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BABEŞ-BOLYAI UNIVERSITY

FACULTY OF PSYCHOLOGY AND EDUCATIONAL SCIENCES

DOCTORAL SCHOOL "APPLIED COGNITIVE PSYCHOLOGY"

Individual and Contextual Factors Involved in Prosocial Development in Preschoolers

PH.D. THESIS

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Cluj-Napoca

2025

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Keywords: prosocial behaviour, preschool, parental mind-mindedness, parental practices, self-construal, values, child theory of mind, temperament, emotional regulation, empathy

ACKNOWLEDGMENTS

All the work that went into this thesis would not have been possible without the support of some people who played an important role.

First of all, I would like to express my gratitude to my scientific advisor, prof. univ. dr. habil. Oana Benga, who has guided me throughout the entire course of this thesis with warmth, patience and empathy. Thank you for every meeting, every step and every progress we made together, without you this thesis would not have been possible.

I would also like to thank the members of the Advisory Committee, prof. univ. dr. habil. Laura Visu-Petra, prof. univ. dr. habil. Adrian Opre, and associate professor Thea Ionescu, for all their suggestions during the elaboration of the thesis and for their support from the very beginning. I would also like to thank associate professor Pintea Sebastian for all his support and expertise.

At the same time, I am a firm believer that it takes a village, it takes a village to raise a child and support its development in the best way possible, and it takes a village to do a PhD. So I would like to thank my village, the people who have helped me, supported me, encouraged me and always had a hug for me. I am so grateful to my colleague Iulia Bunea, with whom I have walked, step by step, through every stage of this Ph.D., both of us, together. I believe that, thanks to this journey, our relationship has grown so nicely and we have learned what "being with" means. This PhD was also the context in which I developed relationships with people who have become family and who have been my pillar when I needed support: Doris, Ionut, Narcisa, thank you. I am deeply grateful for you. Thanks also to my colleagues, Casiana, Cosmina, Lidia, for all your support, encouragement and friendship. Thank you for growing up together!

I would also like to thank all the children and parents who participated in the studies in this thesis for their involvement, availability, openness and interest in the research. I would also like to thank the teachers and headmasters of the schools and kindergartens with whom I worked, who welcomed me warmly and made the data collection easier.

Last but not least, I am deeply grateful to my fiancé, who has been my anchor throughout this process, and to our four-legged children, Misha, Timi and Kiki, who have helped me cope emotionally and have always been by my side. I would also like to thank my family and friends for their understanding, encouragement and support.

THEORETICAL FRAMEWORK

1. Introduction and Motivation

Prosociality is generally considered highly desirable in a society, being beneficial for individuals and communities (Zuffiano et al., 2023), increasing peace and social cohesion (Malti & Dys, 2018). As an essential contributor to well-functioning societies, a strong emphasis is placed in the literature on understanding the processes and variables that lead to prosocial behaviour development (Malti & Davidov, 2023).

Prosocial behaviour is defined as any voluntary and intentional action manifested for the benefit of another (Eisenberg & Fabes, 1998; Eisenberg et al., 2015). Therefore, prosocial behaviour is the kind of behaviour that responds positively to the needs and welfare of others (Radke - Yarrow & Zahn - Waxler, 1986). The umbrella concept of prosocial behaviour includes instrumental helping, sharing, consoling a person in distress, donating, volunteering, etc. (Malti & Davidov, 2023). In literature, there are several theories and models that try to explain the development of prosocial behaviour (Paulus, 2023; Spinrad & Eisenberg, 2023).

The literature on the precursors of prosocial behaviour focuses on contagious crying, empathic concern, the child's emotional and behavioural reactions when exposed to the distress of a peer, and on the attempts of young children to understand the distress felt by another person (Davidov et al., 2013; Geangu et al., 2010; Hay, 2023). The literature supports the idea that precursors of prosocial behaviour appear before the age of one, as children are able to show interest in the distress of others and engage in behaviours that attempt to alleviate the distress of the other person, such as stroking, touching, and redirecting attention to the individual.

Research shows considerable progression in prosocial behavior development in the second and third years of life: in instrumental helping from 18 to 36 months, in sharing from 18 to 30 months, and in empathic helping from 24 to 36 months (Song et al., 2018). Therefore, the preschool years are an opportune time to investigate the interactions between parental and individual factors involved in prosocial development, moreover considering the specificity of this period, as one of intensive cognitive and socio-emotional development. Thus, an in-depth study of prosociality at this age is legitimate.

1.1. Types of Prosocial Behaviours in Preschoolers

In literature, prosocial behaviour is seen as an umbrella term composed of several types of actions (Hay, 2023). Dunfield (2014) discusses the concept of prosocial behaviour in children as encompassing the actions of **helping**, **sharing**, and **comforting** a distressed person. Dunfield and colleagues (2011) propose that these three specific types of prosocial response respond to a particular need: helping behaviour is directed towards responding to an instrumental need, the need for an object, sharing behaviour is directed towards responding to a material need, and comforting behaviour is directed towards alleviating an emotional need.

1.1.1. Instrumental helping

Helping behaviour occurs when an individual intervenes to assist another in achieving a goal (Warneken & Tomasello, 2008; Svetlova et al., 2010). The manifestation of this behaviour is based on the child's ability to represent another's need in an acute manner, as well as their ability to identify an effective intervention that meets the other's need (Warneken & Tomasello, 2007), therefore refering to children’s proclivity to assist another in achieving an action goal, like picking up an object that has fallen down (MacGowan & Schmidt, 2021). Most studies show that the action of providing instrumental help is one of the first prosocial behaviours to emerge in development (Hay, 2023). Around the age of 14 months, infants consistently engage in the display of helping behaviour (Warneken & Tomasello, 2007).

1.1.2. Sharing

The behaviour of sharing with others involves the child's ability to represent the material need of the other individual (Dunfield, 2014). The action of sharing is often found in cooperative behaviour, which is based on the formation of a shared purpose, but not only (Warneken & Tomasello, 2007), refering to children's willingness to divide their own resources with someone else, like allocating interesting objects or food to others (Tan et al. 2021). The behaviour of sharing with others is based on the ability to know the other's desire, as well as the concept of understanding the notions of self, ownership and fairness (Brownell et al., 2013; Callaghan & Corbit, 2018). The expression of this behavior in children emerge around 24 months, with prosociality in children younger than 2 years depending on the familiarity with the person (the more familiar the person, the more likely the child is to share).

1.1.3. Comforting

Comforting distressed people is based on the development of the ability to represent the negative emotional state of the other person, refering to children's tendency to alleviate others'emotional distress by displaying behaviours of closeness, caressing, hugging or talking (MacGowan & Schmidt, 2020). Given that is based on complex emotional abilities (i.e., emotions differentiation and understanding, self-others differentiation, emotion regulation), comforting behaviour occurs later in development compared to the other two types of prosocial actions (Hay, 2023). The first consoling behaviours appear after the age of 2, and predominantly within the family or with familiar people. By age 3, the child regularly exhibits comforting behaviours outside the family as well, showing empathic concern for others and an intention to offer help to alleviate distress (Dunfield, 2014).

1.1.4. Methods of measuring prosocial behaviour

As prosocial behaviour is an umbrella term that encompasses several types of prosocial actions, the assessment of this construct is performed differently for each type, also as a function of participants' age (Hepach, 2023). For example, in early childhood the most common types of prosocial behaviour are helping, sharing with others and comforting (Hay, 2023). Each of these categories of behaviours is assessed either by experimental tasks, or by parent/teacher reports.

In the literature, **helping behaviour** is studied from around 14 months of age (Warneken & Tomasello, 2007). This type of behaviour is assessed through specific experimental trials, in which the experimenter drops a particular object from his hand in a way that renders it inaccessible, so the child's target behaviour is to offer the object to the experimenter (Dunfield et al., 2011; MacGowan & Schmidt, 2021; Svetlova et al., 2010; Warneken & Tomasello, 2006).

Sharing behaviour is mainly studied after the age of 16 months. This type of prosocial behaviour is assessed through experimental trials that focus on the child's tendency to share an object that belongs to them with the experimenter (Tan et al. 2021).

The behaviour of **comforting a distressed person** is usually studied between the ages of 18 and 30 months, but most studies consider it evident after 24 months (Dunfield et al., 2011). Its assessment involves specific experimental tasks in which the experimenter displays emotions of pain or sadness, and the child's expected target behaviour is to provide emotional comfort, by approaching and caressing the person or offering an object to alleviate the distress (MacGowan & Schmidt, 2020).

The literature also includes tasks for **empathic help**, in which the participant has to understand the emotion of sadness expressed by the experimenter and offer the experimenter a way to improve their mood. Another type of help that has been studied is **altruistic help**, in which the child is placed in a situation where they can share with the experimenter a personal object brought from home by the parent (Svetlova et al., 2010).

In addition to experimental tasks designed to measure manifest prosocial behaviour, other- or self-report questionnaires have also been developed and used in different studies. **Other-report questionnaires** have most often been constructed for samples of children up to pre-adolescent age, with reporting by both parents and/or educators and teachers.

1.2. Individual Factors Associated with Preschoolers' Prosocial Behaviour

1.2.1. Theory of mind

ToM is defined as an individual's cognitive representation of their own and other people's mental states (Beaudoin, 2020). This includes their capacity to comprehend the thoughts and feelings of others, recognize that other people may have different mental states than their own, and recognize that people may hold false beliefs (Paulus, 2023).

ToM is a multifaceted construct, with at least two dimensions well established in the literature: first-order ToM, a more basic capacity to comprehend and infer the mental states of others, developing around the age of 3, and second-order ToM, a rather complex ability to predict the mental states of others in relation to a third person, in place around the age of 5, at least for some children (Fu et al., 2023). Children typically complete successfully ToM tasks such as first order false belief understanding between 3 and 5 years of age (Wellman et al., 2001). However, precursors of ToM abilities may be seen as soon as the second year of life, with children around 12 months showing some understanding of other's intentions, and children around 15 months showing some comprehension of other's false beliefs (Beaudoin, 2020). The development of ToM abilities continues well after 5 years of life, with the development of a better understandings of lies, sarcasm, metaphors and faux pas between 8 and 10 years (Fu et al., 2023).

ToM is crucial for comprehending the mental states of others and is positively associated with social functioning, including prosociality (Paulus, 2023), moral judgment (Killen et al., 2011), and peer relationships (Slaughter et al., 2002). Although there are mixed results in the literature, ToM remains one of the most studied social-cognitive mechanisms underlying prosocial behaviour

(Paulus, 2023), recognizing one's own and other's needs, desires, beliefs, emotions being likely to facilitate prosocial behaviour (Brazzelli et al., 2022).

1.2.2. Temperament

According to Rothbart's psychobiological model, temperament refers to the interindividual differences in reactivity and regulation, that are early onset, relatively stable over time and influenced by genetics, experience, and maturation. Hence, temperament includes emotional, behavioural, and attentional characteristics that manifest themselves according to individual biological predispositions towards emotional reactivity and self-regulation (Rothbart, 2012; Putnam et al., 2024). Temperament is conceptualised as having three dimensions: positive emotional reactivity, negative emotional reactivity and self-regulation. Temperament thus represents individual predispositions towards emotional reactivity and self-regulation. Reactivity is defined as the activation of the motor, emotional, and sensory response systems, referring to inter-individual differences in the speed and intensity with which a person reacts to situations charged with positive or negative emotions. Self-regulation describes the regulatory mechanisms – such as attentional focus and inhibitory control – involved in modulating (increasing or decreasing) this reactivity (Rothbart et al., 2001). The present thesis operationalizes temperament from the perspective of Rothbart's model (Rothbart & Derryberry, 1981), including specific dimensions of positive emotional reactivity (smiling/laughter) and negative emotional reactivity (fear, shyness, sadness), as well as self-regulatory mechanisms (soothability, inhibitory control).

Regarding the relationship with prosocial behaviour, individual differences in temperament have been explored as predictors of prosocial development at different ages (infancy, toddlerhood, preschool and school age, adolescence), but mainly in early childhood (Eisenberg at el., 2017; Hay, 2023; Laible et al., 2023; Schuhmacher et al., 2017). A child's temperament can be linked to how they respond to other people's needs. Positive affectivity, agreeableness, extraversion, self-regulation, and effortful control are all positively correlated with prosocial behavior, while temperamental traits like shyness, sadness, and fearfulness or inhibition are linked to less empathy and consoling behavior toward other people's distress (Eisenberg et al., 2017; Laible et al., 2023; Schuhmacher et al., 2017; van der Mark et al., 2002; Vreeke & van der Mark, 2003; Volbrecht et al., 2007). Nonetheless, some research has not discovered a substantial correlation between prosocial behavior and temperament (Gross et al., 2015). However, less is known about the

relationships between specific temperamental traits and specific prosocial behavior types; this distinction is essential since certain traits may be more relevant to some prosocial behavior types than others (Hay, 2023; Laible et al., 2023). Fear, shyness, sadness, soothability, or inhibitory control, for instance, may be more significant in emotionally charged contexts—like attempting to comfort a distressed individual—than in emotionally neutral ones—like attempting to help someone by picking up a pen.

1.2.3. Emotion regulation

Emotion regulation is a multifaceted construct, involving both internal and external processes that support monitoring, evaluating and modifying a person's emotional reactions, especially the intensity and timing of their expression, in order to achieve a specific goal (Thompson, 1994). Therefore, the definition of emotion regulation refers to the efforts made by an individual to influence what emotion they feel, when and how they feel it and how they express it (Gross, 1998, 2014; 2024).

During the first years of life, emotion regulation shifts from being primarily interpersonal, with the parent support, to intrapersonal, more active and independent, children developing an increasing repertoire of strategies during childhood (Riediger & Bellingtier, 2022). At the same time, emotion regulation development is intertwined with the development of other motor, cognitive and language skills, from infancy to childhood (Bardack & Widen, 2019; Clément & Dukes, 2017; Riediger & Bellingtier, 2022; Stifter & Augustine, 2019). In toddlerhood and preschool years, children start to develop abilities that help them self-regulate independently, progress in executive functioning, theory of mind and emotional understanding supporting increasing emotion regulation skills throughout this period (De France & Hollenstein, 2022). In line with cognitive and emotional development, parental socialisation practices convey different expectations for child emotional responses at different ages (Fox & Calkins, 2003), with parents expecting their child to regulate their own emotions in preschool. Taking also culture into account, cultural differences in emotion regulation emerge from infancy (Camras, 2019), with socialisation practices leading to further cultural differences in emotion expressivity and regulation (Yang & Wang, 2019).

Emotion understanding and regulation is associated with friendship quality, psychological well-being, social competence, prosocial behaviour and cooperation in preschoolers and school-age children (Hein et al., 2018; Viana et al., 2022).

1.2.4. Empathy

A general definition of empathy would be that empathy consists of an affective response that is identical or similar to the state of another person (Eisenberg et al., 2006). Although there is no agreement in the literature on a clear definition of empathy, the majority of studies conceptualise empathy as having two components: **cognitive** and **affective** (Decety & Jackson, 2004; Eisenberg et al., 2010; Knafo et al., 2008; Reiners et al., 2011; Wang et al., 2019). The affective component is represented by experiencing an emotion similar or identical to that of the other person, while the cognitive component is given by the individual's ability to understand the other's emotions and perspective (Eisenberg et al., 2010; Thompson, 2023).

Empathy is positively associated with social competence, including prosocial behaviour (McDonald et al., 2023) and negatively associated with externalizing difficulties (Padilla-Walker et al., 2015). Empathy can be a strong force of motivation for acting prosocially, especially in comforting situations (Kärtner, 2023; Malti & Davidov, 2023; Warneken & Probst, 2023), being associated with prosocial behaviour concurrently and longitudinally, with early empathic concern in infancy predicting later prosocial behaviour in 2 years olds (Davidov et al., 2021).

1.3. Contextual Factors Involved in Preschoolers' Prosocial Behaviour

1.3.1. Mind-mindedness

One important concept to be explored in the context of child prosocial development is parental mentalization, and more specifically, parental mind-mindedness (for an in-depth analysis, see Study 1 in this thesis). The concept of mind-mindedness refers to the parent's tendency to interpret the child's behaviour in terms of mental states, cognitions, emotions and desires (McMahon & Bernier, 2017; Meins et al., 1998).

Mind-mindedness can foster the child's development in understanding their own and others' emotions and cognitions (Hughes et al., 2018; Kirk et al., 2015), as well as developing the ability to consider others' perspectives (Aldrich et al., 2021; Meins et al., 2013). This early exposure may encourage children to understand themselves and others as psychological agents, with previous

research showing that mind-minded comments predict superior theory of mind skills at age 2 (Laranjo et al., 2010; Meins et al., 2011) and 4 (Meins et al., 2003). More recently, two other longitudinal studies in preschool children showed that both maternal and paternal mind-mindedness have direct and indirect effects on the development of children's theory of mind in this age range, with mind-mindedness assessed at 7-8 months predicting child theory of mind at 4.5 years (Kochanska et al., 2025).

The relationship between parental mind-mindedness and children's prosocial behaviour has not been thoroughly examined in the literature to date, although high levels of parental mind-mindedness are known to support the development of children's ability to self-regulate (Bendel-Stenzel et al., 2024) and executive functioning (Cheng et al., 2018; Regueiro et al., 2022), to promote child abilities to consider others' perspectives and understand others' thoughts and emotions (Aldrich et al., 2021; Kochanska et al., 2025), as well as secure attachment (Meins et al., 2001, 2012; Zeegers et al., 2017), which all in turn are positively associated with prosocial behaviour (Rubio et al., 2022; Spinrad & Eisenberg, 2019). In addition, both maternal mind-mindedness and prosocial behaviour have been associated with a more advanced theory of mind and secure attachment (Imuta et al., 2016; McMahon & Bernier, 2017; Rubio et al., 2022). Furthermore, although Howe (2017) states in his study that parental mind-mindedness supports empathy and prosocial behaviour development in children, research is scarce regarding the predictive role of mind-mindedness for children's social competence, with only three studies investigating this relationship (Colonnesi et al., 2019; Gordon, 2022; Xiao-Ji et al., 2022; see Study 3 for a thorough review of these studies).

1.3.2. Parental Self-Construal and Values

People grow up and integrate into a society/culture that influence their development, impacting personal values, self-definition, practices and behaviors, goals and objectives (Callaghan & Corbit, 2023). The way in which people build their own self-image and defines themselves in a cultural context is known as self-construal (Au et al., 2020). How a person defines themselves impacts all the roles they have, including the parental role. For instance, the extent to which the parent adheres to a culturally independent model is reflected in the prioritization of socialisation goals that are associated with autonomy, independence, self-expression, self-esteem, and separateness (Keller et al., 2006; Keller, 2018; Tan, 2024). Conversely, the extent to which the parent adheres to a

culturally interdependent model is reflected in the prioritization of socialisation goals that are associated with obedience, relatedness, relational harmony, and loyalty (Keller et al., 2006; Keller, 2018). In the same vein, parents with an autonomous-related cultural model prioritise socialisation goals associated with both autonomy and relatedness (Hamayel et al., 2022; Keller et al., 2006; Keller, 2018). Therefore, in the context of parenting is important to take into account various self-construal dimensions in order to better understand how they interact with parental practices.

Another important concept that can interact with parental practices are the values a person has, specifically, the goals that differ in importance and work as guiding principles throughout their life (Hitlin & Piliavin, 2004; Schwartz & Butenko, 2014). In literature, one of the most known theories, namely Schwartz`s Refined Value Theory (Schwartz et al., 2012; Lee et al., 2019) has tried to identify a comprehensive set of core values that are recognizable in all societies (see also Study 2 for an extended discussion on this topic).

Self-construal and values may have a complex relationship (Sagiv & Roccas, 2021). Self-construal, for instance, may serve as a lens through which a person views behavior; this may be connected to the relationship between values and certain behaviors. Parental socialisation goals, or the objectives that parents set for their child's development, are linked to parental cultural models as measured by self-construal and values. The socialisation goals of autonomy, independence, self-expression, self-esteem, and separateness, for instance, are typically prioritized by parents with an independent cultural model (e.g., Keller et al., 2006; Keller, 2018; Tan, 2024). The socialisation objectives of obedience, relatedness, relational harmony, and loyalty are given more attention by parents who follow an interdependent cultural model (e.g., Keller et al., 2006; Keller, 2018). However, studies that directly examine the connections between culturally influenced parental cognitions, such as self-construal or values, and prosociality-promoting parental behaviors are scarce (Callaghan & Corbit, 2023).

1.3.3. Parental empathy

Parental empathy is the empathy experienced by the parent and manifested in relation to their child, through attention to the child's needs and feelings and a desire to understand things from the child's perspective. Therefore, empathy is seen as a basic pillar of parenting, being essential in identifying emotions and manifesting warm and congruent responses to the child's needs (Bornstein, 2024). Indeed, responding to infant cues is based on various parental brain networks

associated with empathy, emotion regulation and mentalization (Feldman, 2015; Rutherford, 2023).

Parental empathy has been associated with child higher empathy, measured both concurrently and longitudinally (Eisenberg et al., 2000; Hu et al., 2020; Liu et al., 2022), and prosocial behaviour (Daniel et al., 2016). Parental empathy can also be important in parental practices (i.e., parental talk about emotions and mental states, parental scaffolding of children's prosocial contexts, parental praise and encouragement), which in turn may support prosocial development (Thompson, 2023).

1.3.4. Parental Practices

Parental practices are multidimensional and multifaceted, having various characteristics and functions (Bornstein, 2024). Through their practices, parents influence their children development and socialize in the child those traits and characteristics that are important to them and valued in the society (Callaghan & Corbit, 2023). As mentioned earlier, parents play a key role in fostering child prosocial development (Davidov & Grusec, 2023). Parental practices, both paternal and maternal, are positively and independently related to children's prosocial behaviours, as evidenced in a recent meta-analysis (van der Storm et al., 2022). Indeed, parental practices can be a predictor of child prosociality, with practices that include parents talking about mental states (Hay, 2023; Thompson, 2023), engaging in prosocial behaviours with the child (Dahl, 2018; Davidov & Grusec, 2023), and encouraging and praising displayed prosocial behaviours (Bower & Casas, 2016; Gross et al., 2015) supporting children's prosocial actions.

Parental mental state discourse creates a context in which the child is exposed to terms that explain emotions, thoughts, intentions, preferences of self and others, which helps the child to better understand these mental states (Thompson, 2023). Parental contingency, namely parental supportive responses (i.e., praise, expression of approval, material rewards) to child emotions and behaviours are positively related to children positive affectivity, emotion understanding and regulation, and negatively related to children's behaviour problems (Denham, 2019). Parental scaffolding is another way in which parents can socialize their children's prosociality, by teaching and coaching the child about emotions, creating contexts in which the parent draws the child's attention to emotional cues, helping the child understand the emotions and how to offer an

appropriate response. Therefore, parental scaffolding can support child emotional knowledge and regulation (Denham, 2019).

1.4. An integrative perspective on the development of prosocial behaviour

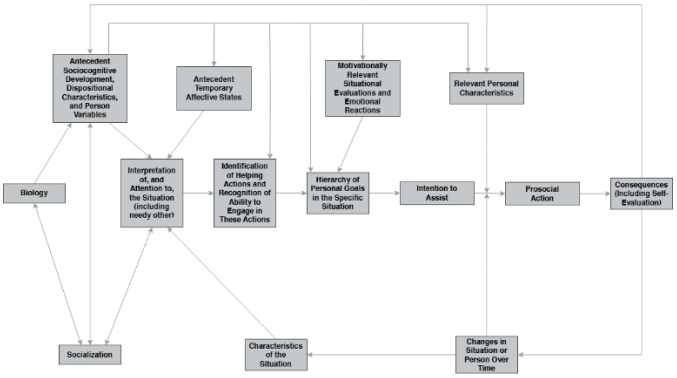
In literature, there are some theories and models that try to integrate various variables in order to explain prosocial behaviour development (Spinrad & Eisenberg, 2023). In the present thesis, our work is based on two models, the lifeworld approach (Kärtner & Köster, 2024) and the Heuristic model of prosocial behaviour (Eisenberg et al., 2006; Spinrad & Eisenberg, 2023).

According to the lifeworld approach (Kärtner & Köster, 2024), the child's socio-cognitive development emerges through reciprocal processes between individuals, the model emphasizing the importance of considering the deeply rich and varied social contexts in which socio-cognitive development takes place. The model emphasizes the role of culture, underlining that culture-specific characteristics can influence the caregiver's motives and cognitions related to parenting. Exploring the relationship between parents' cultural model and the parenting practices they use to encourage prosociality is important because, as Kärtner and Köster (2024) point out, the individual behaviour of each of the subsystems (i.e., caregiver and child) and the behavioural coregulation that is an important mechanism associated with prosocial development are shaped by the cultural context in which they are embedded. For example, parental socialisation practices are susceptible to the norms of a particular cultural context, resulting in the promotion of certain traits and behaviours and the discouragement of others, including regarding prosocial contexts (Kärtner et al., 2020). Given its cultural focus, in the current thesis, we used the lifeworld approach in Study 2.

However, acknowledging the need for a more comprehensive model regarding prosocial development, in this thesis we also used the Heuristic model of prosocial behaviour, adapted from Eisenberg et al. (2006) and thoroughly presented in a recent chapter (Spinrad & Eisenberg, 2023). In their model, authors provide an integrative and complex framework of multiple factors that affect prosocial behaviour manifestation, as can be seen in Figure 1. Based on this comprehensive model, in the present thesis we included several variables potentially involved in promoting and sustaining the development of prosocial behaviour, both individual and contextual, as presented in the previous sections. Given its focus, in the current thesis, we used this model in Study 3, 4, and 5.

Figure 1

Heuristic model of prosocial behaviour retrieved from Spinrad & Eisenberg (2023), p. 25



2. OVERVIEW OF THE THESIS AND RESEARCH AIMS

The present thesis aimed to investigate preschool prosociality and the forces behind its development, using a multi-level approach, including *contextual/parental factors,* namely parental mentalizing (in particular, mind-mindedness), parental practices related to child's prosociality, parental cultural model (values and self-construal) and parental empathy, and *individual/child factors*, specifically child temperament, theory of mind, emotion regulation and empathy. We considered this kind of approach critical for getting a more comprehensive picture of preschool prosociality development. The current thesis integrates five studies, one theoretical (Study 1) and four empirical (Studies 2, 3, 4 and 5). These studies had both theoretical and methodological aims, as follows.

In **Study 1**, our theoretical aim was to advance the literature in the field by providing an integrative and comprehensive overview of parental mentalization. Consequently, we conducted a critical and integrative review of parental mentalization literature, comprehensively analyzing and comparing the three different constructs emphasized under this label: mind-mindedness, parental reflective functioning and insightfulness. We discussed key methodological and theoretical aspects of the three constructs, addressing how they are defined and conceptualised, how they are measured, discussing both parental and child correlates, as well as conceptual strengths and weaknesses. We additionally provided a summarized comparison in terms of definition, operationalisation and measurement.

In **Study 2**, we explored the contextual, more specifically, the parental level of preschool prosociality. Our theoretical aim was to provide a clearer picture of what may influence parental prosocial socialisation practices, namely, parental awareness of internal states, scaffolding and contingency. Given that culture plays a significant role in children's socialisation, yet is limited understanding of how different cultural factors affect such parental practices, we examined aspects related to the parental cultural model. A methodological aim of the study was to create an index of the parental cultural model, containing aspects of parents' self-construal and values, that we theorized might play a part in predicting the specific parenting prosocial socialisation practices. At the same time, considering that the child's temperament can additionally affect parental practices, this variable was taken into account as well.

In **Study 3**, the analysis also included the individual (i.e., child level), while still considering parental influences on preschool prosociality. Thus, we examined child prosocial behaviour in relation to child theory of mind, measured by six tasks that tap into different facets of the concept, namely the Unexpected Content Task, the Unexpected Location I and II Order Tasks, the Belief-emotion Task, the Real Apparent Emotion Task, and the Diverse Desires Task. Child temperament, as assessed by parental reports, was also taken into account here. We assessed three different types of displayed child prosocial behaviour: instrumental helping and comforting towards the experimenter, and sharing with another child he does not see or know. The study had the main aim to investigate, for the first time to our knowledge, how parental mind-mindedness (assessed through the interview method) made a contribution to child prosociality, in interaction with child theory of mind and temperament.

Study 4 had the aim to expand the analysis of Study 3, linking parental mind-mindedness to child prosociality (as reported by the parent), while also taking into consideration potential variables that may be involved in this interaction, such as parental empathy, as well as child empathy and emotion regulation.

Study 5 aimed to further capture the complex relationships between parental mentalization (i.e., parental mind-mindedness and mental state talk) and preschool prosociality, by investigating in more detail parent-child dyadic interactions in the lab. Mind-mindedness was assesed in multiple ways, and within different contexts: through the interview method; in a free play parent-child session; in a Tangram-type puzzle-solving tasks with levels of increasing difficulty. Parental mental state talk was explored in the context of a book-reading task with the child, in which we

also assessed the child's use of mental state words. The child's prosocial behaviour was assessed through four different tasks: instrumental help that involved a cost for the participant, the child being involved in another fun activity that they would have to give up in order to help; comforting behaviour towards a person in distress; sharing with a sad toy; empathic help. A methodological aim was to design two new tasks, one for instrumental helping and one for comforting, that could tap into child's as well as parent's prosocial behavior. The tasks were developed so that we could also directly measure parental practices promoting child prosociality, which to our knowledge has not been previously investigated in the literature. The tasks were video-recorded and were coded using a comprehensive observation grid system, which allowed for detailed coding of both mother's and child's responses during the dyadic or triadic (i.e., with the experimenter) interactions.

3. ORIGINAL RESEARCH CONTRIBUTIONS

3.1. Study 1. Parental mentalization: A critical literature review of mind-mindedness, parental insightfulness and parental reflective functioning[1]

Study 1* was a critical integrative review addressing the three constructs under the umbrella term of parental mentalization: mind-mindedness, parental reflective functioning (Zeegers et al., 2017). Parental mentalization captures the parent's abilities to represent his/her child as a psychological agent and the parent's proclivity to understand and interpret child's behavior in terms of mental states. The main manifestations of parental mentalizing are the parent's ability to consider the child's thoughts, emotions or intentions when they analyze the child's behavior and the parent's proclivity to interpret the child's behavior through mental states.

This study aimed to synthesize the literature in a critical manner, reviewing mind-mindedness, parental reflective functioning and insightfulness comprehensively through a comparative analysis. This study identified key theoretical and methodological aspects of parental mentalization constructs (e.g., definition and conceptualization, measurements, parental and child correlates, strengths and weaknesses). Moreover, the constructs were compared based on their similarities and differences regarding definition, conceptualization and measurements.

3.1.1. Mind-mindedness – definition, conceptualization, measurements

Parental mind-midnedness (MM) can be manifested in parent-child relationships and in the parent's mental representations of his/her child. Depending on the child's age, a context or another is used in operationalizing MM. In the interactional context, the MM construct is conceptualized as the parent's proclivity to attribute meaning to the sounds that the baby is making (Meins, 1998; Meins & Fernyhough, 1999), respectively the parent's tendency to make appropriate comments about child's mental states during the first year of life (Meins et al., 2001). In the representational context, MM is conceptualized as the parent's proclivity to describe the child in terms of psychological characteristics (Meins et al., 1998).

[1]Medrea, F. L., & Benga, O. (2021). Parental mentalization: A critical literature review of mind-mindedness, parental insightfulness and parental reflective functioning. *Cognition, Brain, Behavior, 25*(1), 69-105. 10.24193/cbb.2021.25.05

MM is characterized not only by the ability to recognize the baby's needs, like the crying caused by hunger or the child's look towards a specific toy, but also by putting these needs into words and explaining them to the child through appropriate speech (Meins et al., 2001). Therefore, the MM concept represents a parent's proclivity to be sensitive to the child's mind, Meins (2013) emphasizing that the MM construct is "at the interface between behavioural and representational measures" (p.541).

MM is measured either in an interactional context that emphasizes the parent-child interaction in the first year of life or from an interview with the parent, an interview that emphasizes the parent's mental representations of the child, if the child is older than one year.

The interactional measure is an "on the spot" measurement of a parent-child free play interaction lasting 10 to 20 minutes. The toys in the experimental room are suitable for child's age, and the parent is instructed to interact with the child as they typically do at home. The main aspect of the analysis is the parent's discourse during the interaction. Following verbatim transcription, the speech is assessed using the Mind-Mindedness Coding Manual (Meins & Fernyhough, 2015). The analysis includes all the psychological commentaries that refer to the child's mind: wishes, thoughts, knowledge, interests, emotions, mental processes, such as recognizing, recalling, decision making. All those mind-related commentaries are classified as appropriate or non–attuned. Initially, the discourse analysis was made based on five categories: maternal responsivity to the child's gaze and child's object-directed action, imitation, autonomy sustaining, respectively mind-related commentaries. Subsequently, after statistical analyses, the only category that significantly predicted attachment security was the mind-related commentaries category.

The representational measure is an indirect measurement that uses the interview method to assess the parent's MM. During the interview, the parent is asked a single question, "How would you describe your child?" (Meins et al., 1998). The experimenter lets the parent know that there are no right or wrong answers to this question and encourages the parent to talk about any child's characteristic that comes to his mind. According to the Mind-Mindedness Coding Manual, the responses are verbatim transcribed and evaluated (Meins & Fernyhough, 2015). In the analyses, the child's traits are grouped in four categories: psychological, behavioural, physical or general. To fall within the category of psychological characteristics, a term should refer to the child's mind, imagination, ideas, wishes, preferences, emotions, goals. The behavioural characteristics category includes words that refer to the child's behaviour. The child's physical attributes are included in

the physical characteristics category. The general characteristics category will include all other child's descriptors that cannot be included in one of the previously listed categories. The MM score is the total number of psychological descriptors represented as a percentage of the total number of descriptors, to control the parental differences in loquacity. Besides this analysis, other authors (Demers et al., 2010) considered the positive, neutral or negative value of the child's descriptors.

3.1.2. Mind-mindedness – correlates

MM is correlated with parental and child variables.

Parental correlates of MM can be divided in 3 categories: cognitive (i.e., maternal executive functions; Yatziv et al., 2018), socioemotional (i.e., maternal emotional availability, close relationship status, and parental stress; Dai et al., 2017; Demers et al., 2010; Fishburn et al., 2017; Larkin et al., 2021; McMahon & Newey, 2018) and others (i.e., maternal risk factors, differences between parents, and culture; Dai et al., 2019; Demers et al., 2010; Miller et al., 2019; Planalp et al., 2019; Riva Crugnola et al., 2018; Schacht et al., 2017)

Child correlates of MM can also be divided in 3 categories: cognitive (i.e., advance theory of mind and perspective-taking abilities, executive functioning, expressive language skills, symbolic play; Cheng et al., 2018; Gagne et al., 2018; Giovanelli et al., 2019; Goffin et al., 2020; Longobardi et al., 2018), socioemotional (i.e., attachment security, social and emotional competence, externalizing behaviour, and emotional regulation; Colonnesi et al., 2019; Hughes et al., 2017; Miller et al., 2019; Tarabeh et al., 2019; Zeegers et al., 2018) and other (i.e, type of pregnancy, preterm or full term, and temperament traits; Suttora et al., 2020; Demers et al., 2010; Licata et al., 2013; McMahon & Newey, 2018; Meins et al., 2011; Planalp et al., 2019; Yatziv et al., 2018).

3.1.3. Insightfulness – definition, conceptualization, measurements

The insightfulness concept is defined as the parent's ability to understand the child's behavior and emotions through their underlying reasons, using a flexible, positive and child-focused manner (Oppenheim & Koren-Karie, 2002). The parent is creating a positive image of the child's reasons for behaving the way he does, considering the child's perspective in this process. The insightfulness concept presents three central components: insightfulness regarding the motives for the child's behaviors, an emotionally complex view of the child, and openness to new and sometimes unexpected information regarding the child (Oppenheim & Koren-Karie, 2018).

The insightfulness regarding the motives for the child's behavior component refers to the parent's ability to understand the child's behavior through their underlying reasons. The child is seen as an independent human being, with plans, needs, and wishes that are different from those of the parent. The emotional complex view of the child component implies that the parent integrates into his mental representation of the child both the positive and the negative traits, resulting a complex image of the child as a distinct person with strengths and weaknesses. The openness to new and sometimes unexpected information regarding the child component emphasizes that an insightful parent is not only aware of the child's positive or well-known traits but is also aware of the new characteristics that the child is manifesting in interaction with him, integrating each new attribute in the image of the child. These three components are intertwined and are based on the parent's open attitude, acceptance and an uncritical way of interpreting the child's behaviors, resulting in a general positive picture of the child (Oppenheim & Koren-Karie, 2018).

Parenting behaviors can be seen along two dimensions: sensitive behaviors that promote proximity seeking and non-intrusive behaviors that promote exploration. Based on these dimensions, insightfulness can also be conceptualized along two dimensions: Positive Insight, a parent's ability to know and accept his child, and Focus on Child, a parent's tendency to be comfortable with separateness and focus on the child's agenda (Gomez et al., 2018). Therefore, the Focus on Child factor assesses the parent's capacity to stay focused on the child and see his mental states as separated from one's own. The Positive Insight factor assesses parents' capacity to describe the mental states underlying their child's behavior coherently. Interviews using The Insightfulness Assessment are coded on 10 scales that have been shown in factor analyses to load onto these two dimensions (Gomez et al., 2018).

Insightfulness reflects parental emotional and cognitive processes that take place in dyadic interaction with the child in everyday routines (Oppenheim & Koren-Karie, 2013). However, some factors can be barriers to parental insightfulness (Oppenheim & Koren-Karie, 2018): shifts in attentional focus between the parent taking the child's perspective to other matters due to feelings of worry or anger that the parent has; the lack of acceptance of the child's mental states; indifference towards the child's internal experience; rejection of specific child's behaviors; detachment from the child's mind.

The insightfulness concept is evaluated using The Insightfulness Assessment (IA), a semi-structured interview, realized by Oppenheim and Koren-Karie (2009). The assessment involves two phases: the stage of video recording the parent-child interaction and the interview stage. The IA is used with children aged between 1 and 18 years. The interviews are verbatim transcribed and are coded based on 10 scales: Insight over child's motives, Openness, Complexity in description of child, Maintenance of focus on child, Richness of description of child, Coherence of thought, Acceptance, Anger, Worry and Separateness from child. Each scale is a 7 points Likert Scale. These scales load onto two dimensions: Positive Insight and Focus on Child (Oppenheim et al., 2001; Rosenblum et al., 2008). The scores are ranked in one of the four categories: Positive Insightfulness, which indicates the parent's ability to be insightful, and the other three categories, Unilateral, Disengaged and Mixed, indicating the absence of the measured ability (Koren-Karie & Oppenheim, 2002).

3.1.4. Insightfulness – correlates

Parental correlates of Insightfulnes are rather socioemotional (i.e., maternal sensitivity and maternal risk factors; Feniger-Schaal et al., 2019; Koren Karie & Oppenheim, 2018; Martinez-Torteya et al., 2018; Oppenheim & Koren Karie, 2018).

Child correlates of Parental Insightfulness can be divided in 2 categories: cognitive (i.e., theory of mind abilities, cognitive performance, and development and acquisition of language; Gomez et al., 2018; Meins, 1998; Meins & Fernyhough, 1999) and socioemotional (i.e., attachment security and internalizing and externalizing behaviors; Koren-Karie & Oppenheim, 2018; Koren-Karie et al., 2002, Oppenheim et al., 2004).

3.1.5. Parental reflective functioning – definition, conceptualization, measurements

Reflective functioning is known in literature as the person's ability to understand and interpret, both explicitly and implicitly, one's own and other's behaviours in terms of the mental states that underlie them (e.g., emotions, thoughts, beliefs, desires) (Fonagy et al., 2016; Katznelson, 2014). Reflective functioning is operationalized in two different constructs: adult and parental reflective functioning. Adult reflective functioning represents the adult's ability to reflect upon relationships with his parents during childhood and discuss about these relationships in terms of mental states. Parental reflective functioning (PRF) represents the adult's ability to think about his child's mental

state to interpret their child's behaviours in terms of these states and to reflect on their role as a parent (Sharp & Fonagy, 2008).

The PRF construct is centered on the parent's capacity to reflect on the child and their relationship, emphasizing the parent's mental representation of the child and of their relationship. Moreover, in order to understand the child's inner world, the PRF requires, at the same time, parental interest and curiosity. PRF represents the parent's proclivity to understand the mental states that underlie their child's behaviour, an important proclivity for the parents interpretation and response to their child's needs and emotions (De Roo et al., 2019). It is important to mention there are two types of mentalizing deficiencies known as hypomentalizing and hypermentalizing (Fonagy et al., 2016).

The PRF construct is usually measured using a 45-items clinical semi-structured interview, the Parent Development Interview. The interview's questions aim at the parent describing and elaborating a recent situation in which the child exhibited an undesirable behaviour, respectively a recent situation where the parent feels he was "connected" with the child. However, another instrument has been created recently, The Parental Reflective Functioning Questionnaire (Fonagy et al., 2016). The questionnaire presents 18 items, divided into 3 scales, the parent responding to each statement on a scale from 1 to 7, where 1 is total disagreement and 7 represents total agreement. The questionnaire aims to assess the mental ability of parents with children under the age of 5, capturing the period when the child's communication skills are developing.

3.1.6. Parental reflective functioning - correlates

Parental correlates of PRF can be divided in 3 categories: cognitive (i.e., executive functioning, parental competence, and alexithymic traits; Ahrnberg et al., 2020; Gordo et al., 2020; Nijssens et al., 2018; Rutherford et al., 2018), socioemotional (i.e, parental sensitivity in interaction, emotional availability and regulation, quality relationship with the child; Ensink et al., 2019; Luyten et al., 2017; Pazzagli et al., 2018; Rostad & Whitaker, 2016; Waldman-Levi et al., 2020) and others (i.e., maltreatment history in childhood and differences between parents; Berthelot, 2019; Camoirano, 2017; Cooke et al., 2017; Moser et al., 2019).

Child correlates of PRF can be divided in 2 categories: cognitive (i.e., the child's own reflective functioning ability and emotional perspective-taking; Ensink & Mayes, 2010; Luyten et al., 2017; Jessee, 2020) and socioemotional (i.e., attachment security, social competence, emotional

regulation, externalizing behaviours; Fonagy et al., 2016; Gordo et al., 2020; Arikan & Kumru, 2020).

Although at first glance the concepts discussed here are similar and investigate the same area of interest, that of the parent-child relationship and the parent's mentalizing abilities, each construct brings a distinct contribution to literature and presents different characteristics and facets of relationships and interactions among parents and their children. Each construct conceptualizes and assesses the parent's mentalizing abilities distinctively, emphasizing a particular aspect of parent-child interaction (see Table 1). Thus, although the three concepts refer to mentalizing abilities, they have different accents on analyzing parent-child discourse and interaction (see Tables 2 and 3).

Tabel 1

Definitions and assessment approach

Concept	Definition	Assessment approach
Mind-mindedness	The parent's proclivity to treat their child as a psychological agent (Meins, 1997). The parent's proclivity to attribute meaning to the sounds the baby is making (Meins, 1998; Meins & Fernyhough, 1999), respectively the tendency to comment on the child's internal states in interactions during the first year (Meins et al., 2001). The parent's proclivity to describe the child in terms of psychological characteristics (Meins et al., 1998).	• **Interactional measure:** a 10–20 minutes, usually free play, parent-child interaction is recorded and the parent's discourse is analyzed for mind related comments that can be appropriate or non–attuned, according to the Coding Manual (Meins & Fernyhough, 2015). • **Representational measure:**s an interview with the parent is recorded, in which the parent is asked to describe their child. The parent's description of the child is analyzed for mental characteristics, according to the Coding Manual (Meins & Fernyhough, 2015).
Parental Insightfulness	The parent's ability to see the child's perspective and to consider the motivations behind their child's behaviours and emotional experiences in a fully, positively and child-focused manner (Koren-Karie et al., 2002).	• **The Insightfulness Assessment** (Oppenheim & Koren – Karie, 2009): a semi–structured interview with the parent, who is asked to discuss about three videotaped interaction segments with their child, the emphasis being on the coherence and parent's interpretation of child's mental states.
Parental Reflective functioning	The parent's ability to understand their own and other's behaviour in terms of psychological states (Fonagy & Target, 1998).	• **Parental Development Interview** (Slade et al., 2005): a semi–structured interview based on two situations, a positive one, in which the parent felt "connected" to the child, respectively a negative one, in which the child behaved undesirably. The responses are analyzed using a Coding Manual (Slade et al., 2005). • **The Parental Reflective Functioning Questionnaire** (Fonagy et al., 2016): assessment of the parent's mentalizing abilities, using three scales, Pre-mentalizing, Certainty about the

		child's mental states and Interest and curiosity related to mental states.

Table 2

Advantages and disadvantages of using the constructs

Concept	Advantages	Disadvantages
Mind–mindedness	- the interactional assessment is the only measure that looks at how parental mentalizing ability naturally occurs in interaction - modified version for analyzing the interview, considering the descriptors' value (negative, neutral or positive)	- there are 2 types of measurements, thus the problem of fidelity - the interview measure can facilitate social desirability - the interactional measure emphasize parent's accuracy in making a comment about the child's behaviour, the decision about accuracy resting with the experimenter, who, in his turn, cannot be certain about the child's mind states
Parental insightfulness	- looks at three representative types of parent–child interactions - evaluates the positive – negative dimension regarding the parental mental representations of the child - emphasize the parent's acceptance and openness towards the child	- the assessment is based on the transcript interview, not on the actual video (interaction) - the assessment doesn't evaluate the appropriateness of parent's responses to the child's behaviour or the parent's accuracy in interpreting that behaviour - the assessment is guided by the experimenter's questions
Parental reflective functioning	- addresses the deficiencies in mentalizing, hypomentalizing and hypermentalizing - analyzes the parent – child relationship and how the parent feels about his role in this dyad - assesses two contexts, a positive and a negative one	- the results of the PDI and the AAI – Reflective functioning scale are both expressed in a single global score, which is very possibly failing to capture the construct's complexity and multidimensionality - the measures are centered on parent – reported situations, and not on parent–child interaction - PRF is measured by guiding the parent in answering questions about the child and their relationship, possibly facilitating social desirability

Tabel 3

Similarities and differences between the concepts

Concept	Similar to mind-mindedness	Different from mind-mindedness
Parental Insightfulness (PI)	- both constructs resemble conceptually, emphasizing the parent's mental image of the child, his ability to take the child's viewpoint into account and to interpret the child's behaviour through the underlying mental states	- the PI assessment is guided by the experimenter's questions about the child's mental states, while the MM's assessment is indirect, the parent being asked just to describe his child; - in the PI task, the parent is asked to interpret the child's behaviour based on a video recording, while the experimenter guides him with questions about child's emotions or thoughts, while in the MM task, the parent interprets the child's behaviour naturally, in interaction; - in evaluation, MM includes the video of the dyad's interaction, while PI considers only the transcribed interview; - PI doesn't consider the accuracy of the parent's comments, while this aspect is central in MM; - the focus in PI is on "how" a parent speaks about child's mental states and not on "what" they are saying
Parental reflective functioning	- both concepts consider the parent's tendency to treat the child as a mental agent - both emphasize the parent's mental representations of the child - PRF discuss about hypermentalizing, while the non–attuned comments from MM may reflect pseudomentalizing	- the PRF looks at the ability to mentalize *per se*, while MM considers how much a parent uses, in a spontaneous way, this ability - the PRF measurement is more directive than the MM, inviting the parent to reflect on child's reasons to behave in a certain manner - PRF emphasize how the parent sees his relationship with the child and how he interprets this interaction, focusing on the relationship/the dyad

3.2. Study 2. Socializing prosociality: the relationship between parental practices, cultural model and child temperament[2]

Study 2* remained in the contextual factors' domain, investigating specific parental prosocial socialisation practices. Given that prosocial actions are highly beneficial for individuals and society (Malti & Dys, 2018), a strong emphasis is placed in current literature on understanding the factors and mechanisms that may contribute to prosocial development (Malti & Davidov, 2023), either parent (e.g., parental warmth, sensitivity, socialisation practices, as well as parental attributions, goals and values; Brownell et al., 2013; Fairchild, 2021; Park et al., 2018; Spinrad & Gal, 2018; Xiao et al., 2022), or child-related (e.g., temperament, empathy, perspective taking/theory of mind; Brazzelli et al., 2022; Laible et al., 2023; Hay, 2023; Spinrad & Eisenberg, 2019; Vonk et al., 2020; Wilson et al., 2021). A multilevel approach of prosociality seems the most appropriate way even from a developmental stance, considering the complexity of the construct. Thus, taking into account individual as well as parental and socio-cultural factors can provide a more comprehensive picture of prosociality development (Davidov & Grusec, 2023).

Moreover, a fine-grained analysis focused on the interplay between parental cognitions, including those more culturally influenced (like self-construal or values) and parental prosocial socialisation practices, can be of high relevance, particularly in the preschool years. Within the developmental framework, this period is one of intensive socio-emotional and cognitive development, that supports the child to perceive, interpret and integrate transmitted values and cultural norms and to coordinate their behaviour according to parenting practices (Song et al., 2021) as well as to their own characteristics (like temperament) (Laible et el., 2023). Consequently, the preschool years represent an opportune, yet understudied, time to investigate complex relationships between parental self-construal, values and prosocial parenting practices, considering also individual differences in children.

[2]Medrea, F.L., Mone, I.S., & Benga, O. (2025). Socializing Prosociality: The Relationship Between Parental Practices, Cultural Model and Child Temperament. *Cognition, Brain, Behavior, 29*(1), 83-114. 10.24193/cbb.2025.29.05

Prosocial development in preschool children has been widely researched from the child's perspective, while the exploration and in-depth understanding of parental factors fostering child prosociality are still limited (Song et al., 2021), despite acknowledging their importance (Davidov & Grusec, 2023). The present study aims to shift the focus from the child's to the parent's perspective by examining parent-related predictors of parental practices promoting prosocial behaviour in preschoolers. However, since parental factors do not operate in a vacuum, individual characteristics of the child (e.g., temperamental dimensions) are also considered here.

While on the most general level, prosociality is considered encompassing other-oriented emotions, cognitions, motives and behaviours (Malti & Davidov, 2023), from a developmental perspective the focus has been mostly on overt prosocial behaviour. Prosociality is usually defined as any voluntary behaviour intended to benefit another (Eisenberg et al., 2015), including various actions like helping, sharing and comforting (Dunfield, 2014; Hay, 2023), that undergo progressive transformations along the preschool years (Dunfield et al., 2011; Schmidt & Sommerville, 2011; Warneken & Tomasello, 2007). As already stated, prosocial development occurs at the intersection of many parent- or child-related influences. Conceptualizing social-cognitive and in particular prosocial development through the lenses of dynamic systems, the lifeworld approach advanced by Kärtner & Köster (2024) considers the caregiver and the child as two interrelated subsystems, co-regulating each other's cognitions, motives and behaviours through social interaction. Thus, behavioural co-regulation through interaction becomes an important mechanism that influences prosocial development and how it unfolds. However, to understand how this co-regulation occurs it is important to focus on the behaviour of each subsystem, on the forces that influence it, as well as on the interaction between the subsystems per se. In this line of thought, in the current study, the focus is on the caregiver subsystem, and on certain internal (i.e., parental cultural model) and external (i.e., child temperament) forces that shape its behaviour (i.e., parental prosocial socialisation practices). It is important to note here that parental behaviour is itself a specific part of the caregiver subsystem. In addition, it should be emphasized that what would be considered an external force for the child (namely, parental cultural model) becomes an internal force when the caregiver subsystem is the one at the centre of the analysis. Also, what is considered an internal force for the child (i.e., child temperament) becomes an external force relative to the caregiver subsystem.

The objective of the present study was to investigate the parental cultural model, expressed through self-construal and values, as potential predictor of parental prosocial socialisation practices (considered part of the caregiver subsystem), while controlling for child temperament.

We expected that parents who prioritize an independent cultural model would also use parental awareness of internal states, contingency, and scaffolding more. The degree to which parents prioritize an independent cultural model is operationalized in the present study as parents having higher scores on self construal dimensions - difference (vs. similarity), self-containment (vs. connectedness), self-reliance (vs. dependability), self-expression (vs. harmony), self-interest (vs. commitment to others) and higher scores on the following values - self-directed thought and action, and universalism concern and tolerance, and lower scores on the remaining values conformity rules, conformity interpersonal, benevolence care and dependability. Taking into consideration that we focused on parental awareness of internal states, parental contingency and parental scaffolding as practices through which prosociality is socialized, we decided to focus only on the independent cultural model as a predictor. We made this decision because these practices are probable to reflect a view of prosociality as a choice because they are focused on internal states as the driving force or prosociality, on praising the behaviours and not taking them for granted and on offering the child contexts to choose to behave prosocially rather than imposing this behaviour (Bower & Casas, 2016; Davidov & Grusec, 2023; Thompson, 2023).

Therefore, the current study had the following hypotheses. More specifically, while controlling for child temperament, the degree to which parents prioritize an independent cultural model would positively predict parental awareness of internal states, parental contingency, parental scaffolding and parental prosocial socialisation practices as a global score.

The present study had several points of novelty. Firstly, we focused on specific parental practices that foster prosociality, such as awareness of mental states, scaffolding, and contingency and investigated a potential predictor of these practices, namely the independent cultural model, while controlling for child temperament. Although literature emphasizes the importance of parental practices in the development of the child's prosocial behaviour (Zuffianò et al., 2023), research focusing on these parental practices that support prosociality is lacking.

Secondly, we focused on both self-construal and values when measuring parental cultural model. While there is evidence suggesting they might be differentially related to parental beliefs and practices, there is a lack of studies which directly test the association between both self-

construal and values, as indexes of the independent cultural model, and parental behaviours (Leung & Morris, 2015).

Thirdly, given the role of child temperament in prosociality (Laible et al., 2023), in the present study we controlled for several temperamental traits that may influence prosocial development, namely positive anticipation, soothability, fear, inhibitory control, sadness, shyness and smile. Therefore, this study makes a key contribution by accounting for temperament when examining the link between the parental cultural model of independence and parenting practices that promote prosociality.

3.2.1. Method

Participants were recruited from three kindergartens in three different locations from Central Romania, two urban areas and one rural area. We obtained written parental consent for 100 3 to 7 years old children (52 females and 48 males; Mage in months = 56.83, SD = 12.34, min. 34 months, max. 82 months). In the parent sample, 100 primary caregivers (88 mothers and 12 fathers) were included (Mage = 36.10, SD = 6.07, min. 20 years, max. 54 years).

The instruments used were as follows.

Self-Construal Scale: Parental self-construal was measured with the Culture and Identity Research Network Self Construal Scale Version 3 (CIRN-SCS-3; Yang, 2018).

Values: Parental values were evaluated using the Portrait Value Questionnaire (PVQ-RR, Schwartz & Cieciuch, 2022).

Child temperament: The Children's Behavior Questionnaire (CBQ) (Rothbart et al., 2001) was used to assess child temperamental characteristics.

Parental practices regarding child's prosocial behaviour: Parental Prosocial Practices Questionnaire (PPPQ) (Brazzelli et al., 2019) was used to assess parents' practices regarding child's prosociality.

The sample was recruited from kindergartens in Romania. Directors of childcare centers were contacted by phone or email, were given all the information about the study, and were asked to collaborate on the project. After confirming the collaboration, the children's educators were contacted, and they were asked to pass on the information to the parents. Parents who expressed

their willingness to participate received the information sheet and informed consent. After signing the consent form, the pencil and paper questionnaires were sent to the parents, who were asked to return them completed in an enclosed envelope. For the SCS, PVQ-RR and CBQ, a Romanian version of the questionnaires was already available. Regarding the PPPQ, all items were translated into Romanian and back translated by another researcher.

3.2.2. Results and discussions

To explore predictors of parental prosocial socialisation practices, hierarchical regression models were tested for each hypothesis investigated.

Our first hypothesis, regarding the predictive role of the independent cultural model on parental awareness of internal states while controlling for temperament, was partially confirmed. Results showed that when considering all the variables, the parent's value of universalism-tolerance was the only significant positive predictor of parental awareness of mental states, explaining 32% variance in the criterion variable, while child temperamental inhibitory control became marginally significant.

Our second hypothesis, regarding the predictive role of self-construal dimensions and values on parental contingency while controlling for child temperament, was not confirmed. Results showed that, when considering all the variables, only children's temperamental traits of sadness, fear, and inhibitory control (the last one only marginally significant) positively predicted parental contingency, over and above the independent cultural model, explaining 30% of variance in the criterion variable.

Our last hypothesis, regarding the predictive role of self-construal dimensions and personal values on parental prosocial socialisation practices considered as a global score while controlling for child temperament, was not confirmed. Results showed that, when considering all the variables, child temperamental traits of fear and inhibitory control were the only predictors for parental prosocial socialisation practices, over and above self-construal dimensions and parental values, explaining 33% of the variance in the criterion variable.

The present study contributes to the literature by being the first study, to our knowledge, that analyses how the independent cultural model of parents is related to parenting practices through which prosociality can be encouraged, while controlling for temperament. Our results lend some support to the notion of a behavioural co-regulation mechanism, proposed in the lifeworld

approach framework (Kärtner & Köster, 2024), suggesting dynamic interactions between the child and the caregiver subsystems in the context of prosocial development. Specifically, when considering contingency and global prosocial socialisation, children's temperamental traits and behaviours predicted parents' behaviours over and above the parental independent cultural model. Indeed, our results evidenced that child temperament predicts parental practices, with parents adapting their behaviour to their children's temperamental traits and their emotional and cognitive availability. Child temperament may have a stronger impact than parental cultural model in daily interactions and socialisation needs, but this has to be further investigated.

In conclusion, while acknowledging these limitations, the present study contributes to a better understanding of the complex interplay between the parental independent cultural model (including dimensions of self-construal and values), child temperament, and parental practices that support child prosociality. Building on the lifeworld approach framework (Kärtner & Köster, 2024), current results can be interpreted as emphasizing the dynamic interactions between the child and the caregiver subsystems in the context of prosocial development, underlining the importance of child temperament. This suggests that parental practices are not independent of child temperamental traits but somewhat related and possibly adjusted to them, as also evidenced by other studies (Bates et al., 2019; Bates & Petit, 2015; Bornstein, 2016). However, in the case of parental awareness of internal states, the value of tolerance, a specific component of parents' independent cultural model may play a significant role. Therefore, results suggest that parents might respond differently and use diverse prosocial socialisation practices in relation to their children, based on their own values as well as on the child temperamental traits.

3.3. Study 3. Parental mind-mindedness and child prosocial behaviour: the moderating role of child temperament and theory of mind

Study 3 investigated individual and contextual factors in relation to child prosocial behaviour. More specifically, we explored the relationship between MM and prosocial behaviour, while considering potential moderators of this relationship, namely children's ToM and temperament.

Parental MM can provide a structure for the child to develop an understanding of their own and others' emotions and mental states (Aldrich et al., 2021; Meins, 1999), which may encourage children to understand themselves and others as psychological agents (Mcmahon & Bernier, 2017; Meins et al., 2001). Recognising one's own and others' needs, wishes, beliefs and intentions is likely to facilitate prosociality (Brazzelli et al., 2022), early emotional understanding being associated with higher levels of children's social competence, empathy and prosocial behaviour (Hay, 2023). Indeed, early maternal MM predicted ToM and had long-term indirect effects on children's prosocial judgements at 6.5 years (Goffin et al., 2020). However, research is scarce on the relationship between MM and child's prosocial behaviour, little is known about the predictive value of MM for child's prosociality, with only three studies (Colonnesi et al., 2019; Gordon, 2022; Xiao-Ji et al., 2022), to our knowledge, investigating the relationship between these two concepts, and only one of them assessing prosociality using experimental helping tasks.

Theory of Mind (ToM) represents the ability to attribute mental states to others (i.e. knowledge, beliefs, desires), meanwhile distinguishing between self and others, and differentiating between one's own and others' representations and emotions (Steinbeis, 2016; Paulus, 2023). Although ToM is assumed to include a full repertoire of mental states (Fu et al., 2023), it is generally evaluated through the prism of false beliefs (Beaudoin, 2020). In addition, ToM is considered a multidimensional construct, having at least two dimensions: first-order ToM, a more fundamental capacity capturing the ability to understand and infer another's mental states, and second-order ToM, a more complex capacity capturing the ability to predict another's mental states in relation to a third person (Fu et al., 2023). ToM plays an important role in understanding others' mental states, being positively associated with social functioning, such as peer relationships (Slaughter et al., 2002), moral judgement (Killen et al., 2011) and prosociality (Paulus, 2023). ToM is concurrently and positively associated with child prosocial behaviour in the third year of life (Brazzelli et al,, 2022), it predicts prosocial behaviours in primary school children (Wilson et al.,

2021), as well as increased sharing with friends over time (Vonk et al., 2020). ToM positively relates to parental reports on child prosocial orientation, both concurrently at 4.5 years and later, at 6 years (Eggum et al., 2011). Meta-analytic evidence also shows weak-to medium-sized relations between ToM and child's prosocial behaviour (Imuta et al., 2016), highlighting that children with higher ToM are more likely to act prosocially.

Child temperament refers to interindividual differences, including emotional, behavioural, and attentional characteristics that manifest themselves according to individual biological predispositions towards emotional reactivity and self-regulation (Rothbart, 2001; 2012; Putnam et al., 2024). Individual differences in child temperament have been explored in relationship with prosocial development (Laible et al., 2023), positive relationships with prosociality being found with temperamental dimensions of positive anticipation, agreeableness, extraversion, effortful control, while negative relationships were identified with temperamental fearfulness, shyness and sadness (Eisenberg et al., 2017; Hay, 2023; Laible et al., 2023; Schuhmacher et al., 2017). There are also studies that didn't find any significant relationship between temperament and prosociality (Gross et al., 2015). However, less is known regarding links between specific temperamental traits and specific types of prosocial behaviour, this differentiation being important given the fact that some traits may be more relevant in some types of prosocial behaviour than others (Hay, 2023; Laible et al., 2023). For example, fearfulness, shyness, sadness, soothability or inhibitory control might be especially important in emotionally-embedded contexts, such as trying to comfort a distressed person, more than in situations that are low in emotions, such as trying to help another by picking up a pen.

The inconsistent findings relating ToM and child temperament to MM and the lack of results regarding MM and child prosocial behaviour increase the posibility of a moderation interaction. ToM might help inhance prosocial responses: having greater ToM – including understanding other's needs, preferences, emotions, expectations – may relate to greater levels of prosocial behaviours. Conversely low levels of ToM could lead to difficulty in understanding other's mental states, making it harder to understand the need and to identify the optimal prosocial response. In this case, is possible that children with low levels of ToM may behave more prosocialy if they have parents with higher MM. Temperament might also moderate the relationship between MM and prosocial behaviour, parents who are more aware of their child's mind may be more sensitive and foster emotion and behavioral regulation, and subsequently prosociality, for children high in

fear, shyness, sadness and low in inhibitory control or soothability. However, given the scarce research involving different types of prosociality, ToM and MM, the existing literature cannot confirm these suppositions.

Our research questions and hypotheses were as follows:

(1) Given the scarcity of studies in the field, we explored whether parental MM is associated with child prosocial behaviour.

(2) Given the existing mixed results, we investigated whether there is a relationship between MM and child ToM, or between MM and child temperament, respectively.

(3) In line with the literature, we expected ToM to be positively associated with child prosocial behaviour.

(4) Consistent with the literature, we expected child temperament to be associated with child prosocial behaviour. Positive associations were expected for Positive Anticipation, Soothability, Inhibitory Control and Smile, and negative associations for Fear, Sadness and Shyness.

(5) Lastly, we explored moderation models, such that the relation between MM and child prosocial behaviour varies across the different levels of ToM or temperament.

3.3.1. Methods

Participants: The sample previously described in study 2 was also involved in the current study. Participants were 100 parents (88 mothers and 12 fathers, Mage = 36.10, SD = 6.07, age range 20-54 years) recruited from three kindergartens in different locations from Central Romania. We obtained written parental consent for 100 3 to 7 years old children (52 females and 48 males; Mage in months = 56.83, SD = 12.34, min. 34 months, max. 82 months). Parental educational level and family characteristics have been detailed previously. All children completed the behavioural assessment of prosocial behaviours and ToM tasks.

Instruments

Mind-mindedness was assessed with the interview method (Meins et al., 1998).

Prosocial Behaviour was assessed with three different tasks previously used in the literature (MacGowan & Schmidt, 2020; 2021; Tan et al., 2021), one for each type of behaviour investigated: instrumental help, comforting and sharing.

Theory of Mind was evaluated with six tasks, employed in prior studies (Hughes et al., 2005; Wellman & Liu, 2004), assessing Unexpected Content, Unexpected Location Ist order, Unexpected Location IInd order, Belief-Emotion, Real-Apparent Emotion, Diverse Desires.

Child temperament was assessed using Child Behavioural Questionnaire (CBQ) (Rothbart et al., 2001).

Participants were recruited from three kindergartens in Central Romania, with the collaboration of directors and educators, who allowed us access to kindergartens and facilitated the contact with parents. Interested parents signed an informed consent form and completed the documents in pencil-paper format. For the CBQ, we used an adapted Romanian version of the questionnaire. The children participated in the ToM and prosocial behavior tasks with a researcher in a quiet room in the kindergarten, during their daily program. The order of the ToM and prosocial behaviour tasks was randomized both within and between children.

3.3.2. Results and discussions

This is the first study, to our knowledge, to examine the relationship between MM and the child displayed prosocial behaviour, as assessed by experimental tasks that tap into three different types of prosociality, namely instrumental helping, comforting, and sharing. In addition, it is the first study to investigate the potential moderating role of the child's ToM and temperament in the context of the relationship between MM and prosociality. Results revealed a complex picture, highlighting the importance of investigating different types of prosocial behaviour and different levels of ToM development in relation to MM.

Regarding the first research question, the results showed no association between MM and child's prosocial behaviour. These findings contribute to the sparse body of literature on this topic by offering similar results (see Gordon, 2022). However, we cannot rule out the potentially important role of MM for child prosocial behaviour. Given the fact that MM plays a role in promoting attachment security (Meins et al., 2017) and child's ToM (Devine & Hughes, 2018; Goffin et al., 2020), and that child's secure attachment and understanding of other's mental states are in turn positively associated with prosocial behaviour (McMahon & Bernier, 2017; Spinrad & Eisenberg, 2019), an interaction between MM and child's prosociality is to be expected.

The second research question was confirmed, with MM being positively associated with ToM second-order task and ToM Global score. In this respect, our results are consistent with previous studies (e.g., Hughes et al., 2017; Lundy, 2013; Lundy & Fyfe, 2016; Wang et al., 2017). Still, these studies used tasks that assessed first-order ToM, so our research adds to the literature by finding a positive relationship between MM and second-order ToM.

In line with other studies, no significant relationships were found between MM and child age and gender or between MM and parental demographic characteristics (McMahon & Bernier, 2017). However, MM was positively associated with child temperamental traits, such as Positive Anticipation, Sadness and Shyness, and negatively associated with Soothability. A parent with higher MM has a propensity to interpret the child's behaviour through the lens of the underlying mental states (Meins, 2001), so these findings may be explained by the parent's proclivity to interpret the child's tendency to behave in ways that manifest excitement, sadness, shyness or agitation, as based on the child's internal states. These results make a significant contribution to the current literature (McMahon & Bernier, 2017), given the fact that seven temperamental traits were considered and multiple correlations were identified.

The third research hypothesis was partially supported, in that one type of prosocial behaviour, namely sharing, was positively associated with child ToM, both first and second-order. This result is consistent with another study that found a positive relationship between sharing and ToM (Vonk et al., 2020), in this research higher ToM predicting more sharing with friends over time.

The fourth research hypothesis was not supported, results showing null findings regarding the relationships between any of the child's temperamental traits and any type of prosocial behaviour. This result is in line with other studies that failed to find associations between child temperament and prosocial behaviour, such as between fearfulness and helping or comforting (Spinrad and Stifter, 2006; Liew et al., 2011), or between fear and a composite score of shyness-fearfulness, and helping or sharing, either parent-reported or observed (Gross et al., 2015).

The fifth research question regarding the moderating role of child's ToM and temperament, respectively, in the relationship between MM and child prosocial behaviour, yielded interesting results.

Second-order ToM was a significant moderator of the relationship between MM and the child's comforting behaviour. In other words, MM predicts the child's comforting behaviour only for children with low levels of ToM. Therefore, children with lower levels of cognitive and meta-

representational abilities seem to benefit from having a parent who is more aware of child's mind. The comforting task is based on understanding the other person's emotional distress, identifying the optimal response to alleviate the negative affect, and being motivated to see the negative state alleviated (Dunfield, 2014). The comforting behaviour emerges later in development than instrumental helping or sharing (Laible et al., 2023) and is complex, with the optimal solution to another's distress being less clear than in the case of instrumental helping or sharing tasks, where the context is easier for the child to understand. Therefore, a more advanced level of ToM may play an important role in identifying the person's need and the target response. When this ability is less advanced, parental MM may fill this function for ToM, helping the child to understand others' behaviours in terms of their underlying emotional states, which may lead to understanding the other's need, and ultimately to the manifestation of prosocial action that alleviates other's distress.

Regarding temperament, fear was a significant moderator of the relationship between MM and child's comforting, highlighting a complex interaction. MM positively predicted child's comforting only for children low in temperamental fearfulness, while in the case of children high in fearfulness, MM negatively predicted child's comforting. Interestingly, MM negatively predicted child comforting for children high in fearfulness. The comforting context is a highly emotional one, which implies an efficient regulation of emotional arousal (Hoffman, 2001). For a child with elevated levels of negative affectivity, such as fear, worry or nervousness, this context may be associated with personal distress (Laible et al., 2023), that may further undermine the child's propensity to act prosocially (Eisenberg et al., 2015).

In line with other studies, no significant relationships were found between instrumental helping, sharing and comforting, supporting the explanation that different types of prosocial behaviour are supported by different underlying mechanisms (Hay, 2023). Also, aligned with prior studies, we didn't find gender differences in prosocial behaviour, with such differences being more frequent in reported rather than displayed prosociality, and in children of older ages (Hay et al., 2021).

In conclusion, our study brings valuable contributions to the understanding of the relationships between MM and child prosocial behaviour and the results support the idea that child's characteristics such as ToM or temperament may play a moderating role in this relation. Children demonstrating low ToM abilities vary in their comforting behaviour as a function of parental MM,

with MM being positively associated with comforting only in children with low second order ToM. Children demonstrating low and high temperamental fearfulness vary in their comforting behaviour as a function of parental MM, with MM being positively associated with comforting in children low in fear and negatively associated with comforting in children high in this temperamental trait.

3.4. Study 4. Individual and contextual factors as predictors of child prosociality during preschool period

Study 4 investigated individual and contextual factors as potential predictors of child prosociality. The literature shows that both parental and individual factors are involved in the development of prosociality (Davidov & Grusec, 2023; Laible et al., 2023; Paulus et al., 2023). When considered separately, the beneficial and predictive roles of parent empathy and parental prosocial socialisation practices, as well as child empathy and emotional regulation, on the child's prosocial behaviour are known (Malti & Davidov, 2023; Spinrad & Eisenberg, 2024b; Yavuz et al., 2022). However, the interaction between multiple factors with predictive potential at both the caregiver and child levels is not explored (Yavuz et al., 2022).

Parent and child characteristics do not act individually in predicting children's prosociality, but rather there is likely to be an interaction between them, for example children's regulation abilities interact with parent factors such as parenting practices (Laible et al., 2023). With the objective to investigate a more complex picture of the extent to which, when taken together, these factors predict child prosociality, the present study considers the following variables as potential predictors of prosocial development.

The contextual factors investigated in the current study were parental representational mind-mindedness (MM), empathy and parental practices.

A parent who has a high mind-mindedness level is one who pays attention to and reflects on their child mental states, therefore exposing them to a higher extent to different cognitive perspectives along with mental state talk, which in turn may support child prosocial development (Spinrad & Eisenberg, 2019). Still, MM has not been investigated directly in the context of prosocial behaviour, but rather in connection with other child abilities that support prosociality, such as self-regulation (Bendel-Stenzel et al., 2024), self and others' emotion and cognition understanding (Hughes et al., 2018; Kochanska et al., 2025), theory of mind (Aldrich et al., 2021; Rubio et al., 2022). At the same time, MM has been also investigated in relation to parental factors, such as parental sensitivity and emotional availability (McMahon & Newey, 2018; Planalp et al., 2019; Yatziv et al., 2018), parental stress (Dai et al., 2017; Larkin et al., 2021) or parental executive functioning (Yatziv et al., 2018). However, literature is scarce regarding how mind-mindedness translates into observable parental behaviours, such as parental practices, while, in the same vein,

studies linking MM with child behaviours, especially positive ones such as prosocial actions, are very limited, the focus in the literature being rather on child behavioural problems, such as externalizing and internalizing difficulties (Easterbrooks et al., 2017; Hughes et al., 2017).

Another parental factor studied in the context of prosocial development is parental empathy, which has been associated with various child variables, including child higher empathy, measured both concurrently and longitudinally (Eisenberg et al., 2000; Hu et al., 2020; Liu et al., 2022), and prosocial behaviour (Daniel et al., 2016). At the same time, parental empathy can play a role in parental practices, especially in those pertaining to emotion and prosocial socialisation, which in turn may support prosocial development. Parental practices, such as parental talk about emotions and mental states, parental scaffolding of children's prosocial contexts, as well as parental praise and encouragement, are thought to support child's prosociality (Thompson, 2023).

The individual factors investigated in the current study were child empathy, emotion regulation, and socio-emotional difficulties.

Child empathy is one of the key constructs associated with prosocial development (Thompson, 2023). Ontogenetically, as early as the second year of life children show empathic concern for others in distress (Malti & Davidov, 2023). During the preschool and school years, children show empathy or sympathy when they see someone distressed, this being associated with attempts to understand that person's distress and somehow alleviate their condition (Hastings et al., 2000; Vaish et al., 2009). Child empathy was positively linked to prosociality in a longitudinal study (Knafo et al., 2008) and with social competence (Eisenberg et al., 2006; McDonald et al., 2023).

Child emotion regulation is another variable associated with positive outcomes such as greater prosocial behaviour and social competence, higher social integration and acceptance, school adjustment, greater flexibility and cooperation abilities (Adynski et al., 2024; Blair et al., 2015; Denham et al., 2013; Dollar & Stifter, 2012; Hein et al., 2018; Song et al., 2018). Child emotion regulation is influenced by parental emotion-related socialisation behaviours, such as parental self-emotional expression, parental contingent responses to child's emotional expression, parental emotions and mental states talk, and scaffolding of children's emotion-embedded contexts (Spinrad & Eisenberg, 2019; 2024 a, b).

Child socio-emotional difficulties, operationalized as internalizing (i.e., internal emotional and cognitive difficulties, such as anxiety, depression) and externalizing problems (i.e., negative behaviours such as aggressivity, hyperactivity) (Goodman et al., 2010), are usually associated with

a lower prosociality level (Ma et al., 2020; Malonda et al., 2019). Indeed, in a meta-analysis, prosocial behaviours have been negative associated with internalizing and externalizing problems in both children and adolescents (Memmott-Elison et al., 2020).

This study also accounted for sociodemographic variables, such as parental age and gender, level of education, number of children and child's age and gender, given the fact that these variables may play a role in prosocial behaviour.

Given the fact that parent and child factors rarely act in isolation to predict child outcomes and, specifically for prosocial development, their joint benefits remain unclear (Yavuz et al., 2022), we were interested in the potential additive influences of parent and child characteristics for children's prosocial development during the preschool period, while controlling for various demographical variables. Therefore, the current study was designed to concurrently explore the predictive role of parental (i.e., mind-mindedness, empathy and prosocial socialisation practices), and child factors (i.e., empathy, emotion regulation, internalizing and externalizing difficulties) on child prosocial behaviours, in a sample of preschoolers.

3.4.1. Method

Participants: The sample consisted of 146 parents (140 mothers and 6 fathers), Mage = 35.44, SD = 4.86, age range 25 to 53 years, of 3- to 7 years old children (69 females), Mage in months = 55.97, SD = 13.19, age range 36 to 84 months.

The instruments used were as follows.

Background information: Parents first filled out a background information form on their child (age and gender) and their own demographic background (age, gender, educational attainment, and number of children in the family).

Contextual factors

Mind-mindedness (MM) was assessed using the interview method (Meins & Fernyhough, 2015).

Parents' empathy was evaluated using The Basic Empathy Scale in Adults (Carre et al., 2013; Jolliffe & Farrington, 2006).

Parental prosocial socialisation practices were evaluated using the Parental Prosocial Practices Questionnaire (PPPQ) (Brazzelli et al., 2019).

Individual factors

Child empathy was evaluated using the Empathy Questionnaire (EmQue) (Rieffe et al., 2010).

Child emotional regulation was evaluated using the Emotion Regulation Checklist (ERC) (Shields & Cicchetti, 1997).

Child emotional difficulties and prosociality were assessed using the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997).

The study was advertised online and parents who wished to participate could do so by clicking on a link to access the information sheet, give informed consent and complete the 5 questionnaires. For the SDQ, a Romanian version of the questionnaires was already available. Regarding the BES-A, PPPQ, EmQue and ERC all items were translated into Romanian and back translated by another researcher.

3.4.2. Results and discussions

This study extended past research by bringing together multiple predictors of prosocial behaviours, in terms of parental (i.e., mind-mindedness, empathy and prosocial socialisation practices) and child factors (i.e., empathy, emotion regulation, internalizing and externalizing difficulties), while controlling for sociodemographic variables.

To explore the predictive role of variables of interest, a hierarchical regression model tested predictors of child prosocial behaviour, yielding interesting results. When introducing in step one sociodemographical variables, child age was the only significant predictor of child prosocial behaviour, a result in line with the literature, age having an effect on prosociality, given the complexity of prosocial behaviour and the socio-emotional and cognitive abilities that support it (Hay, 2023). When introducing in step 2 all parental factors investigated, MM, empathy and prosocial socialisation practices, only one, besides child age, was identified as a significant predictor, namely parental practices supporting child's prosociality, a result also in line with other studies underlining the role played by parental behaviours, such as talking about mental states, praising the child desirable behaviour or creating contexts for helping, in fostering child

prosociality (Thompson, 2023). Finally, when introducing in step 3 all child factors investigated, namely empathy, emotion regulation, and internalizing and externalizing difficulties, only 2 variables remained statistically significant, both pertaining to the child level, namely child ERC emotional regulation and ERC Negativity/Lability.

Indeed, past research shows children's emotion regulation plays a key role in their prosocial development, promoting better social and emotional adjustment, and predicting social and professional achievement, better relationship quality and optimal mental health (Riediger & Bellingtier, 2022). However, even if parental factors didn't directly predict child prosocial behaviour in our study, it is important to bear in mind that child's emotional regulation is known to be impacted by parental factors: children learn emotion regulation through parental co-regulation (mostly in the first year of life), through observational learning, modelling and social referencing with the parent, through their parents' emotional regulation abilities and emotion-related behaviors, through their family emotional climate shaped by specific parental practices (Holodynski & Kärtner, 2023; Riediger & Bellingtier, 2022). Therefore, even though emotion regulation may act as a more important predictor, overshadowing other variables, parental factors are known to play an important role in child's prosocial and socioemotional development. Also, in the absence of a thorough statistical exploration (using for example dominance analysis or random forests; Budescu, 1993; Mizumoto, 2023) this is merely a conjecture and should be rigorously investigated in future studies.

In conclusion, the present study brings valuable contributions to the understanding of the complex interplay between parent and child factors, and child prosocial behaviour. Current results can be interpreted as emphasizing the additive effects between the contextual and individual factors in the context of prosocial development, underlining the importance of child emotion regulation abilities. This suggest that in the context of parental reported prosociality, emotion regulation abilities or emotional negativity/lability play a crucial role in either supporting or hindering prosocial actions.

3.5. Study 5. Individual and contextual factors as predictors of child prosociality in different contexts - a preliminary study

Given that in Study 4 we already discussed the relationships between children's prosocial development and the contextual (i.e., parental mind-mindedness and empathy) as well as individual factors (i.e., child empathy, emotion regulation, and socioemotional difficulties) also investigated here, in the introductory section of this study we focus solely on the mind-mindedness construct. More specifically, we examine thoroughly the two established measures, the free interaction and the interview method (see also the analysis in Study 1), in addition to other types of measures employed by other preschool studies.

As highlighted earlier, MM is usually assessed in a free interaction task for parents with children younger than one year and with an interview method for parents with children older than that (Meins & Fernyhough, 2015). These two measures are the established ones in the literature, being used accordingly as a function of the child age. Both of them are positively associated with attachment security and parental sensitivity (Bigelow et al., 2015; Farrow & Blissett, 2015; Licata et al., 2014; Lundy & Fyfe, 2016; Meins et al., 2017), childrens' ToM abilities (Hughes et al., 2017; Kirk et al., 2015; Licata et al., 2016; Meins et al, 2013; Wang et al., 2017), language development (Bernier et al., 2017; Zammit & Atkinson, 2017) and mental state language (Lundy & Fyfe, 2016). However, the relationship between the two measures has not been clearly established in the literature, with mixed results, so that it remains unclear whether the two measures really assess the same construct (McMahon & Bernier, 2017). At the same time, Meins (2013) suggested that assessing the construct of MM using an observational measure of parent-child interaction is superior to the interview method, as it allows investigating the extent to which the parent is attuned to the child's mind and makes accurate comments about their mental states. This parental attunement is critical in understanding the role of MM in predicting child's later development (Fishburn et al., 2022).

3.5.1. MM assessed in free interaction with older children

More recently, in the last decade, a number of studies started to use the free interaction method for assessing MM in children older than 12 months, most of the them having samples with children in their second year of life (Brophy-Herb et al., 2023; Brown et al., 2023; Camisasca et al., 2018;

Costantini et al., 2017; Dai et al., 2017, 2019; Dégeilh et al., 2018; Gagne et al., 2018; Kirk et al., 2013, 2015; Longobardi et al., 2018; Lundy & Fyfe, 2016; Regueiro et al., 2022; Tarabeh et al., 2019). However, some studies assessed MM in free interaction even with children older than 2 years: two of these studies had samples with children younger than 3 (Colonnesi et al., 2017) and 4 years (Potharst et al., 2021) respectively, and used the exact coding scheme elaborated by Meins & Fernyhough, (2015).

However, as stated before, in Study 3, MM has not been investigated thoroughly in direct relation to prosocial behaviour in preschool. Based on the need to see how MM translates into parent-child interaction during the preschool period, our study aimed to investigate MM in the free interaction context.

3.5.2. MM assessed with other tasks in older children

At the same time, besides these two measures of MM, free-play and interview, there are some studies investigating MM in different contexts, such as at mealtime, within a sample of parents and children of 16 months (Longobardi et al., 2022) or in a complex puzzle task, in a sample of parents with their 4-year-old children (Lundy & Fyfe, 2016). In this context, it is important to mention the study by Fishburn and colleagues (2022), which aimed to develop a new observational preschool assessment of MM. Emphasising the need for a parent-child interaction measure of MM for older children, the authors developed a complex task to capture parents' attunement to their children's mental states, but because of the laborious nature of the task and the complex coding required made it more difficult to implement, at least in our research.

Therefore, we decided to use a puzzle-solving task to assess MM in parent-child interaction. Based on the literature that has used puzzle-solving tasks with preschoolers to investigate various individual (e.g., learning engagement, metacognitive strategies) or contextual factors (e.g., dyadic interaction quality, maternal scaffolding) (Halliday et al., 2018l; Nguyen et al., 2020; Stern & Hertel, 2022; Weng et al., 2020), in this study we aimed to develop a more structured parent-child interaction task based on solving Tangram puzzles of varying difficulty, where the child needed parental support to solve each puzzle. This observational context was selected to explore individual differences in parents' tendencies to regard their children as autonomous agents with independent minds, thereby using mind-minded comments in their interactions. Tangram puzzles were chosen due to their relative unfamiliarity in our sample, providing a novel task in which the parent and

child could collaborate to achieve a shared objective (i.e., solving the puzzle) without adhering to rigid, step-by-step instructions throughout the process.

3.5.3. Prosociality: behaviours and practices

As mentioned earlier, in study 2, despite acknowledging the important role played by various parental factors in fostering child prosocial development (Davidov & Grusec, 2023), there is a limited understanding on how specific parental prosocial socialisation practices contribute to fostering prosocial behavior in children (Song et al., 2021). Few studies have examined parental prosocial socialisation practices (Brazzelli et al., 2019) and, to the best of our knowledge, none have examined parenting practices that promote prosociality through direct observation of parent and child in the context of a task that measures prosociality. We identified only one recent study (Becher et al., 2023) on a sample of parents and their 18-month-old children, in which prosociality and empathic response tasks were performed in the presence of the parent, with the child sitting on the floor next to their mother facing the experimenter. However, the aim of the tasks was strictly to assess child's prosocial or empathic response, not the way or extent to which the parent encouraged prosocial responding; moreover, if mothers intervened during the task, those children were excluded from the analysis. Nonetheless, both child prosociality and parental prosocial practices don't occur in a vacuum, but are interrelated and most likely interdependent. Therefore, it is important to assess parental practices that promote prosociality in situ, in order to better understand the complex interactions between these types of parental practices and children's prosocial development.

In this study, we were interested in investigating different types of prosocial behaviour, in different contexts: reported by the parent; assessed when the parent was present; assessed when the child was alone with the experimenter. In this vein, we developed two new prosocial behaviour tasks, in order to assess the parent-child interaction in the context of prosociality. We also assessed MM: using the established interview measure and adapting two interactive measures, a free interaction task and a more structured and complex, puzzle-solving task.

First, we developed/adapted the prosocial and the MM tasks, and we piloted them with 4 parent-child dyads. Then, the current study was designed to explore, concurrently, the relationships between individual and contextual factors in preschoolers' prosocial development, as seen in various forms and contexts. At the same time, we were interested in capturing parental prosocial

socialisation practices in situ, within prosocial tasks that were designed to be as close as possible to everyday help-giving situations. In this exploratory study, we examined associations and predictive roles of different variables for children's prosocial development and parental practices that support it.

3.5.4. Methods

Participants

Participants were recruited from two different kindergartens in a large city from Central Romania. The study was advertised via kindergartens–specific communication networks and participants were self-selected. The sample consisted of 33 dyads, parents (29 mothers and 4 fathers), M_{age} = 35.81, SD = 3.32, age range 28 to 42 years, with their 3- to 7 years old children (17 females), M_{age} in months = 55.85, SD = 11.13, age range 37 to 78 months. Regarding educational level, all the parents had university (33.3%) or postgraduate (66.7%) studies; regarding family structure, a quarter of them (25%) had 1 child, a vast majority (68.8%) had 2 children, and only some of them (6.3%) had 3 children.

Instruments

Background information: Parents first filled out a background information form on their child (age and gender) and their own demographic background (age, gender, educational attainment, and number of children in the family).

Parent-reported variables

The Basic Empathy Scale in Adults (BES-A): Parents' empathy was evaluated using The Basic Empathy Scale in Adults (Carre et al., 2013; Jolliffe & Farrington, 2006).

Parental Prosocial Practices Questionnaire (PPPQ): Parental prosocial socialisation practices were evaluated using the Parental Prosocial Practices Questionnaire (PPPQ) (Brazzelli et al., 2019).

Empathy Questionnaire (EmQue): Child empathy was evaluated using the Empathy Questionnaire (Rieffe et al., 2010).

Emotion Regulation Checklist (ERC): Child emotional regulation was evaluated using the Emotion Regulation Checklist (Shields & Cicchetti, 1997).

Strengths and Difficulties Questionnaire (SDQ): Child emotional difficulties and prosociality were assessed using the Strengths and Difficulties Questionnaire (Goodman, 1997).

3.5.5. Parental mentalization assessment

Mind-mindedness – interview was assessed using the interview method.

Mind-mindedness in free-interaction: Mind-mindedness was also assessed from a 5 minutes free-interaction between the parent and the child. The parent and the child were seated at a table and parents have been instructed to play with their child as they would normally do at home, having at their disposal age-appropriate toys to play with, such as stuffed toys, a tea set, a car and a boat toy, a stuffed cube with questions on each side and two games with drawing activities. Usually in the literature the interactional measure is used with children younger than 1 year old (Meins et al., 2001), but there are studies measuring mind-mindedness based on a free play session with older children (Collonesi et al., 2019; Illingworth et al., 2016; Longobardi et al., 2022). In this study, the measure was adapted after piloting with four parent-child dyads. In addition to the Mind-mindednes Coding manual scheme, version 2.2 (Meins & Fernyhough's, 2015), we adapted a more extensive coding scheme based to the one used by Illingworth et al. (2016) and on the specificity of the parental discourse in our sample. We did this in order to capture as accurately as possible parental appropriate as well as non-attuned mind-related comments, in an age-appropriate way. These adaptations were required due to the child's increased language comprehension and communication abilities (for all the adaptations made please see Study 5 in its entirety in this thesis).

Interestingly, we observed frequent instances in which parents used mental state terms in their discourse before any behavior of the child. We considered such instances as parental general use of mental state terms and not an indicator of the parent's level of attunement to the child's mental world. Therefore, we accounted for these comments that reflect a parental general tendency to use mental state talk in interaction with the child. We considered these two categories, mind-minded comments and general mental state comments as mutually exclusive ones, so one comment could be placed in only one of these categories, being either mind-minded (and then coded into appropriate and non-attuned) or mental state comment. Some examples of this are: a mother plays with her daughter and suddenly verbalize "When we get home, we need to prepare the presents for the children, you know?"; a mother plays with her son a drawing game and says "Wow, look, it's so fun, pay attention, you need to concentrate, with this game you learn how to draw animals!". In the interactional context, the vast majority of parental comments regarding child's attention (i.e., "Pay attention!", "You need to concentrate/need to pay attention!") were considered mental state

talk rather than mind-mindedness. In the same vein, we observed frequent parental use of mental state talk directed to self (e.g., “I think that I should use the red color”, “I really like this game”, “I don’t know how to draw it, either”) and mental state directed to others, specifically when the child invites the parent in a role-play with the stuffed toys (e.g., when the parent asked the stuffed toys “Don’t you want to eat some cake?”). We also included these comments in the mental state category.

In order to control for parental verbosity, proportional scores were calculated for appropriate, non-attuned and mental state comments, from the total number of comments made by the parent. Higher scores on appropriate comments and mental state comments categories indicate greater mind-mindedness, respectively greater tendency to use mental state terms in interaction with the child.

Mind-mindedness in Tangram puzzles: We also assessed MM in a more structured task, using a Tangram puzzle activity as a way of capturing parental mentalization in another type of interaction with the child. Although it is not that common to measure the concept of mind-mindedness in other contexts, there are several other studies in the literature that used a puzzle-type task for assessing parental mind-mindedness (Gordon, 2022; Lundy, 2013; Lundy & Fyfe, 2016).

During this task, the child and the parent were seated next to each other at a table. The dyad received 3 Tangram puzzles, one at a time. The 3 puzzles had different levels of difficulty, easy, medium and difficult, provided by the availability of clues related to the pieces needed to solve the easy and medium puzzles, respectively the absence of these clues for the difficult puzzle. Each dyad received the puzzles in the same order, from easy to difficult, and had 5 minutes to solve each. If after 5 minutes the puzzle was not completed, the dyad was given a card with the way the pieces had to be placed to solve the puzzle and could choose whether to complete the puzzle or move on to the next one. We coded MM as in the free-interaction section, categorizing comments as mind-minded appropriate or non-attuned, using the same criteria and taking into consideration parental and child mental state talk, with some adaptation given the task specificity.

We noticed parents frequently using “know” rather as a placeholder, not as a mind-minded comment, even if it happens while the child tries to resolve the puzzle (e.g., parents commented “You have to do the bird, you know?”; “Let’s choose the round pieces, because they will fit here, you know?”). At the same time, another word used sometimes as a placeholder was “need”, the

parents reiterating the rules using this verbal wording (e.g., parents commented “You need to choose 4 little triangles.”; “We need to place these on the template.”). In these instances, we considered that the parent isn’t showing attunement or their mind-mindedness abilities, but rather repeat the instructions to the child. However, because they choose to reiterate the rules using mental state words, we considered this as mental state comments.

In order to control for parental verbosity, proportional scores were calculated for appropriate, non-attuned and mental state comments from the total number of comments made by the parent. We had scores for each Tangram level, as well as global scores for the entire task. Higher scores on appropriate comments and mental state comments categories indicate greater mind-mindedness, respectively greater tendency to use mental state terms in interaction with the child.

Parental Mental State Talk in wordless-book reading: Parental use of mental state terms in interaction with their child was assessed using one wordless picture book named Frog, where are you? (Mayer, 1969). This book was chosen because the story provides opportunities to discuss mental states and has also been used in the literature to capture the parent's tendency to refer to mental states in their speech (Baptista et al., 2017). The dyad received the book and the parent was instructed to take about 10 minutes to go through the book with their child and tell the story based on the pictures as they would do at home.

All terms used by the parent or child with reference to mental states were coded including words about desires (e.g., want, like, love), cognitions (e.g., think, know) or emotions (e.g., happy, scared, sad, furious).

Each parent and child received a score of mental-state talk, consisting of the total mental state references made. In order to control for parental and child verbosity, parental and child score was calculated as a proportion of the total number of words uttered during the book reading.

During this task, we also noticed that parents frequently used three different types of mental state comments: directed towards the story (e.g., The boy thought that he will find the frog in the tree.; The dog was scared.), directed towards the child (e.g., What do you think will happen next?, Who do you like more?), and directed towards self (e.g., I think that the boy looks for the frog in a wrong place.; I think I know what happens next.). Also, we noticed a parental proclivity to ask the child two types of questions while telling the story: one encouraging the talk about mental states (e.g., What did the boy think?, How did the dog feel?) versus one encouraging the talk about the story (e.g., Where did the boy search for his frog?, What did the dog do?). Therefore, we

accounted for these differences, having a parental score for each category: mental states from the story, mental states of the child, and own mental states. At the same time, we calculated a frequency score of how many questions the parent asked regarding mental states versus regarding the story.

3.5.6. Prosociality assessment

Child's prosocial behaviour tasks: Prosocial behaviour (PB) was assessed with 4 different tasks previously used in the literature (Chernyak & Kushnir, 2013; Gross et al., 2015; Shoshani et al., 2022; Sticker et al., 2023), one for each type of behaviour investigated: instrumental help, comforting, sharing and empathic help.

Development of two new prosocial assessment tasks

Prosocial tasks during parent-child interaction – instrumental helping and comforting task

Both prosociality tasks were designed to fit as naturally as possible into the laboratory context, to flow naturally from the other tasks in which the dyad participated, in order to observe the behavior of the child, the parent, and the interaction of the dyad in a manner as close as possible to an observation in everyday life.

Thus, **the instrumental task** was always applied at the end of the Tangram puzzles. After the parent and child had solved the 3 Tangram puzzles, the experimenter said: "Now comes another interesting task. Before that, I just have to collect all these pieces," as he begins to put the Tangram pieces into their storage bag. After 3-4 pieces have been put in, if neither of the two participants is helping, the experimenter adds, "It will take me a while to collect them all by myself." The task is finished when all the Tangram pieces are placed into their storage bag, either with the participants' help or collected only by the experimenter.

The **comforting task** was randomly applied at different times during the parent-child interaction, in one of the breaks between the other tasks, at a time when the experimenter was in a room adjacent to the laboratory, with the door between the rooms open, but out of sight of both parent and child. The experimenter pretended to bump his knee on a cupboard so that the bump made a noise loud enough to be heard by the dyad, saying "ow, I hit my knee" and then within 5 seconds "ouch, my knee", allowing 30 seconds reaction time. After 30 seconds, if there is no direct response from the parent or child, or if the parent or child intervenes (e.g., comes into the room,

asks if everything is OK, if something has happened, or if help is needed), the experimenter says "I've banged my knee and it hurts a bit, but I'm better now, it's OK to continue", the task is completed and the next task is carried out.

Both tasks were audio-videotaped and coded based on an observation grid. We were interested in both verbal and non-verbal reactions, at the parental level, child level and dyadic level. Tables 1 and 2 from Annexes show the detailed observation grid for each type of task. When coding, each type of reaction received a score of 1, therefore having various scores for each type of helping, instrumental and comforting. Each score is explained in the study and each of the tasks had the same score operationalization.

Child mental state talk: We observed children use of mental state terms in their discourse, in all three contexts, during free-interaction, Tangram puzzles and book reading. We placed all the mental terms in two categories: self-centered (e.g., I think, I want, I know) and others-centered (e.g., Do you know?, What do you think?). We calculated a score for every task as a sum of all the mental state comments made by the child in that specific task, while also calculating a global score as a sum of total mental states terms used. We also calculated a score for each of the two categories across tasks – a score for self-centered mental states and a score for others-centered mental states.

Child's ToM tasks: Children's ToM abilities were evaluated with 4 tasks previously used in the literature (Hughes et al., 2005; Wellman & Liu, 2004).

The sample was recruited from 2 kindergartens in one large city from Central Romania. Directors of childcare centers were contacted by phone or email, were given all the information about the study, and were asked to collaborate on the project. After confirming the collaboration, the study was advertised via kindergartens–specific communication networks. Parents who expressed their willingness to participate received an email with the information sheet and informed consent. After signing the consent form, the parent and child came at the Developmental Psychology Laboratory and took part in the tasks. All dyads took part in the parent-child tasks in the same order, first the 5 minutes free-interaction, then the Tangram, where each of the three puzzles was presented in increasing order of difficulty, and finally the book-reading task. In the breaks between these tasks, prosociality tasks in the dyadic context, namely instrumental helping and comforting, were introduced. At the end of this section, the parent went into an adjoining room and completed the questionnaires provided, while the child took part in the prosociality and ToM tasks in the individual context. These tasks were applied randomly to control for a possible order

of administration effect. Regarding the set of questionnaires completed by the parent, for the SDQ, a Romanian version of the questionnaires was already available, while for the BES-A, PPPQ, EmQue and ERC all items were translated into Romanian and back translated by another researcher.

3.5.7 Results and discussions

This study extended past research by investigating prosocial behaviour from a multinivelar perspective, including child prosocial behaviour displayed in established experimental tasks, prosocial behaviour reported by the parent and prosocial behaviour manifested in new prosocial contexts in parent-child dyadic interaction. At the same time, we were interested in capturing parental prosocial socialisation practices in situ, in two different types of prosocial contexts, instrumental helping and comforting.

This study has several points of novelty. Firstly, we developed two new prosocial tasks that were conducted in the context of parent-child interaction to observe both the child's response and the parental encouraging responses or comments to support the child's prosocial actions. Secondly, we developed specific observation grids and tracked both the parent's general behavior of encouragement, and specific parental practices to encourage prosociality, such as parental scaffolding (by pushing puzzle pieces toward the child to create the invitation to help), parental contingency (by praising the child's behavior), parental autonomy support (by encouraging the child to help, and then slowly withdrawing the parental involvement in the task, letting the child who had already engaged in prosocial behavior to help more). Thirdly, in addition to monitoring the actual manifestation of the target prosocial behavior, we also monitored prosociality responses that were conducive to the idea of having helping intentions in the context of the instrumental helping task (e.g, child pushes pieces toward experimenter but does not place a piece in the storage bag, looks at puzzle pieces, bag, parent, trying to understand if something needs to be done, etc.) or manifesting empathic concern in the context of the comforting task (e.g., facial expressions of concern, looks toward the room where the hitting sound was heard, looks questioningly at the parent, etc.). Fourthly, we included assessments of prosocial behavior in 3 different contexts: alone with the experimenter, together with the parent, and as resulted from parent reporting on the child's prosociality. Moreover, we also assessed 4 different types of prosocial behaviour: instrumental help, sharing, comforting and empathic helping. Fifthly, we were interested in assessing MM in

different contexts, adapting to differing extents two assessments from the literature – free interaction, and a more complex task – a Tangram puzzle-solving with 3 different levels of difficulty. Sixtly, we were interested in investigating relationships between a various number of child prosocial behaviours mentioned above and various individual and contextual factors that may predict prosocial development. This study was an extensive one, considering multiple types of prosociality, multiple contexts of prosociality expression and multiple variables that might influence the development of prosociality in the preschool period.

Given the small sample size, all of the results identified must be interpreted with caution. However, within these preliminary results we have identified several interesting trends, presented thoroughly in the study (please see study 5 for a more complex discussion about the results).

We identified several individual factors that predicted different types of prosocial behaviour in children: *child emotion contagion* negatively predicted the child's comforting behaviour when alone with the experimenter, a result consistent with other studies (Hoffman, 2001); *child emotion regulation* positively predicted child reported prosociality, a finding which aligns both with other studies (Robson et al., 2020); *child ToM score, namely on the Belief-Emotion task,* positively predicted child prosocial reactions in the dyadic instrumental helping, a finding also in accord with the literature (Brazzelli et al., 2022); reported *child empathy* predicted child prosocial reactions in the dyadic instrumental helping, a result consistent with other studies (Thompson, 2023); *child socio-emotional difficulties* (i.e., internalizing and externalizing difficulties) negatively predicted child parent-reported prosociality, a result also in line with other studies (Memmott-Elison et al., 2020).

We also identified several contextual factors that predicted different types of prosocial behaviour in children: *Parental MM,* assessed with the interview measure, positively predicted child prosocial reactions in the dyadic instrumental helping; *parental autonomy support* in the dyadic instrumental helping task positively predicted both child's prosocial reactions in the dyadic comforting task and child's sharing behaviour when alone with the experimenter.

At the same time, we identified some *parental factors* that positively predicted parental encouragement comments during both dyadic prosocial tasks: in the dyadic instrumental helping task, *parental cognitive empathy* positively predicted parental encouragement comments; in the dyadic comforting task, *parental appropriate MM assessed in Tangram tasks* and *parental*

proclivity to address questions regarding mental states during book reading positively predicted parental encouragement comments.

At the same time, we observed some relations between child and parental variables that could be interpreted as the parental tendency to modulate their response according to the child's mental abilities and behaviour. More specifically, child reactions in the dyadic instrumental helping task positively predicted parental encouragement in the same task. Likewise, child reactions in the dyadic comforting task positively predicted parental encouragement comments in the same task. These results suggest that the more parents encouraged prosociality, the more prosocial reactions children showed in both prosociality tasks in the dyad. Moreover, child proclivity to use mental states in their talk in the free interaction condition negatively predicted parental encouragement, and child ToM IInd order negatively predicted parental encouragement comments, both within the same dyadic instrumental helping task.

In conclusion, despite being a preliminary study, it enhances the understanding of the intricate relationship between individual and contextual factors and child prosocial behavior. Current results might be interpreted as emphasizing the dynamic interactions between the parent and the child in the context of prosocial development and the importance of considering different contexts of help-giving when investigating child prosociality. Moreover, these findings might underscore the importance of studying children's prosocial behavior in dyadic contexts to better capture parent-child relationship dynamics and the extent to which parents' prosocial socialisation practices promote the development and manifestation of children's prosocial behavior.

4. GENERAL DISCUSSIONS AND CONCLUSIONS

The main objective of this thesis was to investigate individual and contextual factors involved in prosocial development during the preschool period. Based on the Heuristic model of prosocial behaviour (Eisenberg et al., 2006; Spinrad & Eisenberg, 2023), an integrative model of the factors involved in the development of prosocial behaviour, we investigated both individual and contextual factors that are considered to play an important role in child's prosociality.

We engaged in a multi-dimensional exploration, taking into account not only parental reports of child prosociality, but also observed child behaviours (i.e., instrumental helping at no cost or involving a personal cost, sharing, comforting, empathic helping).

Regarding the individual level, we focused on various child-related variables assumed to be relevant for prosocial development, both parent-reported (i.e., temperamental traits, empathy, emotion regulation, socio-emotional difficulties) and task-assessed (i.e., ToM). Regarding the contextual level, we examined various parent-related variables, both self-reported (i.e., self-construal, values, parental prosocial socialisation practices, empathy) and task-assessed (i.e., parental prosocial socialisation practices). We also took into consideration certain socio-demographic factors (i.e., parental age and gender, level of education, number of children and child's age and gender).

Each study focused on how at least one of the above-mentioned factors were related to prosociality development, both at parental level, assessing predictors of parental prosocial socialisation practices, and at child level, assessing predictors and moderators of child prosocial behaviours. It is also important to note that we had a wide range of ages across all four empirical studies (from 3 to 7 years), which led to variations in children's socio-cognitive and emotional development. In the following, we will review each study, discussing their aims and results.

In **Study 1**, we conducted a critical review of the literature on parental mentalization abilities, discussing in a comparative approach three major constructs that are part of this umbrella concept of mentalizing: mind-mindedness, parental reflective functioning and insightfulness. The objective of this critical review was twofold: firstly, to address the gap in the literature regarding the extent to which these concepts overlap or investigate different facets of mentalizing abilities (McMahon & Bernier, 2017), and secondly, to identify a construct within this umbrella of parental mentalizing that could be related to children's prosocial development. Thus, in Study 1, we focused on the

Socialisation level of the Heuristic model of prosocial behaviour (Eisenberg et al., 2006; Spinrad & Eisenberg, 2023).

In **Study 2**, staying within the domain of contextual factors related to the parent, we aimed to investigate the context of prosociality development through parental prosocial socialisation practices. At the same time, because parents do not manifest these practices in a vacuum, we considered important to take into account the child's temperament, which is known to impact and be impacted by parental factors (Kärtner & Köster, 2024; Putnam et al., 2024; Reiss et al., 2022). The findings revealed that different variables have a predictive role for each parental prosocial socialisation practices investigated. For the awareness of internal states practice, the universalism-tolerance score was a statistically significant predictor, while the child's temperamental inhibitory control was a marginal predictor. For parental contingency was positively predicted by the child temperament traits of fearfulness, sadness, and marginally inhibitory control, whereas parental global prosocial socialisation was positively predicted by the traits of fearfulness and inhibitory control. Thus, in **Study 2**, we focused on the Socialisation level of the Heuristic model of prosocial behaviour (Eisenberg et al., 2006; Spinrad & Eisenberg, 2023).

In **Study 3**, based on Study 1, in which we identified the concept of mind-mindedness as a variable of interest, and on Study 2, in which we identified temperament as an important factor in the development of prosociality, we extended the investigation of prosociality by directly measuring children's prosocial behaviour through experimental tasks. In addition, given the importance of theory of mind abilities in understanding the perspectives and needs of others (Brazzelli et al., 2022; Paulus, 2023), we also included an assessment of these abilities through experimental tasks. The aim of this study was to examine the relationship between MM and prosocial behaviour, as well as the moderating role of temperament and ToM abilities in this relationship. Results showed complex interactions: MM positively predicted comforting behaviour in preschoolers only in those with low levels of ToM, respectively with low temperamental fearfulness, whereas MM negatively predicted comforting behaviour in children with high levels of fearfulness. Thus, in Study 3, we focused on two levels of the Heuristic model of prosocial behaviour (Eisenberg et al., 2006; Spinrad & Eisenberg, 2023), the Socialisation level, through the MM concept, and the Antecedent sociocognitive development, dispositional characteristics, and person variables level, through the ToM and temperamental traits investigation.

In **Study 4**, the objective was to investigate the potential additive benefits of various parent and child characteristics for children's prosocial development. Considering that parental and child factors rarely function independently in predicting child outcomes, and that the interactive benefits of these factors on prosocial development remain poorly understood (Yavuz et al., 2022), this study aimed to address this gap in the literature by exploring the potential cumulative effects of parental and child characteristics on children's prosocial development during the preschool years, while controlling for demographic variables. We took into consideration individual (i.e., child empathy, emotion regulation and socio-emotional difficulties) and contextual (i.e., parental MM, empathy and prosocial socialisation practices) variables that are known to independently predict child prosocial behaviour. Results emphasised the importance of emotion regulation abilities during preschool, suggesting that a higher level of emotional regulation abilities predicts more prosocial behaviour, while a higher level of emotional lability, characterised by emotional dysregulation, more negative affect and mood swings predicts less prosocial behaviour.

Child emotion regulation abilities were a predictor of prosocial behaviour over and above sociodemographic variables and other parental and child variables, these results evidencing a key role played by these abilities to manage emotions optimally in a prosocial context. Thus, in study 4, we focused on four levels of the Heuristic model of prosocial behaviour (Eisenberg et al., 2006; Spinrad & Eisenberg, 2023): the Socialisation level (through the MM, parent's empathy and prosocial socialisation practices), the Antecedent sociocognitive development, dispositional characteristics, and person variables and Emotional reactions levels (through child's empathy, emotion regulation and socio-emotional difficulties), and the Relevant personal characteristics level (through considering the child's gender and age, the number of siblings in the family, parents' level of education).

In **Study 5**, the research aimed to assess prosociality and parental mentalization abilities in more depth. First, we evaluated 4 different types of prosocial behaviour: instrumental helping, sharing, comforting and empathic helping. At the same time, in contrast to Study 3, where we encountered a ceiling effect on the instrumental helping task, with the vast majority of children scoring high, in this study we used a more complex instrumental helping task involving a personal cost. Also, in this study, we used two prosociality tasks developed to capture the child's prosocial behaviour while interacting with the parent, in order to assess the extent to which the parent also displays reactions of encouragement and support for prosocial behaviour. Second, we assessed

parental mentalization abilities in 4 ways: MM using the interview method, MM in a free-play parent-child interaction, MM in Tangram puzzle-solving tasks, and parental mental state talk- both throughout the previously mentioned tasks and during a wordless book-reading task.

Given the small sample size, the results of this study should definitely be interpreted with caution, but interesting trends have emerged, revealing individual and contextual predictors of child prosociality. We identified individual factors (i.e., child emotion contagion, emotion regulation, ToM abilities, child empathy, child socio-emotional difficulties) and contextual factors (i.e., parental MM–interview, parental autonomy support) that predicted different types of child prosociality. The new prosocial measures captured relational dynamics, with parents encouraging more in the instrumental task than in the comforting task and parents seeming to react according to the child's needs, encouraging more when the child used lower mental state vocabulary or when they had difficulties with ToM abilities. Within these new assessments, we also identified parental factors that positively predicted parental encouragement comments, namely parental cognitive empathy, parental attuned MM (assessed in Tangram tasks) and parental proclivity to address questions regarding mental states (during book reading). Also worth mentioning are the results showing that child prosociality in one context positively predicted child prosociality in another different context or one type of prosocial behaviour in one context positively predicted another type of prosocial behaviour. Although studies rarely show a relationship between different prosocial behaviours, examining prosociality in a dyadic parent-child context is likely to capture new facets of prosociality and the support the child needs to manifest more advanced or complex prosocial responses. This is the first study to highlight such complex relationships.

Thus, in **Study 5**, we focused on six levels of the Heuristic model of prosocial behaviour (Eisenberg et al., 2006; Spinrad & Eisenberg, 2023): the Socialisation level (through the MM, parent's empathy, parental mental state talk and prosocial socialisation practices), the Antecedent sociocognitive development, dispositional characteristics, and person variables and Emotional reactions levels (through child's empathy, emotion regulation and socio-emotional difficulties, and mental state talk), the Relevant personal characteristics level (through considering the child's gender and age, the number of siblings in the family, parents' level of education), the Hierarchy of personal goals in a specific situation (through the task in which the child has to choose between two goals, either the goal with personal gain – continuing to play a fun game or the goal with cost to one-self – giving up the game and offering help to the experimenter), and the Characteristics of

the situation level (through assessing prosocial behaviour in two different contexts – when the child is alone with the experimenter and when he is in the dyadic interaction with the parent).

4.1. Theoretical and Empirical Contributions

Generally speaking, our results bring theoretical and empirical contributions to the Heuristic model of prosocial behaviour (Einsenberg et al., 2006; Spinrad & Eisenberg, 2023), on the one hand supporting the proposed roles of various variables in fostering child prosocial development, and on the other hand, contributing to new insights regarding the importance of some specific variables. For a summary of the theoretical and empirical contributions of the present thesis, see table 1.

Table 1

Summary of main theoretical and empirical contributions

Theoretical and empirical contributions regarding prosocial development – parent level
• Addressing the gap in the literature, we analysed in a critical review 3 concepts central to the umbrella term of parental mentalizing (i.e., mind-mindedness, parental reflective functioning and insightfulness), highlighting in a comprehensive comparison similarities and differences in definition and operationalization, measurement and correlates. • Given the scarce literature on the subject, we analysed specific parental prosocial socialisation practices (i.e., awareness of internal states, contingency and scaffolding) using a self-report measure. • Trying to understand in depth parental prosocial socialisation, we tested the role of the parental cultural model indexed as parent's self-construal and values as a predictor of parenting prosocial socialisation practices, while controlling for child temperament – results emphasised that parents might respond differently and use diverse prosocial socialisation practices in relation to their children, based on their own values (i.e., universalism tolerance, in this study) as well as on the child temperamental traits (i.e., fearfulness, sadness, inhibitory control).

Theoretical and empirical contributions regarding prosocial development – child level

- We investigated various types of child prosociality, three types in Study 3 (i.e., instrumental help, sharing, and comforting), one type in Study 4 (i.e., parent-reported) and five types in Study 5 (i.e., instrumental help, sharing, comforting, empathic helping, along with parent-reported).
- Based on results from the third study, we used different prosocial tasks with the children: In Study 3 we used a no-cost instrumental helping task, while in Study 5 we used a more complex instrumental helping experimental task, involving personal cost.
  In Study 3 we used a sharing task in which the child could share stickers with another unknown child, with whom the experimenter would later meet, while in Study 5 we used a sharing task in which the recipient was a sad toy with which the child already played.
- In study 5, we investigated child prosociality in three different contexts – when the child was alone with the experimenter, when the child was in the interaction with the parent and parent-reported prosocial behaviour.

Theoretical and empirical contributions regarding prosocial development – dyadic level

- Addressing the gap in the literature, we analysed for the first time, the relationship between MM and task-assessed prosocial behaviour, taking into account child factors as potential moderators, namely temperamental traits and ToM abilities – results showed that fearfulness and ToM IInd order are moderators of this relationship.
- We tested a more comprehensive model including contextual (i.e., parental MM, empathy and prosocial socialisation practices) and individual (i.e., child empathy, emotion regulation and socio-emotional difficulties) factors as potential predictors – results emphasised the important role of child emotion regulation in prosociality.
- Trying to understand in depth parental prosocial socialisation, we analysed specific parental prosocial socialisation practices in situ, using two measures specially developed for this thesis capturing parent-child interaction during two prosocial contexts, instrumental helping and comforting – results emphasised that parents report high levels of prosocial socialisation practices, but those were captured in situ more in the

instrumental helping task than in the comforting one + these kind of practices seem to be influenced by parental (i.e., parental cognitive empathy, parental attuned MM assessed in Tangram tasks and parental proclivity to address questions regarding mental states during book reading) and child factors (i.e., child mental state talk and ToM).

- We included assessments of various facets of parent mentalization abilities, using three contexts to measure MM (i.e., interview, free interaction and Tangram puzzle-solving) and two ways of measuring parental mental state talk (across tasks in the free interaction and Tangram puzzle-solving tasks, and in a wordless book-reading task).

Methodological Contributions

For a summary of the methodological contributions of the present thesis, see table 2.

Table 2

Summary of main methodological contributions

- We tested various hypotheses derived from the Heuristic model of prosocial behaviour (Eisenberg et al., 2006; Spinrad & Eisenberg, 2023).
- We developed two tasks to assess child's prosocial behaviour and parental prosocial socialisation practices in dyadic parent-child interaction.
- We adapted and calibrated measures for MM in parents of preschool children, within a structured task (i.e., the Tangram puzzle-solving task) and a free-interaction situation.
- We replicated previous findings with a more fine-grained approach to measuring MM and prosociality.

Practical Implications – interventions policies

For a summary of the practical contributions of the present thesis, see table 3.

Table 3

Summary of main practical contributions

- Our results may inform future interventions that target child prosocial development, as it follows:
  - regarding the individual factors – the results underline the importance of training children's ToM and emotion regulation abilities
  - regarding contextual factors – the results underline the importance of developing prosocial values in parents and the importance of training parental MM, mental state talk proclivity, attunement to child's traits and parental autonomy support in prosocial contexts

4.2. Limitations

Our research approach had certain limitations, which are highlighted in the discussions section of each study. However, in all the four empirical studies, it is important to mention that we had small samples of participants and, in general, samples composed predominantly of mothers. Even though in the Romanian cultural context mothers are usually the primary caregivers, it would be important to thoroughly investigate also paternal factors involved in prosocial development, given the critical role they play in child development in general.

In addition, we would like to point out that measures for assessing mind-mindedness in parent-child interaction beyond the age of 12 months are rather scarce and/or insufficiently tailored for older children (see Study 5). Thus, we cannot be sure that MM was optimally captured, as it would have been in an ideal situation, with well-established tasks for parental MM in interaction with preschool children. In the same vein, we developed two new measures of child prosociality in dyadic interaction with the parent, again necessary and important measures to highlight the parental support and reactions and child manifestation of prosociality in the context of parent-child interaction, but which have not been used in other studies. Therefore, although these tasks may improve the ecological validity of measures of prosociality and MM in childhood, caution is

needed in interpreting the results. Future research should therefore focus on the development of adequate instruments for the investigation of the relevant variables.

4.3. Final Conclusions

In conclusion, based on the framework of the Heuristic model of prosocial behaviour (Einsenberg et al., 2006; Spinrad & Eisenberg, 2023), this thesis makes important theoretical, empirical, methodological and practical contributions that advance our understanding of the development of prosociality in children by highlighting individual and contextual factors that may support or impede the manifestation of prosocial behaviour in preschool children. In addition, this work broadens the horizon of research on prosocial behaviour in children by developing two instruments to study prosociality that can capture both the manifestation of the child's prosocial behaviour in two different contexts, instrumental helping and comforting, and the socialisation responses of prosociality manifested by the parent in situ. At the same time, this work also expands the field of research on mind-mindedness in parents of preschool children by developing and adapting two instruments to study observational mind-mindedness in direct parent-child interactions.

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