who struggle to interpret others' feelings or lack affective resonance may misattribute intent and react impulsively, leading to peer

conflict and social rejection.

Children with well-integrated empathic abilities tend to exhibit lower levels of internalizing (e.g., anxiety) and externalizing (e.g., aggression, defiance) behaviours, particularly when supported by strong inhibitory control and perspective-taking (Eisenberg et al., 2010; Roth-Hanania et al., 2011). In contrast, deficits in empathy - especially in its affective dimension - have been linked to callous-unemotional traits and early conduct problems (Frick & White, 2008). Without the capacity to feel or interpret others' emotions, children may misattribute intent or react impulsively, increasing the risk of peer conflict and social exclusion. As Decety (2020) notes, empathy must be balanced; excessive emotional reactivity can result in overwhelm, while emotional detachment can hinder moral development.

Though empathy is typically considered within socio-emotional domains, its predictive role extends to academic functioning. Cognitive empathy supports collaborative learning, classroom participation, and understanding others' perspectives in group tasks. It also fosters language development (Denham et al., 2012; Garner, 2010), as children engage in mental state talk and narrative elaboration. Affective empathy underpins motivation to contribute to group success and maintain harmonious peer dynamics (Rimm-Kaufman et al., 2005).

In classrooms, empathic children are more likely to be attuned to teacher expectations, show task persistence, and engage in cooperative play—factors that support early literacy, numeracy, and executive function skills (McKown et al., 2009). The ability to understand others' emotions and motivations also helps children navigate academic challenges without resorting to avoidance or disruptive behaviour, enhancing both individual learning and classroom climate. Empathic children often form stronger teacher-child relationships, which are associated with increased classroom engagement, and motivation to learn (Denham et al., 2012; Garner, 2010). Teachers tend to respond more positively to empathic students, offering them more socio-emotional scaffolding and greater opportunities for peer collaboration.

Cognitive empathy supports perspective-taking during collaborative learning and group tasks, and enhances narrative comprehension and symbolic play—skills that are foundational to early literacy and numeracy. Affective empathy contributes to classroom harmony by fostering prosocial motivation and cooperative learning climates. Together, these components help children navigate academic challenges constructively and regulate behaviour in ways that support both their own learning and a positive classroom environment (McKown et al., 2009; Rimm-Kaufman et al., 2005).

While empathy plays a foundational role in shaping children's social, emotional, and academic development, the strength and direction of its influence are not uniform across all children. Instead, the effects of empathy are moderated by a range of individual and contextual factors

that can either amplify or constrain its developmental potential. Some key moderators include parenting style and attachment security (Murphy & Laible, 2013; Kestenbaum et al., 1989), executive functioning (Carlson et al., 2004), temperament, and sociocultural norms (Trommsdorff, 2012), etc.

These moderators highlight the importance of viewing empathy as a dynamic construct that develops within a broader ecological framework. Understanding these interacting factors is essential for designing targeted interventions and educational strategies that support empathic development in diverse populations.

Empathy as a keystone competency

Empathy serves as a foundational, or keystone, competency in early childhood, influencing a cascade of developmental domains that are critical for lifelong well-being and success. Its multidimensional nature enables it to mediate and moderate key outcomes in academic engagement, peer inclusion, and mental health.

Emerging research indicates that empathy, particularly cognitive empathy, mediates the relationship between executive function and academic behaviours such as task persistence, attentional control, and early literacy skills (Blair & Razza, 2007). Children who are able to take the perspective of others are better equipped to interpret social cues from teachers and peers, facilitating engagement and motivation in classroom activities. Eggum and colleagues (2011) find that fostering the development of emotion understanding and theory of mind (ToM) may contribute to children's prosocial orientation.

Affective empathy promotes emotional connectedness, which is essential for inclusion and belonging in ethnically and culturally diverse preschool classrooms (Denham, 2023). When children resonate emotionally with others, they are more likely to exhibit prosocial behaviours that reduce peer exclusion and bullying (Strayer & Roberts, 2004). Cognitive empathy further allows children to navigate complex social dynamics, enhancing their ability to form cross-group friendships and promote inclusive peer climates (Denham, 2023). This is particularly important as early childhood classrooms become increasingly diverse.

Empathy exerts a protective effect on children's mental health by moderating physiological and emotional responses to stressors such as peer conflict and adversity. Eisenberg and colleagues (2010) state that emotion-related self-regulation is associated with certain types of externalizing behaviour problems. Findings for internalizing problems are less consistent, however emotion-related self-regulation appears to be inversely related to internalizing problems after the early years. At each age, children's regulation significantly mediated the relationship between supportive parenting and low levels of externalizing problems and separation distress, as well as high social competence (Spinrad et al., 2007). This buffering effect is particularly

salient in high-adversity populations, where empathic capacities can foster resilience and reduce the risk of internalizing disorders.

Taken together, these findings position empathy not merely as an ancillary social skill but as a keystone developmental system whose integrity supports the architecture of early childhood competence. Interventions and assessments that treat empathy as a multidimensional, dynamic system can thus enhance holistic child development and equity in education.

Educational and intervention implications

The multidimensional nature of empathy requires nuanced approaches in both assessment and intervention within early childhood education. Recognizing the distinct yet interconnected roles of affective and cognitive empathy can inform the design and implementation of targeted curricula, teacher training, and policy frameworks. Key domains in this context are teachers' practises, curriculum design and policy frameworks.

Numerous evidence-based SEL programs that explicitly or implicitly target facets of empathy (Koltcheva et al., 2022b). However, these programs often address empathy facets in isolation or emphasize one over the other. Future curricula could be more effective by explicitly integrating activities that promote the dynamic interplay between affective and cognitive empathy, such as role-playing combined with guided emotion coaching and perspective-sharing dialogues.

Teachers play a pivotal role in modelling and scaffolding empathy in the classroom. Professional development that equips educators with dialogic reading techniques incorporating mental-state language has demonstrated success in promoting children's theory of mind and cognitive empathy (Zhou, 2022). Emotion coaching training, which helps teachers recognize and validate children's emotional experiences while guiding regulation, enhances affective empathy development and classroom climate. Teachers can explicitly model empathetic responses and coach children through peer conflicts, helping them label feelings and consider others' perspectives. Daily practices such as "feelings check-ins" or classroom emotion boards normalize emotional expression and recognition. Structured cooperative games encourage children to practice perspective-taking and prosocial behaviours in authentic contexts.

Such training should be ongoing and integrated within broader SEL frameworks to ensure sustainability and cultural responsiveness, enabling teachers to adapt strategies to diverse classroom needs and family backgrounds. Training programs for early educators should include modules on empathy as a multidimensional construct, with practical strategies for classroom implementation.

Policy efforts towards whole-child assessment

frameworks, such as LifeComp: The European Framework for Personal, Social and Learning to Learn Key Competence (Sala et al., 2020), highlight empathy as a crucial social-emotional competency. However, current screening batteries rarely measure affective and cognitive empathy separately, limiting early identification of developmental delays or intervention targets.

Developing standardized, multidimensional empathy assessment tools for preschoolers - capable of capturing dynamic interactions between emotional resonance and perspective-taking - can inform personalized support plans. Policy mandates for universal screening in early education could drive research investment and training for educators in empathy assessment, ensuring early detection and intervention that promote equity and school readiness.

Future directions for research and practice

Future research on empathy in early childhood should adopt integrative, multidimensional approaches that reflect the complexity of its development. A promising direction is to combine longitudinal neuroimaging studies with observations of preschool classrooms. This hybrid methodology would help clarify how the maturation of empathy-related neural circuits (such as those involved in emotion processing and perspective-taking) interacts with children's everyday social interactions, educational environments, and cultural contexts. By capturing both biological and ecological influences, such studies can enhance our understanding of how empathy develops in real-life settings (Decety, 2010; Immordino-Yang & Damasio, 2007). Children in the preschool years are still developing executive functions, language, and theory of mind. Future studies should explicitly consider these developmental boundaries when designing tasks and interventions. Investigating moderators such as gender, temperament, neurodiversity, and cultural background will deepen understanding of why empathy develops unevenly across children. Research should examine how family climate, peer interactions, and teacher practices interact to support or hinder the growth of empathy during early childhood.

Another urgent need in the field is the development of culturally responsive and psychometrically sound empathy assessments. Existing tools often reflect Western-centric biases about emotional expression and social behaviour. However, norms surrounding emotional expression and empathy differ significantly across cultures, influencing both how empathy is displayed and how it is interpreted (Trommsdorff, 2012). To ensure fairness and relevance, future work should focus on creating and validating measures that are sensitive to cultural display rules and values, acknowledging that affective and cognitive empathy may be socialized differently across diverse cultural contexts (Mesquita et al., 2016). Next-generation

empathy assessments should integrate multimodal and developmentally appropriate approaches (e.g., behavioral tasks, parent/teacher reports, physiological markers) and prioritize direct child-friendly methods over solely adult-report measures.

In addition, empathy researchers should prioritize the use of multi-method and multi-informant assessment batteries. These should combine behavioural tasks, physiological indicators (such as heart rate variability or pupillometry), and reports from parents and teachers to more fully capture the nuanced interplay between affective and cognitive components. Such comprehensive profiling would not only enhance construct validity but also provide a robust basis for developing tailored or personalized interventions (Zhou et al., 2002; Roth-Hanania et al., 2011). More prospective studies are needed to trace developmental trajectories of empathy from preschool years into middle childhood, clarifying stability and plasticity of empathy skills. There is a pressing need for age-appropriate, validated empathy measures that capture both affective and cognitive components.

A more tailored approach to intervention is also needed. Future research should aim to identify distinct empathy profiles in children - those with high cognitive empathy but low affective resonance, or vice versa - and design targeted interventions that address specific developmental needs (McDonald & Messinger, 2011). This precision-based model can improve effectiveness by ensuring that interventions support the child's unique empathic strengths and challenges. Future programs should be grounded in multidimensional models of empathy, combining affective, cognitive, and prosocial behavioural components. Randomized controlled trials with active control groups and long-term follow-ups are necessary to determine the sustained effects of empathy-based interventions. Research should systematically document training, adherence, and contextual adaptations to support scalability and transferability.

Another critical frontier involves the timing of interventions. Understanding when children experience sensitive periods of neuroplasticity can help guide early intervention strategies that maximize their impact. Identifying these developmental windows is essential for designing programs that harness the brain's heightened receptivity during early childhood for cultivating empathic capacities.

Finally, technology-enhanced approaches hold significant promise for the development of empathy. Innovations such as virtual reality, interactive digital storytelling, and gamified emotional learning platforms provide immersive, engaging opportunities for young children to practice perspective-taking and emotion regulation in developmentally appropriate ways (Christov-Moore et al., 2014). These tools complement traditional interventions and expand access to empathy-building activities in both formal and informal learning environments.

Together, these directions call for a multidisciplinary,

culturally attuned, and technologically innovative research agenda. Advancing the science of empathy in early childhood requires bridging neuroscience, developmental psychology, education, and cultural studies, ultimately supporting the design of more effective programs and policies to foster empathic, prosocial individuals from the earliest years.

Conclusion

Empathy in early childhood is a complex, multidimensional system comprising affective resonance and cognitive perspective-taking - two interdependent but distinct facets that together shape children's social, emotional, and academic development. This review highlights that affective empathy without cognitive insight can result in emotional overwhelm, whereas cognitive empathy without shared affect risks social detachment. The preschool period represents a unique developmental window during which these two strands begin to intertwine, forming the foundation for prosocial behaviour, peer inclusion, and mental health resilience.

Accurate assessment and effective intervention require moving beyond viewing empathy as a singular trait to embracing its dynamic, co-regulated nature. Integrative frameworks that capture both affective and cognitive components, informed by neurodevelopmental, relational, and ecological perspectives, offer the greatest promise for advancing research and practice. By focusing on empathy as an early-developing, context-sensitive competency, educators and policymakers can better support children's whole-child development and promote equitable opportunities for social and academic success.

Synthesizing research from developmental psychology and education, several implications arise for practice and policy. Preschool curricula should provide structured opportunities for emotion recognition, perspective-taking, and prosocial behaviours, scaffolded according to developmental capacities. Empathy-based initiatives must prioritize cultural responsiveness, linguistic inclusivity, and gender equity. Teachers require training and resources to adapt activities to diverse classroom contexts. Professional development programs should incorporate practical strategies for fostering empathy, including modelling and guided practice.

The evidence reviewed highlights both the promise and the challenges of nurturing empathy in preschoolers. Although foundational progress has been made in defining, conceptualizing, and assessing empathy, research remains fragmented, with limited validated measures and few empirically tested interventions. To advance the field, future research must (1) Develop robust, age-appropriate assessment tools that capture the multidimensionality of empathy; (2) Design and rigorously evaluate interventions with clear theoretical grounding, long-term follow-up, and attention to cultural and contextual factors; (3)

Integrate empathy education into policy frameworks to ensure systematic, equitable implementation across early childhood settings.

Ultimately, empathy is not merely a "soft skill," but a keystone capability that underpins lifelong learning and well-being. Addressing the current gaps in assessment and intervention will be critical for harnessing its full potential during the formative preschool years. Empathy is not only a developmental milestone but also a cornerstone of social cohesion, equity, and lifelong learning. Addressing the outlined gaps will allow researchers, educators, and policymakers to work collaboratively toward cultivating more empathetic, inclusive, and resilient future generations.

Conflicts of interest

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