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Abstract

This study examined whether cultural differences exist in preschool children's prosocial behavior within the context of friendship by comparing samples from Turkey ($N = 32$) and Austria ($N = 31$). A multifaceted research design was employed, combining structured behavioral games (sharing and helping), sociometric friendship nominations, and teacher evaluations. Contrary to predictions derived from the individualism–collectivism framework, no consistent cross-cultural differences were found in sharing, helping, or teacher-rated prosociality. However, Austrian children displayed significantly more prosocial behavior toward friends than toward non-friends in both sharing and helping tasks, whereas Turkish children did not show such a distinction. Analyses of the “successful help receiving” variable likewise revealed no significant differences with respect to either culture or friendship status. With regard to friendship assessments, Turkish children did not have more friends than their Austrian peers, but they demonstrated greater consistency in their friendship nominations. Overall, the findings indicate that prosocial behavior is sensitive to friendship dynamics but does not exhibit straightforward or consistent cultural differences. The study underscores the complexity of prosocial development and highlights the need for more nuanced cultural frameworks and research designs to better capture the interplay between culture, friendship, and prosociality.

Zusammenfassung

Diese Studie untersuchte, ob es kulturelle Unterschiede im prosozialem Verhalten von Vorschulkindern im Kontext von Freundschaft gibt, und verglich hierzu Stichproben aus der Türkei (N = 32) und Österreich (N = 31). Es wurde ein multifaktorielles Forschungsdesign angewandt, das strukturierte Verhaltensspiele (Teilen und Helfen), soziometrische Freundschaftsnominierungen sowie Lehrerinnenbewertungen kombinierte. Entgegen den Vorhersagen aus dem Individualismus–Kollektivismus-Rahmen zeigten sich keine konsistenten kulturübergreifenden Unterschiede beim Teilen, Helfen oder in den von Lehrerinnen bewerteten Prosozialitätswerten. Allerdings zeigten österreichische Kinder sowohl beim Teilen als auch beim Helfen signifikant mehr prosoziales Verhalten gegenüber Freund*innen als gegenüber Nicht-Freund*innen, wohingegen türkische Kinder diese Unterscheidung nicht machten. Analysen der Variable „erfolgreiches Hilfeverhalten“ ergaben ebenfalls keine signifikanten Unterschiede in Bezug auf Kultur oder Freundschaftsstatus. Hinsichtlich der Freundschaftsbewertungen hatten türkische Kinder nicht mehr Freund*innen als ihre österreichischen Altersgenoss*innen, zeigten jedoch eine größere Konsistenz in ihren Freundschaftsnominierungen. Insgesamt deuten die Befunde darauf hin, dass prosoziales Verhalten zwar sensibel auf Freundschaftsdynamiken reagiert, jedoch keine eindeutigen oder konsistenten kulturellen Unterschiede aufweist. Die Studie unterstreicht die Komplexität der prosozialem Entwicklung und hebt die Notwendigkeit hervor, differenziertere kulturelle Rahmenkonzepte und Forschungsdesigns einzusetzen, um das Zusammenspiel von Kultur, Freundschaft und Prosozialität besser erfassen zu können.

Introduction

Prosocial behavior is defined as a behavior that is expected to produce or maintain the physical and psychological well-being and the integrity of the other person(s) involved (Wiske, 1972). In other words, it refers to ‘voluntary behavior intended to benefit another’ (Eisenberg et al., 2006). Prosocial behavior encompasses such behaviors as helping, sharing, cooperating or comforting those in distress, and even paying costs to ensure the well-being of others (Tomasello, 2009). It is the antithesis of negative forms of behavior such as aggression, harm, destruction, or selfishness (Bar-Tal, 1982).

Prosocial behaviors can be performed for various reasons, including egoistic motivations (Eisenberg, 1986), and are often confused with their subcategory, altruistic behaviors, and considered synonymous. However, altruistic behavior defined as intrinsically motivated voluntary behavior intended to benefit another—acts motivated by concern for others or by internalized values, goals, and self-rewards rather than by the expectation of concrete or social rewards or the avoidance of punishment (Eisenberg et al., 2006). Namely, every altruistic behavior is a prosocial behavior, but not every prosocial behavior is altruistic. Since it is often impossible to differentiate between altruistic actions and those prosocial behaviors based on other motives (Eisenberg et al., 2015), in my study, I focused on the broader domain of prosocial behaviors and conceptualize helping and sharing behavior as prosocial behavior in the absence of a visible external reward.

The main aim of this study is to examine whether there is a cultural difference in the prosocial behaviors of sharing and helping between preschool children in Austria and Turkey—representing individualistic and collectivistic cultures respectively—and to evaluate this within the context of friendship. First, the biological origins of prosocial behaviors, their developmental stages throughout childhood, and the socio-cultural factors that may influence them will be broadly addressed. The fact that the study encompasses different contexts such as friendship and culture makes it necessary to examine these factors separately in order to achieve a better understanding.

The Biological Origins of Prosocial Behaviors and the Onset of Socialization Factors

Findings from comparative and developmental psychology suggest that humans may possess a biological predisposition toward prosocial behavior (Melis & Warneken, 2016). These findings are frequently grounded in the early prosocial indicators observed in human infants (Hamlin & Wynn, 2011) and in the widespread observation of prosocial actions in nonhuman animals (e.g., social insects, mammals, primates) (Wilson, 2004). For example, rats respond prosocially to a conspecific's distress, providing strong evidence for the biological roots of empathically motivated helping behavior (Bartal et al., 2011). Similarly, consolation and helping behaviors have been observed in both chimpanzees and bonobos (Warneken & Tomasello, 2009). The prosocial behaviors observed in nonhuman animals and the early prosocial indicators seen in human infants suggest that these behaviors are unlikely to be directly attributable to socialization or moral reasoning. Taken together, they also demonstrate the necessity of a biological explanation. However, humans differ from other animals in terms of prosocial behavior (Silk & House, 2012) and determining the boundaries between biological and socialization factors in humans is not an easy task. To better understand the study's cross-cultural context, it is first necessary to examine the effects of socialization processes on prosocial behavior. Furthermore, this may provide insight into the developmental stages in childhood at which cultural differences are likely to emerge.

The influence of toddlers' social experiences on the development of prosocial behavior during early childhood is a highly debated topic. Some researchers, such as Warneken and Tomasello (2009) argue that helping—the earliest-emerging form of prosocial behavior—is consistently observed in human infants and that socialization is not a primary factor in its emergence.

Warneken and Tomasello (2006) also argue, in one of their studies, that 18-month-old infants are too young to receive parental encouragement for helping. In another of their studies, they further contend that one-year-old infants generally have few opportunities for their helping behavior to be reinforced by their parents (Warneken & Tomasello, 2009). These researchers further argue that social reinforcement may no influence—or might even weaken—infants' intrinsic motivation to help (Warneken & Tomasello, 2008, 2009). This view, which holds that human helping tendencies arise independently of specific socialization practices and that socialization becomes operative only at a much later point in ontogeny, is known as the Natural Tendency Perspective on prosocial behavior (Dahl, 2015).

Opposingly, other researchers argue that toddlers' social environment does influence the emergence and further development of prosocial behavior from the early stages of development. For instance, in a naturalistic home study, maternal encouragement and social reinforcement in infants aged 13 to 15 months showed a positive correlation with helping behavior. Instances of helping were frequently accompanied by encouragement, thanking, or praising (Dahl, 2015).

In another study, Hammond and Carpendale (2015) showed that maternal scaffolding during a cleanup task was positively associated with the spontaneous helping behavior of toddlers aged 18–24 months. Children who received more maternal scaffolding during an everyday chore helped the experimenter on more tasks and did so more quickly. Drawing on these findings, the researchers argued that the aforementioned study by Warneken and Tomasello (2006) (i.e., the natural tendency perspective) underestimates parents' explicit attempts to shape helping through praise and rewards. They further maintained that the problem situations requiring help in the experimental paradigm may be infrequent in children's everyday lives, thereby reducing the likelihood that children receive reinforcement for such situations (Hammond & Carpendale, 2015).

Moreover, other experimental studies have shown that not only parental interactions but also situational factors can influence young children's helping behavior, and it has been suggested that even simple reciprocal interactions (e.g., being mimicked, bouncing to music in synchrony with the experimenter) are powerful triggers of young children's prosocial behaviors (Barragan & Dweck, 2014; Over & Carpenter, 2009; Cirelli et al., 2014; Carpenter et al., 2013). All of these studies suggest that toddlers' natural tendencies are expected to vary depending on different social experiences, such as parenting practices or reciprocal interactions. This claim represents the Social-Interactional View of prosocial behavior (Dahl, 2015). The Social-Interactional View predicts that encouragement and social reinforcement are positively associated with infant helping frequency early in the second year, both concurrently and longitudinally. In contrast, the natural tendency would not predict such an association (Dahl, 2015).

The Development of Prosocial Behavior in Childhood

Throughout infancy and childhood, children develop an increasingly refined understanding of others' emotional states and cognitive processes and are better able to decode other people's emotional cues, and such related sociocognitive skills are associated with prosocial responding (Eisenberg et al., 2015). Many researchers have found prosocial behavior to be positively related to perspective-taking and theory of mind abilities (Caputi et al., 2012 ; Taylor et al., 2013) , empathy (Taylor et al., 2013) , and emotion regulation skills (Blair et al., 2004 ; Eisenberg et al. 1999). According to theorists, this sociocognitive development is the main factor behind the increase in prosocial behavior across age (e.g., Eisenberg, 1986; Hoffman, 2000).

Within the first year of life infants show concern for those in distress, and by the second year children's concern motivates their prosocial behavior (Zahn-Waxler & Radke-Yarrow, 1990). Especially, a significant increase emerges between 18 and 24 months of age in expressions of concern and comforting behavior toward others in pain (Zahn-Waxler et al., 1992). By age 3, social emotions such as gratitude and guilt motivate children to engage prosocially through reciprocity (Vaish & Hepach, 2020). By the time they reach age 5 children act prosocially to manage their reputations such as by showing more generosity when observed by peers (Engelmann & Rapp, 2018).

Children reliably start to engage in prosocial behaviors in their second year of life (Grueneisen & Warneken, 2022). Instrumental helping, or assisting another in achieving an action-based goal such as searching for or getting something out of reach, emerges by 12–14 months of age (Liszkowski et al., 2006; Warneken & Tomasello, 2007). It is presumably derived from an early-developing understanding of goal-directed behaviors (Woodward, 1998). The ability to respond prosocially to others' emotional distress emerges at a slightly later stage, with a notable rise between 18 and 24 months of age in expressions of concern and comforting behavior toward others in pain (Zahn-Waxler et al., 1992). This is likely to be a function of children's corresponding understanding of others as psychological agents (Hoffman, 2007). Brownell et al. (2009) demonstrated that children voluntarily share valued resources with others from 25 months of age onward. However, this depends on explicit communicative cues about another's need or desire. Building on these socio-emotional abilities, early helping behaviors are further shaped by parental scaffolding and observational learning (Hammond & Carpendale, 2015 ; Schuhmacher et al., 2019).

Children's Prosocial Behavior Within the Framework of Friendship

The ability to establish a wide variety of cooperative social relationships has played a central role in human evolution (Dunbar, 2012; Henrich, 2015; Tomasello, 2016). Among the diverse types of alliances, friendship stands out as one of the most significant forms of relationship, as it is a long-term cooperative bond characterized by the mutual provision of material and emotional support (Silk, 2003).

Data suggest that friendships are characterized by both a greater tolerance of imbalances in payoffs and lower levels of tracking compared to relationships among strangers (Xue & Silk, 2012). Friendship, referred to as 'cooperation without counting' (Silk, 2003), is not limited by the calculated constraints characteristic of tit-for-tat interactions. When support is received from our friends, it is generally a result of their concern for our welfare, and not a strict matter of immediate gains to be had via tit-for-tat interaction (Engelmann et al., 2019). If agents are embedded in social webs that consist exclusively of tit-for-tat associations, then they might not receive help exactly when they need it most (Engelmann et al., 2019). Friendship naturally leads to treating some people differently from the way we treat everyone else. One manifestation of such preferential treatment is in the domain of prosociality: we are more likely to extend favors towards our friends (Engelmann et al., 2019).

Three years old is the first age at which young children form preferential peer relationships (Hay et al., 2004). When children reach preschool age, prosocial behaviors are observed to become more selective. For example, preschoolers are more prosocial toward individuals who had intentionally benefited them previously (Vaish et al., 2018). This is due to the increasing influence of display rules (guiding the regulation of responses in accordance with social contexts), gender roles and norms, and friendships in governing prosocial behaviors (Hay & Cook, 2007). Thus enabling children to avoid free riders and accord with social expectations (Warneken, 2018).

A Cultural Perspective on Prosocial Behavior in Children

Culture is the set of distinctive patterns of beliefs and behaviors that are shared by a group of people and that serve to regulate their daily living. Every culture is characterized, and distinguished from other cultures, by deep-rooted and widely acknowledged ideas about how one needs to feel, think, and act as a functioning member of the culture. These beliefs and behaviors shape how parents care for their offspring (Bornstein, 2012).

By 18 months, key sociocognitive skills—such as joint attention, imitative learning, and establishing shared intentional relations—have emerged and toddlers become cultural learners (Tomasello et al., 2005). However, they have not fully developed emotional-cognitive scripts for many conventional social situations; primary caregivers play an important role in structuring these situations to facilitate cultural learning (Kärtner et al., 2016). Through parental scaffolding (i.e., guided parental assistance) and other coregulatory processes, caregivers coherently organize toddlers' attention, emotional experience, and behavior (Kärtner et al., 2016). These are called socialization goals and they are defined as the skills and competences that parents seek to promote in their children (Keller, 2011). Knight and colleagues (1993) examined the relationship between Mexican American mothers' socialization values and their children's cooperative and competitive behaviors. The study showed that children whose mothers emphasized cooperation exhibited more cooperative behavior, whereas those whose mothers emphasized competition adopted more competitive strategies.

Similarly, socialization goals and culturally specific values contribute to the promotion of prosocial behavior (Kärtner et al., 2010; Keller & Kärtner, 2013). For example, research by Haskett et al. (2008) found that parental sensitivity, which includes warmth and responsiveness, significantly predicts prosocial behavior in African American and Caucasian children. Additionally, Köster et al. (2016), in their cross-cultural studies, investigated how maternal task assignment relates to toddlers' requested behavior and helping between 18 and 30 months of age in three different cultural contexts: rural Brazil, urban Germany, and urban Brazil. Assertive scaffolding was associated with toddlers' helping in rural Brazil, whereas mothers' deliberate scaffolding related to toddlers' helping behavior in urban Germany. These findings highlight the role of caregivers' socialization practices for the early ontogeny of helping behavior.

A powerful and complimentary method to investigate the influence of social factors on the emergence and development of prosocial behavior is to use cross-cultural approaches. (Giner Torrens & Kärtner, 2017). Prosocial behaviors are highly valued across all cultures as markers of competency in children. However, children's prosocial behaviors might be cultivated by

different goals, depending on the culture (Giner Torréns & Kärtner, 2017; Kärtner, 2018; Kärtner et al., 2010). For instance, cross-cultural researcher Joscha Kärtner argues that parents from Germany might regard prosocial behavior as a personal choice, whereas parents from India might regard prosocial behavior as a moral obligation toward other social members (Kärtner et al., 2010).

Researchers have frequently used the individualism–collectivism (I–C) spectrum to explain cultural variations in prosocial behavior (Carlo et al., 2001; Song et al., 2021). Accordingly, individualistic cultures (e.g., Western Europe) place emphasis on independence and autonomy whereas collectivistic cultures (e.g., Asian) prioritize interdependence and relatedness (Triandis, 2001). Correspondingly, children from more collectivistic societies are likely to exhibit prosocial behaviors more often and more indiscriminately than those from individualistic societies (Eisenberg et al., 2006; Rao & Stewart, 1999; Stewart & McBride-Chang, 2000). However, the empirical evidence is inconsistent regarding whether cultural differences are already visible at early ages (Song et al., 2021).

Apart from the I–C spectrum, another framework that facilitates the systematization of cultural comparisons is the ecosocial model of child development (Keller, 2007; Keller & Kärtner, 2013). Within this framework, cultural models have developed as adaptive responses to the ecosocial environment (i.e., the ecological and sociostructural factors of the environment, such as subsistence strategies, family arrangements, and degrees of formal education). The ecosocial model of development describes two prototypical ecosocial contexts. In relational ecosocial contexts—such as subsistence-based farming ecologies in non-Western societies characterized by extended family systems and low levels of formal education—caregivers place a strong emphasis on social goals linked to hierarchical relatedness, including respect, obedience, and assuming responsibilities associated with social roles (Kärtner et al., 2008; Keller, 2007). In contrast, caregivers in autonomous ecosocial contexts—such as urban middle-class families in Western societies, who live in nuclear households and have high levels of formal education—prioritize social goals that promote psychological autonomy. These include individuality, independence, and personal choice (Kärtner et al., 2008; Keller, 2007). John Whiting and Beatrice Whiting's (1975) *Six Cultures* study, one of the earliest systematic cross-cultural investigations into children's socialization, provides significant support for the eco-social model (Whiting & Edwards, 1988). Research findings suggest that children in subsistence-based economies, where both parents carry heavy workloads (e.g., Kenya, Philippines, Mexico), demonstrate higher levels of prosocial behavior (e.g., nurturing, cooperative) compared to children in industrialized and more complex societies (e.g., Japan, United States, India).

A Review of Cross-Cultural Studies on Prosociality in Children

Prior studies have demonstrated that various developmental milestones in the first and second years are influenced by the cultural context in which they take place. For example, Kärtner (2015) compared urban German and rural Cameroonian mothers interacting with their infants between the 4th and 12th weeks and found that visual contingent responsiveness was more pronounced in independent cultures. The study also showed that the two-month shift differed across cultures. The increase in attention and social interest observed around the second month was evident only in German infants. Moreover, when the same infants reached 24 months of age, cultural differences became apparent on the mirror self-recognition test: Western infants recognized themselves earlier than their Cameroonian counterparts. In another study, Keller (2013) found that attachment theory has been shaped based on the psychological autonomy model of Western middle-class families and that attachment relationships in infants aged between 3 and 12 months can vary across cultures. These findings provide evidence that culture-specific differences emerge at a very early stage of development, even before prosocial behaviors are fully expressed.

The study of cultural differences in prosocial behavior, however, is a relatively recent area of research. And many of these studies compare prosocial behaviors in different cultural contexts, without a standardized assessment of the cultural background or embedding findings into a theoretical framework (Callaghan et al., 2011; House et al., 2013; Schäfer et al., 2013). It is thus difficult to interpret the similarities or differences between cultures, reported in these studies. The findings appear to be conflicting and contentious. First, studies reporting cross-cultural similarities will be addressed; subsequently, studies that, in contrast, found no such similarities will be considered.

Kärtner, Keller, and Chaudhary (2010) compared the Instrumental helping behaviors of 19-month-old children in Germany and India, demonstrating that early prosocial behavior is influenced by cultural context. German children initiated helping more frequently on their own, whereas Indian children tended to help more often after receiving social cues. The findings suggest that helping behavior depends more on culturally shaped social expectations than on cognitive capacity. Moreover, in Western societies, prosocial behavior appears to be linked to an individual's understanding of their own mental states, whereas in relational societies, it is primarily shaped by social norms and expectations of obedience.

Spivak and Howes (2011) examined prosocial behaviors such as helping, sharing, and comforting in 29- to 31-month-old children from diverse ethnic backgrounds (White, African

American, Latino, and Asian American). These behaviors were assessed through direct observation in preschool settings using a standardized coding system. The study found that emotional understanding, self-regulation, and the quality of relationships with teachers and peers significantly predicted prosocial behavior. Additionally, African American and Latino children were rated by teachers as displaying higher levels of prosocial behavior compared to White and Asian American children. This suggests that cultural and relational contexts may shape early expressions of prosociality.

Rao and Stewart (1999) compared the prosocial behaviors of Chinese and Indian children aged 4 to 6 and found that Chinese children engaged in helping and sharing behaviors more frequently. Data obtained through structured observations, teacher ratings, and parent questionnaires. Although both societies exhibit collectivist characteristics, Chinese culture places stronger and earlier emphasis on group harmony, emotional restraint, and respect for authority, whereas Indian culture values interpersonal responsibility but is more tolerant of emotional expression.

French et al. (2011) examined the behaviors of Chinese and Canadian 7-year-old children as they shared a limited toy within a cultural context. Canadian children more frequently invoked sharing and turn-taking norms, while Chinese children engaged in spontaneous sharing and rule-based leadership behaviors. Chinese children focused on maintaining harmony and order within the group, whereas Canadian children managed sharing by asserting individual rights and emphasizing justice based on established rules. Social acceptance was associated with passivity and voluntary sharing in China, and with assertiveness in Canada. The findings demonstrate that prosocial sharing behaviors are valued and expressed differently across cultural contexts.

Stevenson (1991) examined the prosocial behaviors of preschool children in China, Japan, Taiwan, and the United States within a cultural context. Children were systematically observed in classroom settings, and socialization processes were analyzed through interviews with their mothers. Prosocial behaviors were assessed based on actions such as sharing, helping, and comforting. The findings revealed that in Asian societies, these behaviors are intentionally taught from an early age through structured educational practices, whereas American children displayed such behaviors less frequently and within a more individualistic framework. Prosocial behavior was found to be associated with group harmony and collective responsibility in Asian cultures, and with individual intention in the United States.

Giner Torréns and Kärtner (2017) compared instrumental helping behavior in 18-month-old children from India and Germany. Children's instrumental helping behaviors were observed, and data on parental socialization practices were collected. Children from Delhi helped more frequently, and this behavior appeared to be supported by parents' duty-oriented approaches. In contrast, German children showed helping behavior less frequently, and their parents tended to frame such actions as a matter of individual choice. The findings suggest that prosocial behavior is shaped by cultural values and parenting practices even in early childhood.

In one of their seminal studies, Rochat and colleagues (2009) compared the fairness judgments of 3- and 5-year-old children across seven different cultures through sharing tasks. Prosocial behavior was assessed by observing how children distributed resources between two puppet characters, focusing on choices that reflected equality, inequality, or self-serving advantage. The cultures compared included the United States, Canada, Brazil, India, Peru, Senegal, and Uganda. The findings showed that 5-year-old children were generally more inclined toward equal distribution compared to 3-year-olds. In Western cultures (e.g., the United States, Canada), preferences for equality emerged earlier, whereas in some collectivist cultures (e.g., Peru, Senegal), sharing decisions were often guided by social roles, age, or perceived need. The study highlights that the understanding of fairness in prosocial sharing behaviors during early childhood varies according to cultural norms.

Trommsdorff, Friedlmeier, and Mayer (2007), also exposing children to an experimentally manipulated stimulus of an adult in need and distress, found that German and Israeli preschoolers displayed more prosocial behaviors than Malaysian and Indonesian children in an experimental setting. Although higher levels of prosocial behavior might be expected in collectivist cultures, the researchers reasoned that children in collective-oriented societies are more sensitive to the hierarchical nature of relationships and in- versus out-group distinctions, and thus might be hesitant to help the distressed adult in the experimental context. (de Guzman et al., 2014).

The studies mentioned above demonstrate that, although differences have been identified, the methodologies, experimental designs, types of prosocial behaviors measured, and the contexts in which these studies have been conducted vary considerably. Moreover, the age ranges of the child samples selected have often not been justified in detail. This is particularly important because, as emphasized earlier, the types of prosocial behaviors children can exhibit, their cognitive abilities, and the motivations underlying their actions differ significantly depending

on age. In only a small portion of these studies, additional surveys have been used to better understand the cultural background, including supportive questionnaires about how parents within that cultural context set their socialization goals. Moreover, it is already difficult to determine the precise age range at which cultural factors become clearly manifest. The types of prosocial behavior have not yet been systematically examined using standardized methods. Therefore, drawing meaningful conclusions from these findings is extremely challenging. This is further complicated by the fact that some of the few existing studies have produced contradictory results. The cross-cultural studies that found no differences—discussed in the following section—will help clarify this issue.

Aime et al. (2017) examined proactive (unprompted) and reactive (response-based) helping behaviors in children aged 2–5 in a rural community of Vanuatu, using the same protocol as in Warneken’s (2013) earlier study with American children. Reactive helping was assessed through clear behavioral cues, while proactive helping required children to infer the experimenter’s intention. The findings demonstrated that helping behavior emerged similarly in non-Western contexts.

In their study, Callaghan et al. (2011) examined early social-cognitive development in 1- to 3-year-old children from rural Canada, Peru, and India. Using tasks that included imitation, gaze following, communicative pointing, and helping (i.e., prosocial behavior), they found that helping behavior at 18 and 24 months was largely similar across cultures. However, some tasks required relatively advanced social-cognitive abilities, which made it difficult to determine whether cultural differences—when present—stemmed from motivation or cognition (Giner Torréns & Kärtner, 2017). The study also revealed that Canadian children performed better in symbolic tasks, suggesting that while basic helping may emerge universally, more complex skills depend on culturally specific experiences.

Cross-Cultural Case Studies Conducted with Turkish Parents and Children

Some previous cross-cultural studies have reported differences regarding Turkish parents in terms of parenting styles and socialization goals. For example, in a study conducted by Nauck and Lotter (2015), it was reported that the majority of German mothers adopted a permissive parenting style, Turkish mothers predominantly exhibited a neglectful parenting style, and Vietnamese mothers were more likely to adopt an authoritarian parenting style. The mothers

participating in the study included Turkish and Vietnamese immigrant mothers residing in Germany.

Doepke and Zilibotti (2019), in a study that considered contextual factors such as cross-national economic inequalities, reported that higher economic inequality (as observed in Turkey) is associated with a lower prevalence of permissive parenting and a greater adoption of authoritative parenting approaches. Economic inequalities also shape socialization goals across countries: in countries with lower economic inequality (e.g., Germany), there is a stronger emphasis on fostering children's creativity and autonomy, whereas in countries with higher economic inequality (e.g., Turkey and Russia), parents prioritize diligence and perseverance.

In another study conducted by Öztürk et al. (2023), the focus was placed on Turkish, Russian, and Polish immigrant mothers, and their parenting practices and socialization goals were compared with those of German mothers. Turkish and Russian mothers differed significantly from German mothers in terms of emotional warmth and punishment. Regarding socialization goals, all immigrant mothers emphasized both performance/self-control and positive social behaviors for their children more strongly than non-immigrant mothers living in Germany.

These studies, which have reported differences in parenting styles and socialization goals, provide insight into the likelihood that children may also exhibit cultural differences in terms of prosocial behaviors. There is evidence that parenting practices and socialization goals are shaped by cultural values and have a significant effect on the development of children's prosocial behaviors (Köster et al., 2016). Nevertheless, studies involving immigrant parents should be carefully taken into consideration. Since they may constitute a relatively homogeneous group with lower levels of education and socioeconomic status, it may be difficult to assume that they fully reflect the parenting style of their country of origin. Moreover, the duration of migration should also be taken into account, as the acculturative stress experienced by the first generation may not be the same as that of subsequent generations (Öztürk et al., 2023).

Cross-cultural work directly assessing children's prosocial behavior—and contrasting Turkish children with Western peers—is relatively scarce. For example, in Yagmurlu and Sanson's (2009) study, which directly examined prosocial behavior and its predictors, Australian children were compared with Turkish children residing in Australia; the authors addressed cultural similarities and differences observed both in the levels of prosocial behavior and in its predictors. Prosocial behaviors such as helping, sharing, comforting, and cooperating were evaluated. No significant differences emerged between the cultural groups in overall levels of

prosocial behavior. Nevertheless, the findings indicated that maternal warmth and child persistence were the strongest predictors of prosocial behavior among Australian children, whereas obedience-demanding parenting positively influenced prosocial behavior among Turkish children. However, the immigrant status of the Turkish children compared in this study should also be taken into consideration.

In a recent study, Neubauer et al. (2020) included both Turkish children living in Turkey and Turkish immigrant children, and compared their prosocial motivation and prosocial behavior with German children. Only girls living in Germany with Turkish immigrant background were found to achieve high levels of prosocial motivation and behavior. Whereas boys with Turkish migrant background and German children without immigrant background showed low levels of prosocial motivation and prosocial behavior. In contrast, Turkish children without immigrant background were high in prosocial motivation but low in prosocial behavior.

The Current Study

In light of the theoretical framework and previous studies discussed above, my aim in this study was to investigate how prosocial behavior in early childhood is shaped within the context of culture and peer relationships. Based on the Social Interactional Perspective of prosocial behavior (Dahl, 2015), I assumed that cultural differences begin to emerge as early as the onset of the second year of life and can already be observed among the participating children between the ages of three and six.

According to the Individualism-Collectivism (I-C) spectrum, Turkey is considered a collectivist society, whereas Austria, as a Western country, is classified as individualistic (Hofstede, 2001). Although there was no direct source classifying these countries according to the ecosocial model, I assumed that Turkey, identified as a collectivist culture based on the Individualism-Collectivism (I-C) spectrum (Hofstede, 2001), would be situated within a relational ecosocial context, whereas Austria, classified as individualistic, would fall within an autonomous ecosocial context. In the line with this, I compared the prosocial behaviors of preschool children in Austria and Turkey within the context of friendship. I focused specifically on acts of sharing and helping that arise in the absence of extrinsic rewards.

To explore this, I implemented two structured experimental games designed to assess the degree of prosocial behavior that children displayed toward both friends and non-friends. In addition,

I conducted a sociometric friendship test to determine the quality of the relationships between children. This allowed me to evaluate how both cultural background and the nature of interpersonal bonds influence prosocial behavior.

In addition, I administered a two-part teacher questionnaire to assess each child's prosocial behaviors and friendship relations. This approach allowed me to test the reliability of the children's friendship nominations and to obtain teacher-rated prosociality scores. Using these scores as well, I aimed to conduct a comparative analysis of prosociality levels between Turkish and Austrian children.

Although I also carried out the second game as part of my study, that was not included in the analysis. The game did not directly target prosocial behavior; however, it had a structure that could be interpreted in terms of assertiveness and competitiveness. This experimental protocol was part of a broader research effort investigating the interplay between prosociality, dominance, and social relationships in preschool children (Katerkamp & Horn, 2025) and was implemented in the same manner as in the original study. The data obtained from this part were submitted to the University of Vienna.

Based on the literature, I formulated the following predictions:

1. In the first game, I examined whether children would voluntarily hand over a toy with another child after having had the opportunity to play with it. I defined this behavior as an indicator of prosocial sharing. Given the cultural emphasis on relational interdependence and group harmony in collectivist contexts such as Turkey (Triandis, 1995; Kagitcibasi, 2007), I predicted that Turkish children would generally exhibit more prosocial behavior than Austrian children. Specifically, I expected Turkish children to share the toy both with their friends and with non-friends more frequently than their Austrian peers. Moreover, consistent with previous findings indicating that young children tend to favor their friends (Engelmann et al., 2019), I expected Austrian children, in particular, to engage in more sharing with their friends.
2. In the third game, similar to the first game, I focused on helping behavior in the absence of an external reward. Children were given the opportunity to help another child by picking up a plush toy that the latter had dropped and placing it on their head. I defined this act of helping as prosocial behavior. Considering cultural orientations (Triandis, 2001; Eisenberg et al., 2006; Rao & Stewart, 1999; Stewart & McBride-Chang, 2000), I expected Turkish children to display prosocial behaviors more frequently than Austrian children. I further

predicted that Austrian children would provide more help to their friends, whereas Turkish children would help both friends and non-friends without making such a distinction.

3. In the teacher questionnaire, children's levels of prosocial behavior were assessed by their teachers. In the same vein, based on studies showing that in collectivist cultures values such as social responsibility, sensitivity to others' needs, and group harmony are emphasized more than individual autonomy, I expected Turkish children to receive higher prosociality scores from their teachers than their Austrian peers.

Methods and Material

Participants

The study was conducted with 32 preschool children aged between 3 and 5 in Eskişehir, Turkey. I matched this sample of participants with 31 Austrian children taken from the larger study (Katerkamp & Horn, 2025). This study, in which I also participated as an assistant during the data collection process, was conducted with 108 preschool children from five different childcare facilities in Vienna. From this research sample, four groups were selected in accordance with the sample size and gender distribution of the sample collected in Turkey, and the comparison was carried out between these four groups.

A fundamental condition of the study was that the participating children already knew each other beforehand. This was important in order to evaluate the effect of friendship relationships on prosocial behaviors. The participating children were studied within their own classrooms in four groups each, both in Austria and Turkey, respectively. While the children in Austria were educated in mixed-age classrooms, in Turkey, classrooms were separated by age group. Using a convenience sampling method, information and consent forms were provided to the parents of the children who would be selected based on voluntary participation. The children were not given any rewards for their participation.

Ethics Statement

The study was approved by the ethics committee of the University of Vienna and Bogazici University. The part of the study conducted in Turkey was supervised by Prof. Feyza Çorapçı from the same university where the ethics committee approval was obtained.

Approval to carry out the research in the two public kindergartens in Turkey was obtained by the municipal authorities. An information sheet and a consent form were sent to the families of all children by the kindergarten. Only children whose consent forms were signed by a parent were included in the study. Although the consent form was signed by the parents, the children retained the right to decline participation in the study on the day of the experiment if they did not wish to take part.

Study Design

This study comprises four main components: a friendship assessment and three structured experimental games. However, one of the experiments was not included in the analysis because it did not measure prosocial behavior. In addition, a questionnaire was administered to the teachers to evaluate children's prosocial behaviors and peer relationships.

The data collection was conducted in two kindergartens located in Eskişehir, Turkey. On testing days, only children with parental consent participated in the study. Children who were not allowed to participate continued their regular classroom activities. The testing took place in a quiet, empty room arranged by the kindergarten administration. All sessions, except for the friendship test, were video recorded using two cameras for later behavioral coding.

The first part of the study involved a sociometric friendship test. Additionally, to increase reliability, a questionnaire was given to the teachers in which they could rank each child's closest friends. The questionnaire also included a continuous graphical scale designed to assess children's prosocial behaviors and social dominance.

Following the friendship assessment, three test sessions were conducted with each group of children, once a week, over the course of three weeks. Each sessions consisted of the same three experimental games administered in a fixed sequence.

The first game was a toy exploration task where children were told they had limited time to play with a toy in any order they wanted. This experimental setup aimed to observe to whom the children would give the toy for further exploration after they had played with it themselves during a limited exploration period. In this way, I intended to identify toward which children they were more prosocial.

The second game was not analyzed by me, as it did not serve the focus of my research. As this study was a continuation of the broader project by Katerkamp & Horn (2025), adapted into a cross-cultural context, it was carried out by adhering to the same experimental procedures. The data obtained from this part were submitted to the University of Vienna. This data may contribute to future research conducted within a cross-cultural framework on assertiveness and competitiveness in preschool children, or to studies aiming to understand the relationship between these traits and prosocial behavior.

The third game was a "Freeze-Unfreeze Game" involving squid toys balanced on the children's heads. If a squid fell, the child had to freeze until helped by another child. This game assessed

self-initiated helping behavior in the absence of external incentives. In particular, I identified which children picked up the fallen squids and whom they helped.

Friendship Assessment

For the friendship test, each child was interviewed individually. In the first round, the child being interviewed was shown, by me, photographs of other children from their class who were participating in the study, one by one and in a random order, and was asked whether they liked playing with each of them. Beforehand, it was explained to the child that, depending on whether they liked playing with the child shown, the photographs would be placed into columns on a white cardboard in front of them: if they liked playing with would be placed in the column marked with a green smiling face; if they did not like playing with would be placed in the column marked with a red sad face; and if they were unsure about would be placed in the column marked with a yellow neutral face (see Figure 1).

In the second round, this time, the photos were shuffled and all were given to the child, and the child was told to place them by themselves on the white cardboard in front of them, again according to whether they liked or did not like to play with them.

Prior to the start of the test, randomly assigned identification numbers were determined for each participant child. The data obtained were documented in written form using pre-prepared coding sheets (see Appendix). The children placed on white cardboard were recorded with their assigned numbers into the corresponding yellow, red, and green columns on the form. The photographs required for the friendship test were requested from the kindergartens with parental consent and were returned after the completion of the test.



Figure 1. White cardboard divided into three columns used for the administration of the friendship test.

1. Game

In the first game, the participant children were seated in a circle around me (see Figure 2). I told them that I had brought a toy, that they had limited time to play with it, and that they could play with it in any order they wished (see Appendix for the detailed script of the game). To measure the time, I used a colorful sand timer that was visible to the children while they play with the toy. The game began as soon as the timer was flipped. For groups of 5–9 children, the duration was set at 3 minutes; for groups of 10–15, it was set at 5 minutes.

In each session, the children were presented with one toy. A total of three different toys were selected for the three sessions, and these were presented to all groups in the same order. The toys were such that only one child could play with them at a time. The toys used were a waterdrop toy, a kaleidoscope, and a slide viewer toy (see Figure 3).



Figure 2. The area where the first game took place, where the children sat in a circle together with the experimenter.



Figure 3. Toys presented to the children for exploration. For each session, one of them was presented in the same order. From left to right: a kaleidoscope, a waterdrop toy, and a slide viewer toy.

2. Game

In the second game, I told the children that I would read them a story and that afterwards, they would play the game from the story together. The content of the story that was read to participants was as follows: In the story, a flamingo named Flippi played a game called sticker hunting with other animals. In the game, the animals were required to quickly get in line in front of an orange traffic cone. This was because those who were in the front row were able to choose the most attractive and bright ones out of a box of stickers, while those who remained in the back rows were left with unattractive stickers (see Appendix for the detailed script of the game).

After I read the story to the participants, I asked each child two questions to test whether the story was understood. I showed the children a page with pictures of animals lined up in front of the orange traffic cone, and asked which animal was in the front and which was in the back. Since the purpose of the experiment was to examine the children's positions in the line, I ensured that their understanding of positions in the line was clear.

Before the children began to play the same game, I explained once again how they should line up by visually demonstrating the play and emphasizing the position of the orange traffic cone. Just like in the story, they were lined up in front of the orange traffic cone after the start command was given.

The traffic cone served as a reference point for determining the sequence (see Figure 4). After the children were lined up, I came to the traffic cone with the sticker box, and the stickers were chosen by the children in order according to their positions in the queue.

The number of stickers was determined according to the number of participating children. For example, if 9 children were participating, 3 attractive, 3 average-attractive, and 3 non-attractive stickers were placed in the sticker box. The most attractive stickers were identified as the shiny ones featuring cartoon characters, while the moderately attractive stickers consisted of non-shiny animal shapes, and the least attractive stickers were defined as those displaying only colorful emoji-like faces.

On the first day, I gave the children colorful sticker passes labeled with their names, in which they could collect their stickers. These sticker passes remained with the children after the final session of the experiment.



Figure 4. The area where the children played the same game on their own after the story was read. The orange cone was used to determine the line-up order.

3. Game

In the third game, the children were taught a game called “freeze-unfreeze.” Each child was given a plush squid to balance on their head (see Figure 5). Since the squids varied in color and size, and might differ in attractiveness for the children, the participants were allowed to choose their own squid. Before the game began, I demonstrated the game by performing it in front of the children.

According to the rules of the game, as soon as the music started, the children were required to move—or dance if they wished—within the designated play area while balancing the squids on their heads. Due to their shape, the plush squids were difficult to balance on the head (see Appendix for the detailed script of the game).

If a child’s squid fell off, they had to freeze and were not allowed to touch the fallen squid. They could start moving again only if another child picked up the squid and placed it back on their head. The game lasted exactly 8 minutes and 23 seconds, matching the total length of three pre-selected children’s songs.



Figure 5. The squid toys that children tried to balance on their heads in the third game.

Teacher Questionnaire

I administered a questionnaire (see Appendix) to the main teachers of the participating classess in which they were asked to list each participating child's closest friends—selected only from among the children who took part in the study—in order to enhance the reliability of the data on peer relationships. This questionnaire also included a continuous graphical scale consisting of 8 items, designed to assess each participating child's prosocial behavior and social dominance. The scale was designed as a visual analog scale ranging from “Does not apply at all” to “Applies very much”, where the evaluator marked a point on a horizontal line to indicate the degree of agreement. Only the four items related to prosocial behavior were included in the analysis.

Procedure

This study was conducted at two kindergartens in Eskişehir, Turkey. Following individual meetings that I conducted, these kindergartens were included in the study; both are state-run institutions under the authority of the Eskişehir Metropolitan Municipality. The research permit was obtained directly from this institution.

The games were conducted by me through weekly visits to the relevant kindergartens. The children were not required to be brought to any other location. The experiments took place in an environment where the children were familiar and felt safe, which allowed me to observe their behaviors without the potential disruptive effects of a novel, unfamiliar, and structured laboratory setting. On the days the games were played, a suitable and available classroom in the relevant kindergarten was arranged by the kindergarten headmistress. The game sessions and the friendship test were conducted within the same time window—between 9:00 and 11:00 a.m.—in both Austria and Turkey.

Behavior Scoring and Statistical Analysis

All videos were scored using Solomon Coder ([Version 19.08.02; Peter, 2019](#)) (see Appendix for the ethogram used for coding) and all tests were calculated in R.

Friendship Assessment

During the analysis, I assessed the level of agreement between the responses given by the children in the first and second rounds by applying the weighted Cohen's Kappa test.

At the next stage, I manually compared two separate lists: the answers that the focal children gave about the other participating children in the first round, when I asked them directly, and the answers they gave in the second round, when the photographs were reshuffled and they placed them independently. The compared results were then coded as binary categorical variable; "friend" or "not friend". Only the children who were placed in the green column — meaning the "I like to play with" column — in both phases were coded as "friend". All other color combinations were coded as "not friend". For example, even if a child was placed in the green column in the first round, if they were placed in the yellow or red face in the second round, they were not considered a friend.

In the next step, a Z-test was conducted to determine whether there was a significant difference between the two countries in terms of the consistency of children's friendships.

In addition, I conducted an independent samples t-test to compare the two countries in order to examine whether Turkish children, coming from a collectivist culture, had more friends than Austrian children.

1. Game

In the first game, the prosocial behavior indicator “sharing” was operationalized as whether the focal child hand over the toy to another child after playing with it. This behavior was coded in Solomon Coder under the variable “give to”. In some cases, children dropped the toy while attempting to hand it over to a specific peer, or the action was interrupted by another child trying to take the toy. These instances were coded as “fail give to” and were also considered indicators of prosocial behavior, similar to the “give to” variable. The rationale behind this is that, although the act of sharing was not successfully completed, both behaviors were initiated with the same prosocial intent. Which child the toy was extended to was coded as the variable “directed to” for both behaviors.

At the first stage of the analysis, for each child and each session I separately summed the numbers of ‘give to’ and ‘fail give to’ behaviors to create the variables *sum give* and *sum fail give*. I then computed each child’s total prosocial behavior (*all give* = *sum give* + *sum fail give*). This approach allowed me to quantify each child’s total frequency of prosocial behavior in each session.

Subsequently, Shapiro–Wilk tests were conducted to determine the appropriate correlation for assessing consistency across the three sessions, and the results indicated significant departures from normality for all variables in both country samples (all $p < .05$). Accordingly, nonparametric Spearman rank correlations were applied to both successful sharing behaviors (*sum give*) and the total number of attempts (*all give* = *sum give* + *sum fail give*) for both country.

Following these results, to control Type I error from multiple pairwise tests within each outcome ($m = 3$), p -values were adjusted using the Holm–Bonferroni method. In Austria, for *sum give*, S1–S2 ($p_h = .022$) and S1–S3 ($p_h = .043$) remained significant, whereas S2–S3 did not ($p_h = .054$). For *all give*, all pairs remained significant ($p_h = .003, .031, .030$). In Turkey, for both *sum give* and *all give*, only S2–S3 remained significant ($p_h = .006$), while S1–S2 ($p_h = .067$) and S1–S3 ($p_h = .101$) were not. Therefore, averaging across sessions was not ordinarily a primary approach. Accordingly, as the primary analysis, I focused on Session 1 (naïve behavior)—in which children were not influenced by prior sessions—while analyzing session averages as an additional/secondary summary for the reasons noted above; namely, they attenuate random fluctuations specific to any single session (e.g., day-to-day circumstances)

and better reflect each child's typical level of behavior, and they provide a single, comparable summary measure across children.

For the three sessions, children's mean frequencies of prosocial behavior were calculated based on the number of sessions in which they actually participated. Subsequently, the normality of the average sharing behavior scores was tested for each country using the Shapiro–Wilk test on the variables “give mean” and “all give mean” for each country. The results indicated that the distributions in the Austrian sample significantly deviated from normality (*give mean*: $p = .01$; *all give mean*: $p = .03$), whereas the Turkish sample showed normal distribution (*give mean*: $p = .17$; *all give mean*: $p = .17$). As one group met the assumption of normality and the other did not, the non-parametric Mann–Whitney U test was chosen to compare the average sharing scores between the two countries.

In the next step, I examined whether children shared more with friends than non-friends. To ensure a paired comparison, I restricted the sample to children who had nominations in both categories (*friends* and *non-friends*). A total of eight children (Austria: 3, Turkey: 5) were excluded from the friendship-related analyses both for the first game and of the third game. These children provided uniform responses in the friendship task (e.g., classifying all peers either as “friends” or as “non-friends”), and therefore it is unknown how they would behave toward peers in the alternative category. Within each country, I used paired Wilcoxon signed-rank tests to compare the number of successful sharing acts (*sum give1*) and the total number of sharing attempts (*all give1*) directed toward friends vs. non-friends. In a second step, I compared Austria and Turkey between countries for each friendship category separately using Mann–Whitney U tests.

I then extended the analysis by averaging sharing behavior across sessions, focusing on the mean number of successful sharing actions (*give mean*) and the mean total attempts (*all give mean*) toward friends vs. non-friends. Again, I retained only children with both friendship categories and used paired Wilcoxon signed-rank tests within each country (friends vs. non-friends), followed by Mann–Whitney U tests to compare Austria and Turkey separately for friends and for non-friends.

3. Game

In this game, prosocial behavior was defined as a child picking up another child's fallen plush squid, placing it back on their head, and the assisted child subsequently resuming movement. This behavior was coded under the variable "receive" while the child who provided the help was recorded under the variable "received from".

In addition, every act of picking up the plush squid from the ground to help was coded under the variable "pick up". However, not all of these helping attempts were successfully completed. For example, due to the difficulty of balancing the plush toy on the head, it sometimes could not be properly placed and would fall again, or it would fall because of collisions with other moving children. In some cases, the child attempting to help would freeze because they dropped their own toy while trying to assist. Nevertheless, similar to the coding in the first game, all "pick up" behaviors—regardless of whether they resulted in a successful outcome—were considered indicators of prosocial intent and were thus treated as prosocial behaviors in the analysis. The child who was attempted to be helped by picking up the toy was coded as the variable "directed to". The dataset I created at the end of these codings consisted of how many times each child received help from whom, and how many times each child acted with the intention of helping whom.

At the outset of the analysis, session-wise frequencies of all helping attempts (*pick up*) were calculated separately for each child. In addition, an overall mean score (*pickup mean*) was computed for each child by averaging across the sessions in which they had participated.

To evaluate distributional assumptions, Shapiro–Wilk tests of normality were conducted separately for each country. Results indicated significant deviations from normality in all session-wise pickup variables and in the overall pickup mean in both Austria and Turkey. Consequently, non-parametric statistical methods were employed in all subsequent analyses.

Next, consistency across sessions was assessed using Spearman's rank-order correlations, with p-values adjusted via Holm–Bonferroni correction to control for multiple comparisons. In the Austrian sample, all session pairs remained significant ($S1-S2$: $\rho = .70$, $p_h < .001$; $S1-S3$: $\rho = .55$, $p_h = .016$; $S2-S3$: $\rho = .77$, $p_h < .001$). In contrast, in the Turkish sample, significant correlations were observed for $S1-S2$ ($\rho = .49$, $p_h = .041$) and $S2-S3$ ($\rho = .66$, $p_h = .005$), whereas the association between $S1$ and $S3$ did not reach significance ($\rho = .37$, $p_h = .086$). This pattern indicated limited cross-session consistency in Turkey, particularly between Sessions 1

and 3, averaging across sessions was not adopted as a primary approach. Accordingly, the primary analysis focused on Session 1 (naïve behavior), and session means were reported only as an additional/secondary summary to provide a single, comparable summary measure.

Thereafter, Mann–Whitney U tests were performed to assess possible cross-cultural differences, considering both Session 1 and the averaged session scores.

In the next step, for the "pick up" variable, the frequency of helping behaviors directed toward friends and non-friends in Session 1 was examined. For this purpose, the number of helping attempts toward each category was calculated for every child, and only those who had observations in both categories were included in the analysis. Subsequently, Wilcoxon signed-rank tests were conducted separately within each country to compare children's helping frequencies toward friends versus non-friends. Finally, to investigate potential cross-cultural differences, Mann–Whitney U tests were carried out, with separate comparisons made for the friend and non-friend conditions.

Subsequently, to evaluate the role of friendship status in children's helping behavior based on average scores, the mean frequency of the "pick up" behavior across the three sessions was calculated separately for friends and non-friends for each child. Thereafter, Wilcoxon signed-rank tests were conducted within each country to compare children's helping frequencies toward friends versus non-friends. Finally, Mann–Whitney U tests were employed to examine potential cultural differences, with comparisons performed separately for the friend and non-friend conditions.

The next focus of the analysis, in contrast to the pick up variable which encompassed all helping attempts, was the receive variable, representing successful help received by children. Similar to the previous analyses, for each child, the total frequency of received help was first summed separately for each session, and an average score (receive mean) was subsequently calculated across the sessions in which the child participated.

To evaluate distributional assumptions, Shapiro–Wilk tests of normality were conducted separately for each country. As normality assumptions were not met for the session-wise variables, Spearman's rank-order correlations were used to assess session-to-session consistency.

The correlation analyses revealed that, in Austria, none of the session pairs were significantly associated ($S1-S2: r_s = .14, p = .512$; $S1-S3: r_s = -.23, p = .339$; $S2-S3: r_s = .31, p = .167$). In contrast, in the Turkish sample, strong and significant correlations were observed across all session pairs ($S1-S2: r_s = .65, p = .001$; $S1-S3: r_s = .69, p < .001$; $S2-S3: r_s = .64, p = .002$). Based on these findings, Session 1 was prioritized as the primary measure for cross-cultural comparisons, while the receive mean was considered as an additional summary indicator.

Cross-cultural comparisons for Session 1 were performed using the Mann–Whitney U test, whereas comparisons of the receive mean employed an independent-samples t-test, as the distributional assumptions were met. Prior to the t-test, Levene’s test confirmed equality of variances ($F(1,60) = 2.54, p = .116$).

Building on these analyses, the role of friendship status was examined. For each child, the number of successful helps received from friends and non-friends was first calculated in Session 1. Wilcoxon signed-rank tests were then conducted separately within each country to compare children’s frequencies of received help from friends versus non-friends, followed by Mann–Whitney U tests to assess potential cross-cultural differences within each friendship category.

Finally, the average frequency of received help across the three sessions (receive mean) was calculated separately for friends and non-friends. Shapiro–Wilk tests indicated normal distributions for these average scores in both Austria ($W = 0.962, p = .347$) and Turkey ($W = 0.954, p = .185$). Furthermore, Levene’s tests confirmed homogeneity of variances between the two countries for both friends ($F = 1.05, p = .310$) and non-friends ($F = 0.49, p = .485$). Accordingly, paired-samples t-tests were employed within each country to compare helps received from friends versus non-friends, and independent-samples t-tests were conducted to examine cultural differences within each friendship category.

Teacher Questionnaire

In the first section of the questionnaire administered to teachers, teachers' reports of each child's closest friend were compared with the children's friendship test results; accordingly, the consistency of the children's friendship nominations was assessed using Cohen's Kappa.

While each of the four groups in Austria had two main teachers, only one of the four groups in Turkey had two main teachers. A separate consistency analysis was applied to the evaluations of the two teachers in each Austrian class and to the evaluations of the two teachers in the single Turkish class.

In addition, in the only classroom within the Turkish sample that had two teachers, I aimed to evaluate the consistency between the second teacher's friendship evaluations and the children's own nominations, as well as the consistency with the other teacher. However, this analysis could not be conducted due to the lack of variability in the second teacher's responses. Specifically, the teacher evaluated all children uniformly by giving only the response "friend." Cohen's Kappa requires that both raters use at least two distinct response categories in order to calculate agreement beyond chance. This complete uniformity in responses meant that there was zero variance in the teacher's evaluations, which made a meaningful statistical comparison impossible. Therefore, no Kappa coefficient could be reported for the second teacher in this classroom.

In the second part of the questionnaire, which evaluated the children's prosocial behaviors, Cronbach's Alpha analysis was conducted on the four relevant items to test whether they had internal consistency before calculating a mean prosociality score for the children in the classes with two teachers. In the Austrian sample, Cronbach's alpha indicated excellent reliability ($\alpha = .89$ for Teacher 1; $\alpha = .88$ for Teacher 2). In the Turkish sample, the scale also showed good internal consistency ($\alpha = .85$ for Teacher 1; $\alpha = .82$ for Teacher 2). Given the high internal consistency, the calculation of average prosociality scores was deemed appropriate.

In Austria, scores from two teachers per classroom were averaged to obtain a single prosociality score for each child. In Turkey, only one classroom had two teachers whose scores were averaged; in the other classrooms, scores from a single teacher were used directly. Subsequently, an overall prosociality score for each child was calculated by averaging the scores across the four items.

In the next stage, the normality of the distribution of average prosociality scores in both countries was tested using the Shapiro-Wilk test. The analyses showed that prosociality scores were normally distributed in both the Austrian sample ($W = 0.958$, $p = 0.260$) and the Turkish sample ($W = 0.954$, $p = 0.193$). This required the use of an independent samples t-test to examine whether there was a significant difference between the prosociality scores of the two countries.

Results

Participant Demographics

A total of 63 preschool children participated in the study, including 32 from Turkey and 31 from Austria. The mean age of the Turkish sample was 4.59 years (range: 3.92–5.25), while the Austrian sample had a mean age of 4.92 years (range: 3.17–6.42). The gender distribution was balanced across both groups: the Turkish sample included 15 girls and 17 boys, and the Austrian sample included 15 girls and 16 boys. All children participated in the friendship test without exception. In the Austrian sample, only one child participated in the friendship test but did not take part in any of the three games. By contrast, all children in the Turkish sample participated in at least one session. The children's participation rates across three sessions are shown separately for Austria and Turkey in Table 1.

Table 1. Number of children who attended and did not attend each of the three sessions in Austria and Turkey.

Country	Session	Not Attended	Attended	Total
Austria	Session 1	5	26	31
	Session 2	5	26	31
	Session 3	8	23	31
Turkey	Session 1	1	31	32
	Session 2	9	23	32
	Session 3	9	23	32

Friendship Assessment

To assess the test–retest reliability of children’s friendship nominations, weighted Cohen’s Kappa coefficients were calculated separately for the Austrian and Turkish samples. In the Austrian sample, the agreement between the two rounds was moderate ($\kappa = 0.54$), with 159 consistent nominations out of 226 comparisons (see Table 2). In contrast, the Turkish sample showed substantial agreement ($\kappa = 0.73$), with 196 consistent nominations out of 234 comparisons (see Table 3).

Table 2. Children’s responses in the first and second rounds of the friendship test in the Austrian sample.

		2. Round			
1. Round		Green	Red	Yellow	Total
	Green	107	10	12	129
	Red	5	22	12	39
	Yellow	15	13	30	58
	Total	127	45	54	226

Table 3. Children’s responses in the first and second rounds of the friendship test in the Turkish sample.

		2. Round			
1. Round		Green	Red	Yellow	Total
	Green	132	7	10	149
	Red	8	29	3	40
	Yellow	4	6	35	45
	Total	144	42	48	234

Austrian children reported 107 friendships and 119 non-friendships, whereas Turkish children reported 132 friendships and 102 non-friendships. On average, Austrian children had 3.45 friends (range = 0–8) and 3.84 non-friends (range = 0–10), while Turkish children had 4.12 friends (range = 1–9) and 3.19 non-friends (range = 0–7).

Although Turkish children appeared to have a higher mean number of friends ($M = 4.12$, $SD = 2.18$) compared to Austrian children ($M = 3.45$, $SD = 2.22$), an independent samples t-test ($t(61) = -1.21$, $p = .22$) showed that this difference was not statistically significant between the two countries.

Following this, a Z-test comparing the weighted Kappa values of the two countries revealed a statistically significant difference between the consistency levels of friendship nominations (Austria: $\kappa = 0.54$, $z = -2.70$, $p = .007$; Turkey: $\kappa = 0.73$, $z = -2.70$, $p = .007$). These results indicate that children in the Turkish sample were significantly more consistent in their friendship choices across rounds.

In addition, the consistency between children's friendship nominations and teachers' nominations of each child's best friend, and the consistency between the friendship nominations of two teachers in groups with two teachers, was also examined. According to the results of Cohen's Kappa, in the Austrian sample, the agreement between the two teachers' friendship nominations was found to be almost perfect and statistically significant ($\kappa = 0.800$, $p < .001$). The agreement between the first teachers' friendship evaluations and the children's own friendship nominations was found to be moderate and statistically significant ($\kappa = 0.281$, $p < .001$). Similarly, the second teachers' evaluations also showed a moderate and statistically significant agreement with the children's friendship nominations ($\kappa = 0.291$, $p < .001$).

In the Turkish sample, a moderate level of agreement was found between the teachers' evaluations and the children's reported friendships ($\kappa = 0.323$, $p < .001$).

1. Game

To examine whether there were between-country differences in prosocial behavior, comparisons were conducted for both Session 1 and the average across the three sessions. Results for *Session 1* indicated no significant difference between countries in either the number of successful sharing behaviors (*sum give1*: $W = 445$, $p = .49$) or the total number of sharing attempts (*all give1*: $W = 471$, $p = .26$) (see Figure 6). Similarly, no significant differences were found in the mean scores across sessions. The average number of successful sharing behaviors did not differ significantly between groups (*give mean*: $W = 564.5$, $p = .23$), nor did the average number of total sharing attempts (*all give mean*: $W = 576.5$, $p = .17$) (see Figure 7).

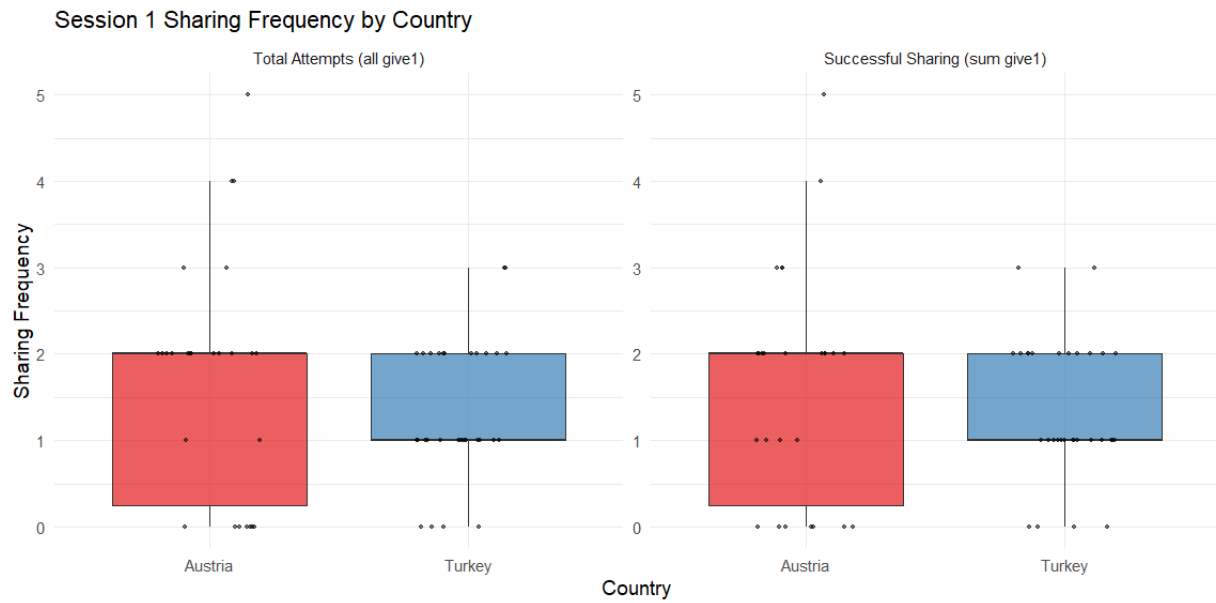


Figure 6. Boxplots of children's sharing frequencies in Session 1, by country (Austria = Red; Turkey = Blue).

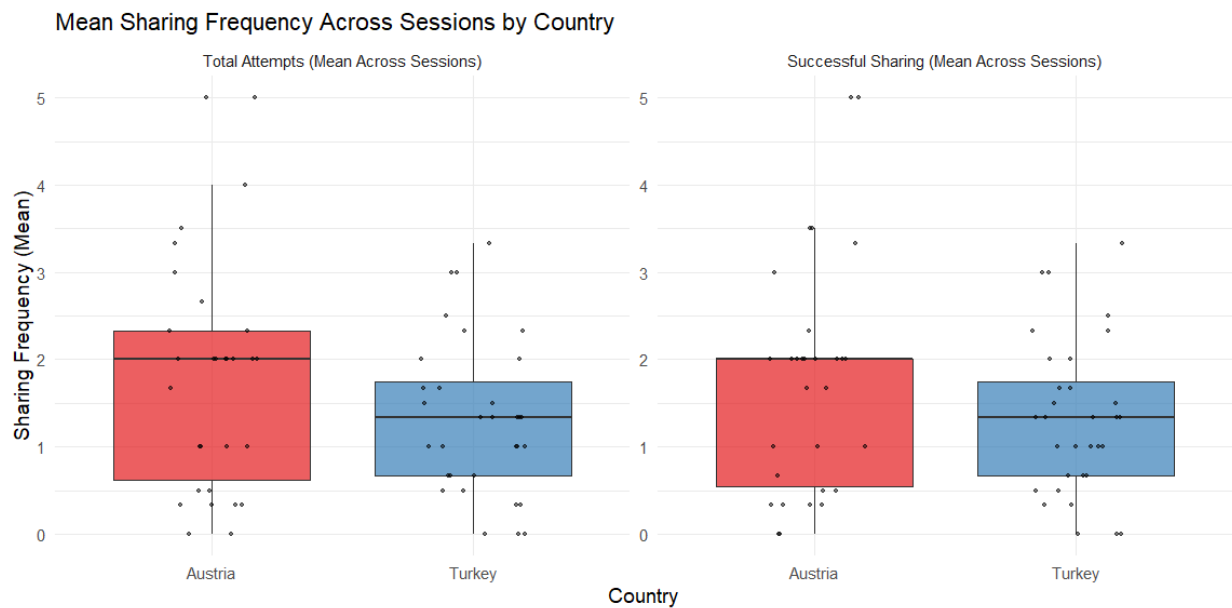


Figure 7. Boxplots of children's mean sharing frequencies across the three sessions, by country (Austria = Red; Turkey = Blue).

In the next step, I examined whether children's sharing behavior varied according to the recipient's friendship status in Session 1. To determine whether children showed a consistent

preference for sharing with friends over non-friends, I conducted within-group comparisons separately for the Austrian and Turkish samples using Wilcoxon signed-rank tests. In the Austrian group, the difference was statistically significant both for successful sharing behaviors (*sum give1*: $V = 96.5$, $p = .037$) and for the total number of sharing attempts (*all give1*: $V = 85.5$, $p = .037$), indicating that children shared more with friends than with non-friends. In contrast, in the Turkish group, the difference between friends and non-friends was not statistically significant for either successful sharing (*sum give1*: $V = 142.5$, $p = .15$) or total attempts (*all give1*: $V = 142.5$, $p = .15$) (see Figure 8).

Cross-cultural comparisons using Mann–Whitney U tests showed no significant differences between Austrian and Turkish children in either successful sharing or total attempts, for both friends (*sum give1*: $W = 369.5$, $p = .243$; *all give1*: $W = 376.5$, $p = .189$) and non-friends (*sum give1*: $W = 292$, $p = .663$; *all give1*: $W = 304.5$, $p = .877$).

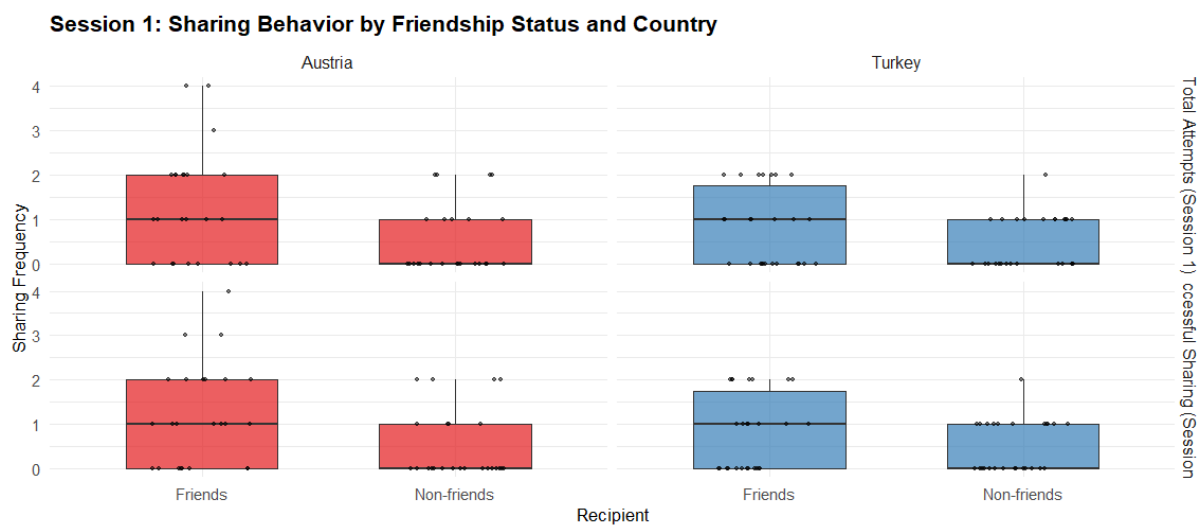


Figure 8. Session 1 sharing by friendship status (Friends vs. Non-friends) in Austria (red) and Turkey (blue).

Following the friendship-status comparisons conducted solely for Session 1, I next compared, between friends and non-friends, the averages of sharing across the three sessions. In Austria, children shared significantly more with their friends than with non-friends, both for successful sharing (*give mean*: $V = 262$, $p = .001$) and for total sharing attempts (*all give mean*: $V = 265$, $p = .001$). In contrast, in Turkey, the within-child difference between friends and non-friends

was not statistically significant for either indicator (*give mean*: $V = 149.5$, $p = .24$; *all give mean*: $V = 149.5$, $p = .24$) (see Figure 9).

To assess cultural differences, Mann–Whitney U tests were run to compare Austrian and Turkish participants separately for friends and non-friends. The results revealed no significant between-country differences for friends in successful sharing (*give mean*: $W = 466.5$, $p = .074$) or for non-friends on either metric (*give mean*: $W = 309.5$, $p = .31$; *all give mean*: $W = 319.5$, $p = .41$). However, among friends, Austrian children made significantly more total sharing attempts than Turkish children (*all give mean*: $W = 481$, $p = .041$).

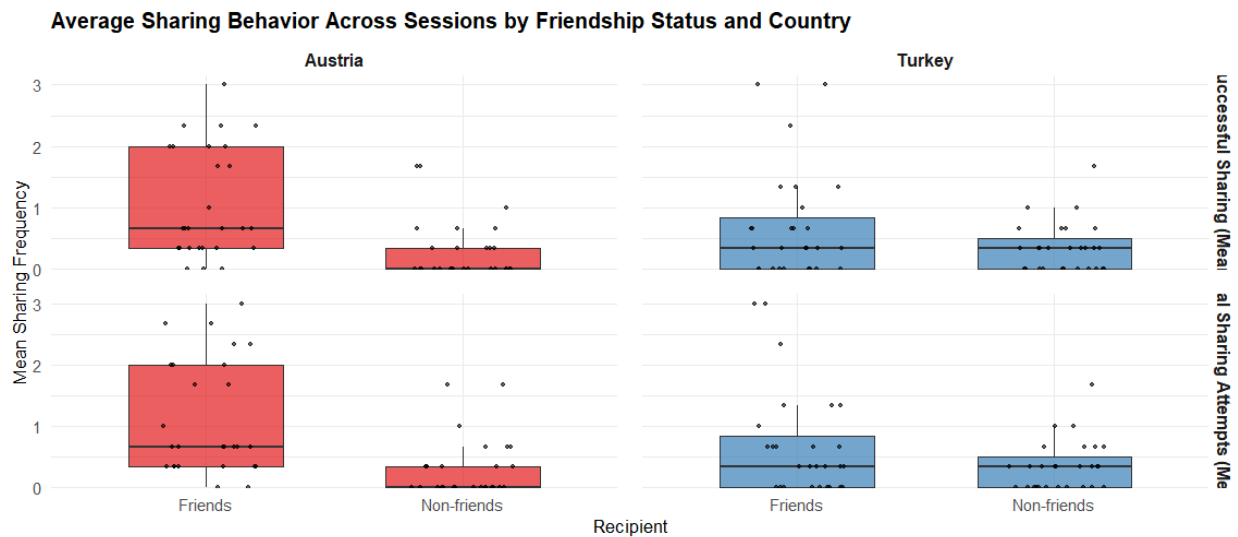


Figure 9. Boxplots of children's average sharing behavior toward friends and non-friends across all three sessions, by country (Austria = Red; Turkey = Blue).

3. Game

To examine whether there were cultural differences in the level of prosocial behavior (i.e., helping), the total “pick up” (i.e., all successful helping attempts) scores of Austrian and Turkish children in the first session were first compared with their mean scores across the three sessions using Mann–Whitney U tests. The results showed no significant differences between the two groups, either in the first session (*pick up1*: $W = 348$, $p = .376$) or in the overall mean (*pick up mean*: $W = 384$, $p = .178$) (see Figure 10).

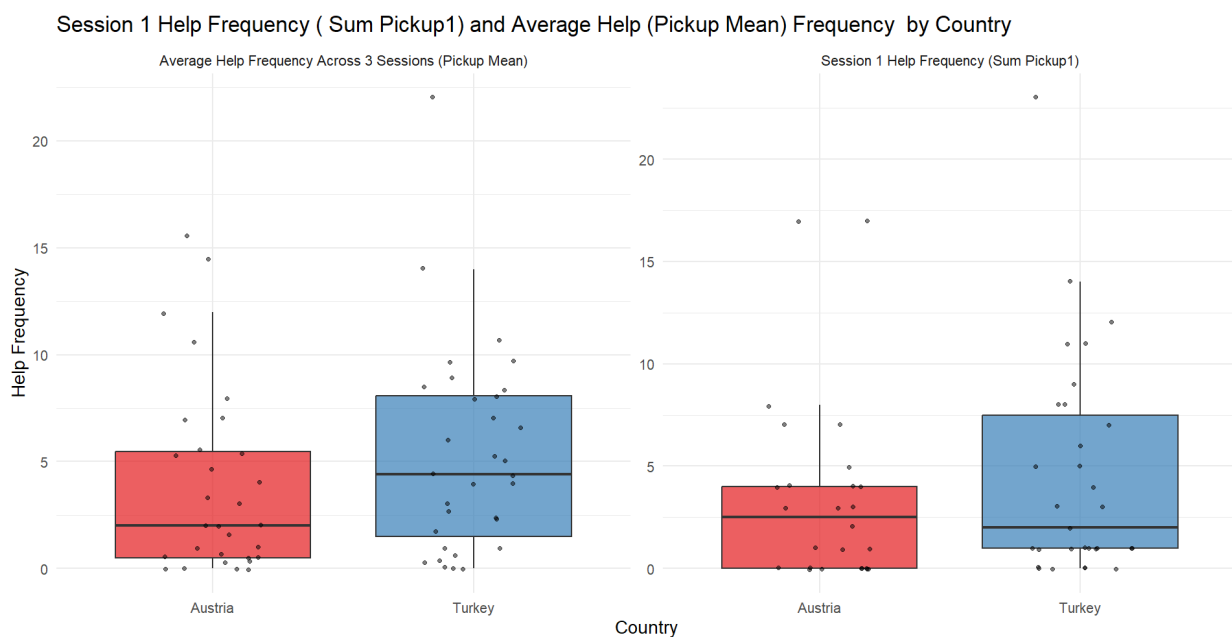


Figure 10. Comparison of the frequencies of helping behavior between the two countries (Austria = Red; Turkey = Blue) in Session 1 and in the mean across the three sessions.

In the next stage of the analysis, for the “pick up” variable in Session 1, it was examined whether friendship constituted a factor in children’s helping behavior. According to the Wilcoxon signed-rank test, Austrian children helped their friends significantly more often than non-friends ($V = 112$, $p = .024$). In contrast, the Wilcoxon test for the Turkish group showed no significant difference between friends and non-friends ($V = 102$, $p = .481$). Furthermore, Mann–Whitney U tests indicated no significant cross-cultural differences in helping frequency, either for friends ($W = 328$, $p = .757$) or for non-friends ($W = 248.5$, $p = .172$) (see Figure 11).

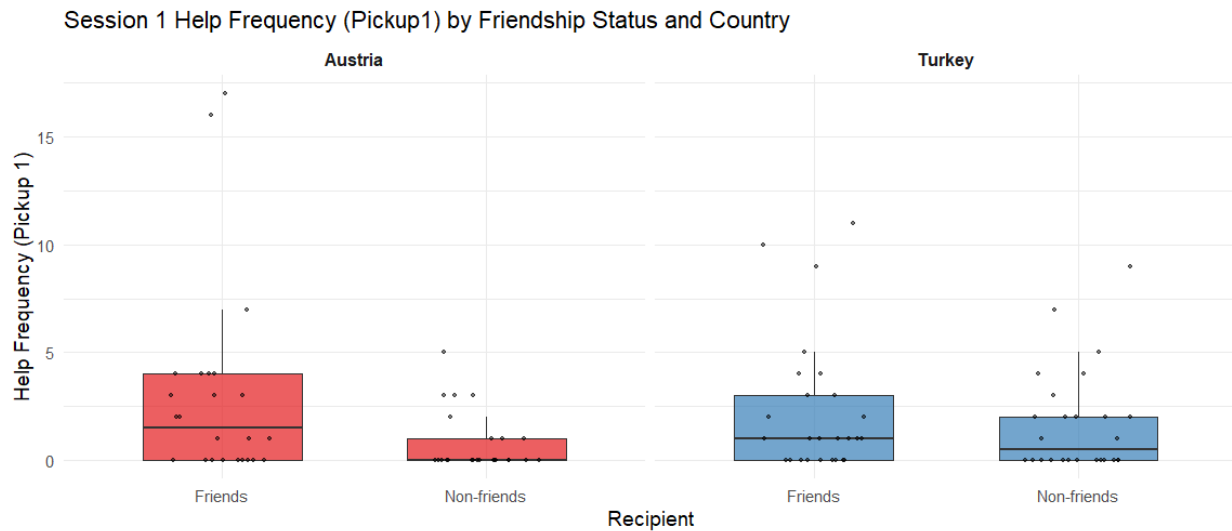


Figure 11. Boxplots of children's helping frequencies ("pick up" behavior) toward friends and non-friends in Session 1, by country (Austria = Red; Turkey = Blue).

Next, children's helping behaviors (pick up) were also examined in terms of whether they differed according to friendship status, based on the averages across the three sessions. A Wilcoxon signed-rank test showed that Austrian children helped their friends significantly more often than non-friends ($V = 167.5$, $p = .020$). In the Turkish group, however, the Wilcoxon test revealed no significant difference between friends and non-friends ($V = 195$, $p = .086$). Furthermore, Mann–Whitney U tests indicated no significant cross-cultural differences in helping behavior, either for friends ($W = 340.5$, $p = .682$) or for non-friends ($W = 362$, $p = .972$) (see Figure 12).

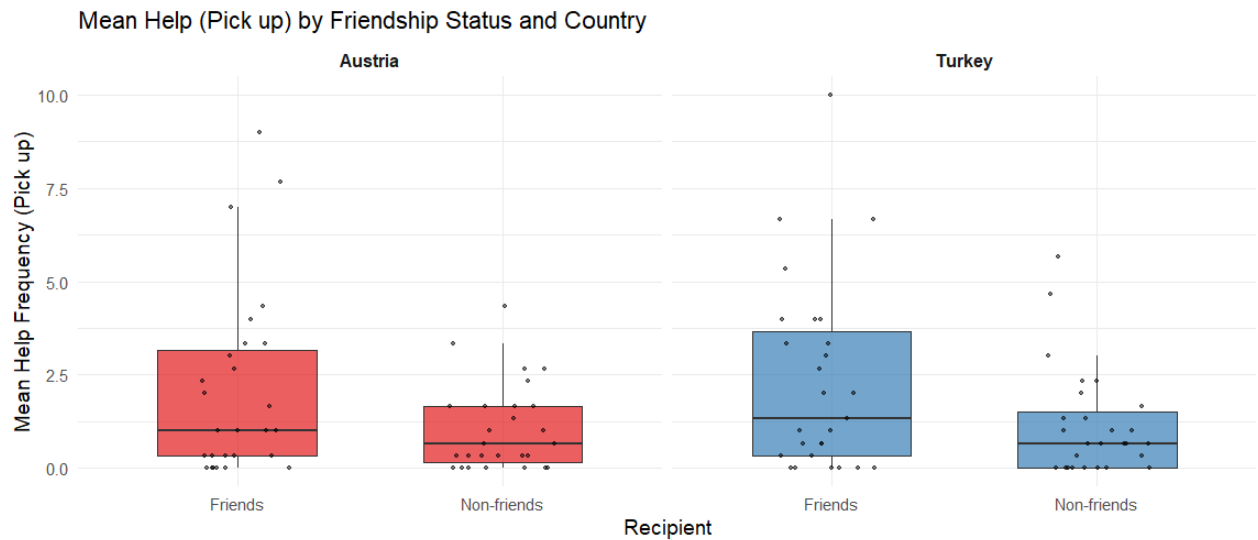


Figure 12. Boxplots of children's average helping frequencies ("pick up" behavior) toward friends and non-friends across the three sessions, by country (Austria = Red; Turkey = Blue).

The next focus of my analysis, in contrast to the "pick up" variable which encompassed all helping attempts, was the "receive" variable, representing successful help received by children.

Two separate analyses were conducted to examine whether children's successful receipt of help differed across cultures. First, A Mann–Whitney U test was performed to compare the frequency of receiving help in Session 1 between the Austrian and Turkish samples. The analysis revealed no significant difference between the groups (*sum receive1*: $W = 328.5$, $p = .231$), indicating that children in both groups received similar levels of successful help in the first session. The same comparison was conducted using the averages of receiving help (receive mean) across the three sessions. The results of the independent samples t-test indicated no significant cultural difference in mean receive scores across sessions (receive mean: $t(60) = -1.42$, $p = .160$) (see Figure 13).

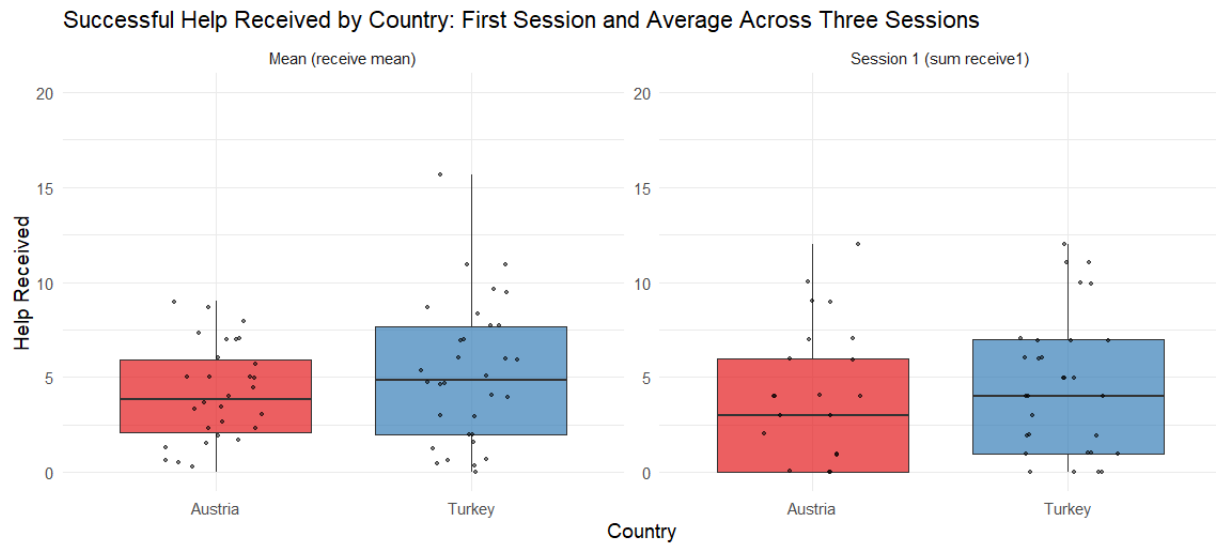


Figure 13. Boxplots of children’s successful receipt of help in Session 1 and as averages across the three sessions, by country (Austria = Red; Turkey = Blue).

Building on the previous analyses, the next step was to investigate whether the receipt of help in Session 1 differed according to the helper’s friendship status. Paired Wilcoxon signed-rank tests were conducted separately for each country to compare the amount of help children received from friends and from non-friends. The analysis showed no significant difference in the Austrian group ($V = 66.5$, $p = .959$) and likewise no significant difference in the Turkish group ($V = 108$, $p = .336$). To further explore cross-cultural variation, Mann–Whitney U tests were applied to compare Austrian and Turkish children within the friend and non-friend categories. Again, no significant cultural differences were observed, either for help received from friends ($W = 265$, $p = .349$) or from non-friends ($W = 323$, $p = .830$) (see Figure 14).

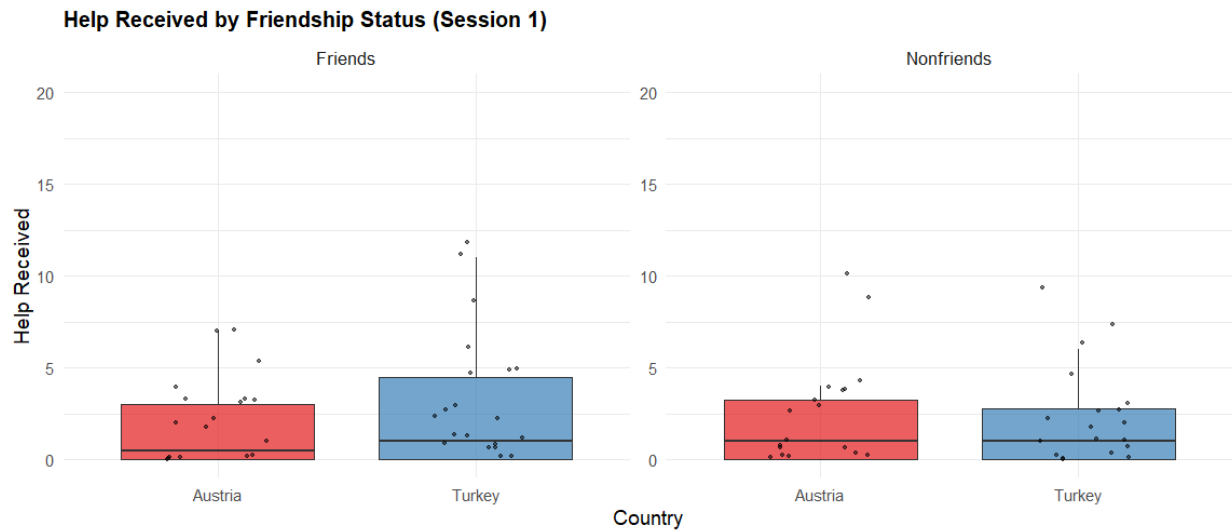


Figure 14. Boxplots of children's successful receipt of help from friends and non-friends in Session 1, by country (Austria = Red; Turkey = Blue).

Following this, I expanded the analysis to investigate whether the average frequency of receiving help across the three sessions differed depending on the helper's friendship status. Paired samples t-tests showed no significant difference in the Austrian group between help received from friends and non-friends ($t(26) = 0.38, p = .707$). Similarly, the Turkish group also showed no significant difference in the amount of help received from friends versus non-friends ($t(26) = 0.89, p = .382$).

In addition, independent samples t-tests were carried out to assess potential cultural differences within each friendship category. The results indicated no significant differences between Austrian and Turkish children, either for help received from friends ($t(52) = -0.86, p = .391$) or from non-friends ($t(52) = -0.22, p = .828$) (see Figure 15).

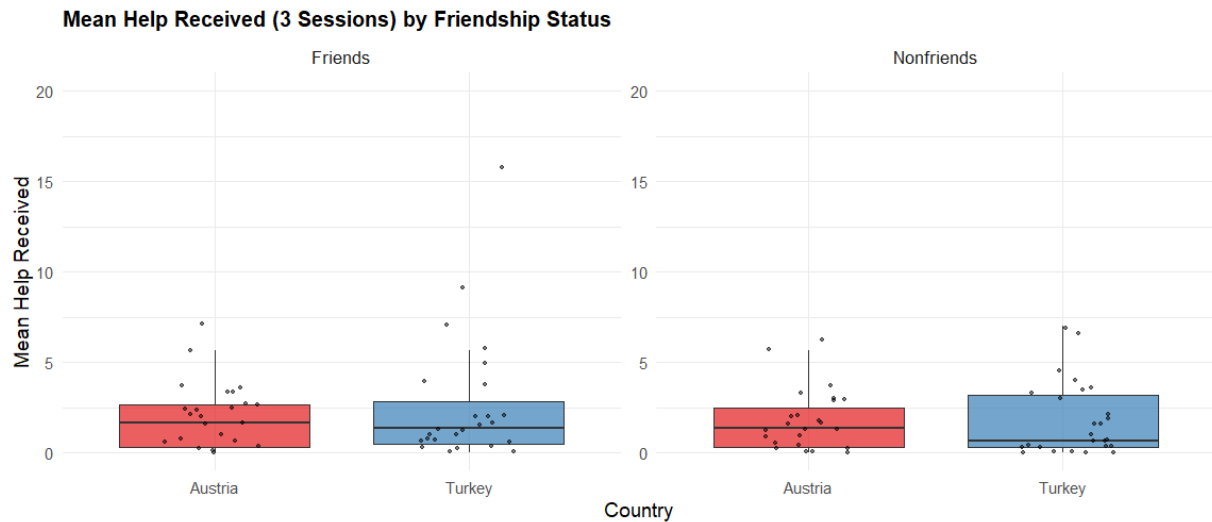


Figure 15. Average help-received scores across three sessions are presented separately by friendship status and country (Austria = Red; Turkey = Blue).

Teacher Questionnaire

An independent samples t-test was conducted to examine whether there was a significant difference in average prosociality scores between Austrian and Turkish children based on teachers' ratings. The test revealed no statistically significant difference between the two groups ($t(60.90) = -1.31, p = .194$). The mean prosociality score was 5.37 (SD = 1.94) for the Austrian sample and 6.01 (SD = 1.92) for the Turkish sample. The results are illustrated in Figure 16.

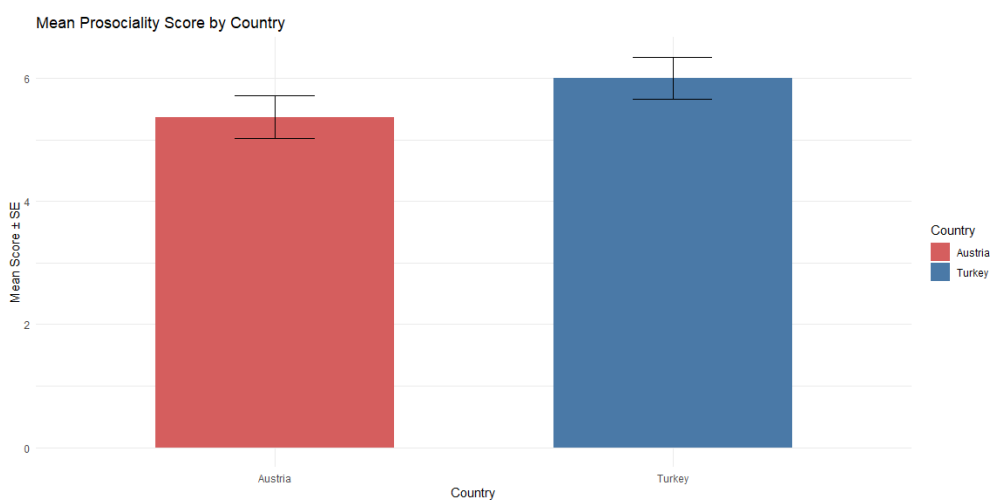


Figure 16. Boxplots of children's average prosociality scores based on teachers' ratings, by country (Austria = Red; Turkey = Blue)

Discussion

Findings

The present study examined the prosocial behaviors and friendship relations of preschool children in two different countries representing individualistic (Austria) and collectivist (Turkey) cultural contexts, using a multifaceted research design.

In the cross-cultural context, I proposed three main hypotheses with the aim of examining prosocial behaviors in preschool children within the framework of friendship relations:

Hypothesis 1 (*Sharing Game*): Contrary to my initial expectation, no significant differences were found between Turkish and Austrian children in the overall frequency of prosocial sharing. This was true both in Session 1, where children's initial and uninfluenced behavior was observed, and in the average sharing scores across the three sessions. However, friendship-related patterns diverged between the two groups. Austrian children shared significantly more with friends than with non-friends, both in Session 1 and in the session averages. In contrast, Turkish children did not show a significant difference in their sharing behavior toward friends versus non-friends.

Cross-country comparisons revealed no significant differences in Session 1, either for friends or non-friends. When averages across sessions were considered, no significant difference emerged in successful sharing with friends, but Austrian children made significantly more total sharing attempts with friends than Turkish children. For sharing with non-friends, no significant differences were observed between the two countries.

Hypothesis 2 (*Helping Game*): Analyses of the *pick up* variable (all helping attempts) showed that both Austrian and Turkish children helped with similar frequency in Session 1 as well as in the average across the three sessions, and no significant differences were found. When examining friendship status, Austrian children helped their friends significantly more often than non-friends in Session 1, whereas in the Turkish group this difference was not statistically significant. When averages across sessions were considered, Austrian children again helped their friends significantly more often than non-friends, while Turkish children did not show a significant difference. However, no significant cross-cultural differences were found in helping behavior directed toward either friends or non-friends.

Analyses of the receive variable (successful help received) also revealed no significant differences between the two countries in terms of the frequency of help. Both Austrian and Turkish children received similar levels of help in Session 1 as well as in the average across the

three sessions. When friendship status was considered, no significant differences were found in Session 1 in either country. Austrian children did not differ in the amount of help they received from friends versus non-friends, and Turkish children likewise showed no statistically significant differences. When the averages across sessions were examined, children in both countries again showed no significant differences in the amount of help received from friends versus non-friends. Cross-cultural comparisons also indicated no significant differences in the amount of help children received from either friends or non-friends.

Hypothesis 3 (Teacher Ratings): Teacher ratings did not reveal a significant cultural difference in children's prosocial behavior. Austrian and Turkish children received similar levels of scores. These findings suggest that the cultural orientations in question were not reflected in teachers' evaluations of prosocial behavior in this study.

In addition to the three main hypotheses, I examined two further aspects of children's friendship relations. First, I compared the number of friends of Turkish and Austrian children. Although it was expected that children in the collectivist context would have a greater number of friends, the results did not reveal a significant cultural difference.

Second, I compared the consistency of children's friendships nominations between the two groups. Here, Turkish children demonstrated significantly greater consistency in their friendship nominations compared to Austrian children. This pattern suggests that Turkish children's friendships may be characterized by greater stability, which could be aligned with the collectivist cultural emphasis on close and enduring relationships.

Overall, the findings present a complex picture that does not easily align with my initial expectations. Across all three measures—sharing, helping, and teacher ratings—contrary to my expectation that children in collectivist contexts would display higher levels of prosocial behavior or receive higher prosociality scores, no consistent cultural differences emerged.

However, in both sharing behavior and in the analysis of the *pick up* variable in the Helping Game, results consistent with my expectations regarding friendship were obtained. In both games, Austrian children shared with or helped (*pick up*) their friends significantly more than non-friends. In contrast, Turkish children did not show a significant difference between friends and non-friends. These findings indicate that the role of friendship in prosocial behavior was more pronounced among Austrian children, whereas it did not clearly emerge among Turkish

children, suggesting the possibility that the collectivist cultural background of Turkish children may play a role. However, when the *receive* variable was considered, no differences were found in either Austrian or Turkish children with respect to friendship or culture. Therefore, providing a coherent interpretation of the findings proves to be particularly difficult.

One important methodological consideration in interpreting the findings of this study is the age differences between the two cultural samples. The mean age of the Turkish sample was 4.59 years (range: 3.92–5.25), whereas the Austrian sample was slightly older on average, at 4.92 years, and also displayed a much wider age range (3.17–6.42). Prosocial abilities emerge at different developmental stages and are closely related to age-dependent socio-cognitive competencies (e.g., Caputi et al., 2012; Taylor et al., 2013; Blair et al., 2004; Eisenberg et al., 1999) and underlying motivation (e.g., Zahn-Waxler et al., 1992; Vaish & Hepach, 2020; Engelmann & Rapp, 2018). For example, according to researchers such as Eisenberg (1986) and Hoffman (2000), this socio-cognitive development is the main factor behind the increase in prosocial behavior with age. Even a few months of age difference within this developmental process may influence the motivation and ability underlying prosocial behavior. Therefore, the difference in the age spectrum between the two samples may have contributed to the absence of the expected difference in the frequency of prosocial behavior. Moreover, the fact that children in Austria were placed in mixed-age groups, whereas children in Turkey were placed in same-age classrooms, may also have influenced the dynamics of their prosocial behavior.

Another factor that should be considered when interpreting the findings is the urban–rural or central–peripheral differences within the same cultural context. While the Austrian sample was recruited in Vienna, the capital city, the Turkish sample came from Eskişehir, a non-capital city, specifically from a neighborhood located in the periphery rather than the urban center. Prior research has shown that children’s prosocial and cooperative behaviors can vary not only across cultural contexts but also within the same country depending on whether children grow up in communal or urban environments. For instance, Israeli children raised in Kibbutz communities, which emphasize communal living and cooperation toward common goals, were found to display more social, cooperative, and other-oriented behaviors than their city-dwelling peers (Madsen & Shapira, 1977; Shapira & Madsen, 1969, 1974). Therefore, sociocultural differences between capital cities and provincial peripheries may also have influenced the expression of prosocial behaviors observed in this study.

An additional factor that may help explain the inconsistent findings in both my study and previous research could be that classifying societies solely as “individualistic” or “collectivist”

may be overly simplistic and may fail to adequately capture the cultural influences on prosocial behavior. Individualism and collectivism may coexist within the same cultural context, particularly in societies undergoing rapid transitions such as urbanization, globalization, or technological advances (Tamis-LeMonda et al., 2007). Over the past five decades, cultural boundaries may have become increasingly blurred, with elements of individualism gradually permeating societies long characterized as collectivist (Tamis-LeMonda et al., 2007).

In light of the findings and limitations of the present study, several methodological improvements can be suggested for future research. First, selecting more homogeneous age groups and comparable classroom structures would help minimize developmental differences. In addition, comparing samples from urban and rural settings could contribute to a better understanding of not only cross-cultural but also within-culture contextual differences in prosocial behavior.

It is also important to move beyond the one-dimensional classification of cultures as individualistic or collectivist and instead assess more multidimensional cultural variables. Some researchers have reported findings suggesting that differences may exist not only between collectivist and individualist cultures, but also between two collectivist cultures. For example, Rao and Stewart (1999) compared the prosocial behaviors of Chinese and Indian children and found that Chinese children engaged in helping and sharing behaviors more frequently. Although both societies exhibit collectivist characteristics, they reported that Chinese culture places a stronger and earlier emphasis on group harmony, emotional restraint, and respect for authority, whereas Indian culture values interpersonal responsibility but shows greater tolerance for emotional expression.

In this regard, experimental studies that measure children's prosocial behaviors can be complemented with parent questionnaires. Such questionnaires would provide additional data on children's prosocial tendencies while also capturing parents' cultural attitudes and belief systems in greater depth. This approach would allow for comparisons based on broader cultural criteria rather than relying solely on the individualism–collectivism distinction.

Finally, it should be noted that the present study was originally designed to investigate social dominance, peer acceptance, and prosociality (Wimmer, 2023). Researchers in future studies may take this into consideration and adjust or expand the experimental design to better align with their specific research focus.

Reliability of Assessments

In this study, children's self-reports served as the primary source of information in the friendship assessment, while teacher evaluations were considered as a complementary measure to support external validity. In the Turkish sample, children's friendship nominations showed a high level of consistency across two rounds, whereas in the Austrian sample, consistency was moderate. A Z-test confirmed that this difference was statistically significant, indicating that Turkish children were more consistent in their friendship nominations compared to their Austrian peers. This finding suggests that children can generally distinguish reliably between friends and non-friends, but also points to cultural or contextual factors that may affect the stability of these choices.

In teacher evaluations of friendship, although the agreement between the two teachers in Austria was very high, their nominations overlapped with children's self-reports only at a moderate level. Similarly, teacher-child agreement in Turkey also remained at a moderate level.

Although the teachers showed an almost perfect agreement with each other, there may be a few possible factors explaining why they showed only a moderate level of agreement with children's nominations. First, while children were allowed to nominate as many peers as they wished, teachers were restricted to selecting only a limited number (between 1 and 5) of best friends. This methodological difference may have caused the overlap to decrease. In addition, as adults, teachers' evaluations may have been largely influenced by classroom dynamics, observable behaviors, or general impressions, whereas children's nominations were probably based on subjective and reciprocal emotional experiences.

Overall, these findings demonstrate that sociometric methods based on children's self-reports provide a valid tool for assessing friendships. Teacher evaluations can offer valuable complementary information. In this study, they supported children's nominations at a significant level with moderate agreement. However, since they reflect a dimension of peer relationships that differs from children's own perceptions, they should be interpreted with caution. For future research, the section of the questionnaire concerning friendship nominations could be expanded to include evaluations of all participating children in a 'friend-not friend' format, which may provide more informative insights.

Consistency Across Sessions

In both games, a certain degree of consistency across sessions was observed; however, this consistency varied by country and by type of game. In Austria, significant correlations were generally more widespread, whereas in Turkey, consistency was more limited and confined to specific session pairs. Therefore, rather than relying on session averages as the primary analytic approach, the focus was placed on the first session (naïve behavior), in which children were not yet influenced by prior experiences. Session means were considered only as supplementary information, as they help to attenuate random day-to-day fluctuations and provide a single, comparable summary measure across children.

Study Strengths

This study is one of the few that combines sociometric friendship assessments with a set of naturalistic group experiments designed to elicit two different types of prosocial behavior. The fact that the study was conducted in children's natural preschool settings enhances external validity by allowing prosocial behaviors to be observed in authentic social contexts.

Considering the scarcity of research on direct comparisons between Turkish children raised in Turkey and their Western peers, the present study may offer a modest contribution toward addressing this gap. In addition, this study not only compared prosocial behaviors but also incorporated the dimension of friendship, thereby aiming to provide a multidimensional approach.

Limitations

One of its most significant limitations was that, as an independent researcher conducting the study in Turkey, I faced bureaucratic processes that posed a considerable obstacle. After this challenging process, I was able to gain access to only two preschools for which I could obtain the necessary permissions and which agreed to participate in the study. Although there were two other preschools that were initially willing to participate and for which I had obtained the necessary permissions, they could not take part in the study because, before the dates I would be available in Turkey for data collection, they had already started enrolling new students and forming new classes for the upcoming term. As a result, they were unable to meet one of the study's key requirements: that the children already know each other in the context of friendship. Not enough time had passed for the children to develop such friendship bonds. This limited access significantly constrained the number of children who could be included in the study.

In the two preschools that participated in the study, detailed information and consent forms were distributed to the parents of all children in the relevant age group. However, although some parents gave consent for their children to participate in the study, they ultimately withheld permission due to discomfort with the video recordings of the sessions. This further reduced the final sample size. Additionally, since the timing of the study coincided with the summer holiday period, some children who had received parental consent were unable to participate due to vacation plans. This also negatively affected participation rates.

Another limitation concerns the structure of one of the experimental groups. Ideally, each child was supposed to participate in the experimental games with peers from their own class, given the study's focus on friendship dynamics. However, in one of the preschools, I had to form a group by primarily using children from one class and supplementing it with a few children from two other classes in order to reach the minimum sample size required for statistical analysis. Although the children in this mixed group were familiar with each other through shared activities in common areas and the cafeteria, their relationships lacked the consistency and closeness typically observed among classmates. During the friendship assessment, children responded much more quickly when evaluating peers from their own class, whereas they often hesitated and took noticeably longer when judging children from other groups. I observed that their facial expressions frequently reflected hesitation and uncertainty.

This difficulty was also reflected in the teacher evaluations. Teachers experienced similar challenges while completing the questionnaire in which they were asked to report children's close friendships. When it came to the children from the merged group, they verbally reported to me that they had difficulty classifying the strength of relationships between these children.

As a result of these challenges, I was able to reach only 32 children in Turkey. Although we worked with over a hundred children in the Austrian part of the project I was involved in, only four groups were defined in the Turkish sample due to its limited size, and comparisons were conducted solely between these groups.

A further challenge involves the demographic and geographic differences between the two samples. While the Austrian children lived in the capital city of Vienna, the Turkish children were from Eskişehir, a major city in western Turkey. Furthermore, the two preschools I had access to in Turkey were not located in the city center, but rather in neighborhoods closer to the outskirts. This raises the possibility that the children's families had different socioeconomic backgrounds compared to those living in central urban areas or in the capital.

While children in Turkey were educated in same-age groups, Austrian children were part of mixed-age classrooms. Additionally, in the Austrian groups, the maximum age was 6.42 years. In contrast, under the Turkish education system, children older than 5.9 years are typically no longer in preschool but have already started primary school. This difference in schooling systems in a wider age range in the Austrian sample, which also contributed to a discrepancy in the mean ages between the two national groups.

Lastly, the decision to continue the project in Turkey was made only after the experiments in Austria had already been completed. For this reason, I was unable to include certain questionnaires that I believed could have provided more data for a cultural comparison and allowed for more detailed inferences. These could have included forms in which parents reported on their children's prosocial behavior, along with parenting style scales and cultural value system measures, as well as questionnaires collecting background information such as the number of siblings and the socioeconomic status of the families.

Conclusion

This study examined whether there are cultural differences in preschool children's prosocial behaviors within the context of friendship by combining structured behavioral games, sociometric friendship nominations, and teacher evaluations in Turkey and Austria.

The findings, contrary to my expectation based on the existing literature that children in collectivist cultures would display higher levels of prosocial behavior, did not reveal consistent cross-cultural differences. Contrary to predictions derived from the individualism–collectivism framework, no systematic cultural differences emerged in sharing, helping, or teacher-rated prosociality.

However, in the context of friendship, Austrian children showed clearly more prosocial behavior toward friends than toward non-friends in both sharing and helping tasks. In contrast, Turkish children did not display such a distinction between friends and non-friends. This finding suggests that the collectivist cultural background may play a role in shaping Turkish children's prosocial behaviors. Yet, when the “receive” variable was examined, no significant differences related to either friendship or culture were observed among Austrian or Turkish children. Therefore, interpreting the findings as a consistent whole proves to be difficult.

Methodological and contextual factors, such as age differences, urban–peripheral contrasts, and the limitations of dichotomous cultural classifications, may help account for these results.

Overall, the findings underscore the complexity of prosocial development and suggest that future research should employ more nuanced cultural frameworks and research designs to better capture the interplay between friendship and prosociality.

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In this thesis, the GenAI tool ChatGPT was utilized for language editing and for providing visualization support.

Appendix

Friendship Assesment Script

Taken from Wimmer (2023)

Die Bilder der Peers liegen auf einem Stapel (noch verdeckt) auf dem Tisch Die drei Emojis liegen auf einem Tisch.

Die Reihenfolge der Fotos ist bei jedem Kind zufällig (d.h. bevor das Kind zur ersten Runde kommt, die Fotos bitte gut mischen). Um das Protokollieren zu erleichtern und zügig zu gestalten, würde ich empfehlen, die Reihenfolge der IDs dann gleich ins Protokollblatt zu übertragen, bevor das Kind zur ersten Runde kommt.

1. Runde

Hallo [Name des Kindes]. Wir möchten dir gerne ein paar Fragen dazu stellen, mit welchen Kindern aus deiner Kindergartengruppe du gerne spielst und mit welchen Kindern du nicht so gerne spielst. Dafür habe ich von allen Kindern ein Bild und drei verschiedene Gesichter mitgebracht

Das grüne, lachende Gesicht bedeutet, dass du sehr gerne mit diesem Kind spielst. [dabei auf das grüne Gesicht zeigen]

Das rote, traurige Gesicht bedeutet, dass du gar nicht gerne mit diesem Kind spielst. [dabei auf das rote Gesicht zeigen]

Das gelbe Gesicht bedeutet, dass es dir egal ist, ob du mit diesem Kind spielst oder nicht. Das heißt, du spielst weder sehr gerne mit dem Kind, noch gar nicht gerne mit dem Kind, oder du weißt es einfach nicht, wie gerne du mit diesem Kind spielst. [dabei auf das gelbe Gesicht zeigen]

Ich zeige dir jetzt gleich die Fotos von den anderen Kindern. Du darfst jedes Foto zu einem dieser Gesichter legen, je nachdem, ob du mit diesem Kinder sehr gerne spielst [dabei auf das grüne Gesicht zeigen], oder mit dem Kind gar nicht gerne spielst [dabei auf das rote Gesicht zeigen], oder ob es dir egal ist, ob du mit diesem Kind spielst [dabei auf das gelbe Gesicht zeigen].

Das erste Bild vom Stapel nehmen.

Wer ist das [überprüfen, ob das Kind den richtigen Namen sagt; wenn nicht, richtigen Namen nennen] - Wie gerne spielst du mit Kind-XY?

[bei den 2-3 ersten Fotos nochmal wiederholen]

Ich spiele sehr gerne mit Kind-XY - grüner lachender Smiley [dabei auf das grüne Gesicht zeigen]

Ich spiele gar nicht gerne mit Kind-XY - roter trauriger Smiley [dabei auf das rote Gesicht zeigen] Es ist mir egal, ob ich mit Kind-XY spiele - gelber Smiley [dabei auf das gelbe Gesicht zeigen]

Das Kind soll das Bild zu dem Smiley legen.

Wenn die Kinder die Frage nicht verstehen, nochmal wiederholen oder Frage umformulieren. Für

jedes Kind aus der Gruppe durchführen.

2. Runde

So, jetzt mische ich kurz alle Bilder und zeige sie dir dann alle noch einmal. Jetzt kannst du noch einmal alle Kinder, mit denen du sehr gerne spielst zum grünen Gesicht legen [dabei auf das grüne Gesicht zeigen], alle Kinder mit denen du gar nicht gerne spielst zum roten Gesicht legen [dabei auf das rote Gesicht zeigen], und alle Kinder, bei denen es dir egal ist, ob du mit ihnen spielst oder nicht zum gelben Gesicht legen [dabei auf das gelbe Gesicht zeigen].

Dem Kind den ganzen Stapel mit allen Fotos in die Hand geben. Das Kind soll jedes Bild unter den entsprechenden Smiley legen. Dadurch entsteht unter jedem Gesicht eine Gruppe an Fotos.

Wenn das Kind mit dem Anordnen fertig ist, noch einmal fragen:

Passt das jetzt so?

Wenn das Kind „ja“ sagt, sich beim Kind bedanken, die Fotos umdrehen und die jeweiligen IDs protokollieren. Ich würde für das Protokoll für die zweite Runde größere Boxen zu den jeweiligen Gesichtern vorschlagen, in die leicht viele IDs eingetragen werden können.

Wenn die Kinder die Frage nicht verstehen, nochmal wiederholen oder Frage umformulieren. Für jedes Kind aus der Gruppe durchführen.

Friendship Assessment Recording Sheet

Taken from Wimmer (2023)

ID:

Runde 1		Runde 2					
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  		ID__	ID__	ID__	ID__	ID__
ID:	  						
ID:	  						
ID:	  						
ID:	  						

Games Script

Taken from Wimmer (2023)

1. Contest Competition Game

[Kinder und ein:e Versuchsleiter:in setzen sich in den Sitzkreis] Liebe Kinder, heute haben wir euch mehrere lustige Spiele mitgebracht. Wir werden jedes Spiel zuerst hier im Sitzkreis erklären und es dann spielen. Das heißt, es ist wichtig, dass ihr zuerst zuhört, wenn wir das Spiel erklären, damit jeder von euch versteht, wie das Spiel funktioniert. Wenn ihr Fragen habt, könnt ihr natürlich gerne fragen. Am besten, ihr hebt die Hand, falls ihr eine Frage habt:

1. Kaleidoskop

Schaut mal, als erstes Spiel habe ich euch ein neues Spielzeug mitgebracht *[Kaleidoskop zeigen]* Das ist ein Kaleidoskop, wenn ihr dort durchschaut sehr ihr tolle und lustige Muster.

Ich werde es gleich hier in die Mitte des Kreises legen und ihr könnt es dann 3/5 Minuten anschauen und damit spielen. Damit ihr wisst, wie lange ihr Zeit habt, mit dem Spielzeug zu spielen, habe ich auch eine Sanduhr mitgebracht. Wenn es lost geht, werde ich die Sanduhr umdrehen. Wenn die Hälfte des Sands durch die Uhr gefallen ist, werde ich euch sagen, dass schon die Hälfte der Zeit um ist. Wenn der letzte Sand durch die Sanduhr gefallen ist, ist das Spiel zu Ende und ich werde das Spielzeug wieder einsammeln. Ihr könnt euch selbst ausmachen, wer anfängt und wie lange jeder spielt.

Habt ihr noch Fragen zu dem Spiel? Seid ihr bereit? Los geht's! *[Das Spiel in die Mitte des Kreises legen; die Sanduhr umdrehen]*

[Zeit läuft]

[bei Hälfte der Zeit]: Die Hälfte der Zeit ist um!

[bei Ende der Zeit]: Die Zeit ist um! Könnt ihr mir das Spielzeug bitte zurückbringen? Danke! Wir werden jetzt das nächste Spiel spielen.

2. Wassertropfen-Spielen

Schaut mal, ich habe euch heute ein neues Spielzeug mitgebracht *[Wassertropfen-Spiel]* Dieses Spielzeug erzeugt lustige Muster, wenn ihr es bewegt.

Ich lege es hier in die Mitte des Kreises und ihr könnt damit spielen. *[Das Spiel in die Mitte des Kreises legen]*

Ich werde die Sanduhr umdrehen. Wenn die Zeit um ist, werde ich das Spiel wieder einsammeln.

[Zeit läuft]

[bei Hälfte der Zeit]: Die Hälfte der Zeit ist um!

[bei Ende der Zeit]: Die Zeit ist um! Könnt ihr mir das Spielzeug bitte zurückbringen? Wir werden jetzt das nächste Spiel spielen.

3. Gucki

Schaut mal, ich habe euch noch ein neues Spiel mitgebracht *[Gucki]*.

Dieses Spielzeug hat hinten ein kleines Guckloch, in das man hinein schauen kann. Wenn man auf den Knopf an der Seite drückt, kann man dadurch verschiedene Bilder sehen.

Ich lege es hier in die Mitte des Kreises und ihr könnt damit spielen. *[Das Spiel in die Mitte des Kreises legen]*

Ich werde die Sanduhr umdrehen. Wenn die Zeit um ist, werde ich das Spiel wieder einsammeln.

[Zeit läuft]

[bei Hälfte der Zeit]: Die Hälfte der Zeit ist um!

[bei Ende der Zeit]: Die Zeit ist um! Könnt ihr mir das Spiel bitte zurückbringen? Wir werden jetzt das nächste Spiel spielen.

2. Sticker Game Script

Die Kinder sitzen immer noch im Sitzkreis mit Sitzkissen (nach dem Contest Competition Game). Orange Kegel sind schon in einer anderen Ecke des Raumes aufgestellt. Sticker-Pass mit Namen sind schon vorbereitet.

Schaut, was ich euch noch mitgebracht habe (in den Beutel greifen und das Bilderbuch herausholen) – ein Bilderbuch.

In diesem Bilderbuch gibt es eine ganz tolle Geschichte – wollt ihr sie hören? *[wenn die Kinder zustimmen, etwas Bestärkendes antworten, wenn die Kinder zögerlich sind, etwas Aufmunterndes sagen z.B. „also ich habe schon in dieses Buch reingeschaut und es ist wirklich spannend“]*

In dem Buch geht es um Flippy Flamingo und ganz viele andere Tiere, die alle bei einem tollen Sticker-Spiel mitmachen. Soll ich es euch vorlesen? Schaut, ob ihr euch die Geschichte gut merken könnt.

[Das Buch vorlesen]

Wir werden euch jetzt einzeln im Kreis ein paar Fragen zu der Geschichte von Flippy Flamingo stellen. Bleibt auf euren Sitzkissen sitzen, wir kommen zu euch.

Eine Versuchsleiterin geht von Kind zu Kind und zeigt Fotos von den 4 Tieren und fragt jedes Kind einzeln diese zwei Fragen:

1. Zeig mir doch bitte auf dem Bild, welches Tier darf sich als erstes einen Sticker aussuchen?
2. Zeig mir doch bitte auf dem Bild, welches Tier darf sich als letztes einen Sticker aussuchen?

Jedem zweiten Kind werden die zwei Fragen in der umgekehrten Reihenfolge gestellt. Die Kinder sollen auf das Tier zeigen, aber es ist auch kein Problem, wenn sie den Namen des Tieres nennen.

Wenn das Kind auf das richtige Tier zeigt, sagt die Versuchsleiterin laut und deutlich „Ja,

das stimmt“. Wenn das Kind auf das falsche Tier zeigt, sagt die Versuchsleiterin laut und deutlich

„Hm, ich glaube, es ist dieses Tier“. So kann entweder eine zweite Versuchsleiterin die Antworten der Kinder protokollieren oder ihr könnt es später von den Videos

protokollieren. [Jetzt kommt das Austeilen der Stickeralben]

Wisst ihr was, wir haben auch für jeden von euch einen Stickerpass mitgebracht. Das heißt wir können das gleiche lustige Stickerspiel spielen, wie Flippy Flamingo und seine Freunde. Jeder von euch darf sich jetzt einen Stickerpass nehmen. Wer schon selbst seinen Namen schreiben kann, darf ihn draufschreiben. Wer Hilfe mit dem Schreiben braucht, dem können wir den Namen draufschreiben

[Kinder unterstützen, bis alle Kinder ihren Namen auf dem Stickeralbum haben]

So, jetzt setzen wir uns alle wieder in den Sitzkreis und ich erkläre, wie das Spiel funktioniert.

Dort drüben stehen orange Kegel, genau wie in der Geschichte von Flippy Flamingo und seinen Freunden *[zu den Kegeln zeigen]*. Dort gibt es dann auch eine Sticker-Box mit ganz vielen tollen Stickern, schaut mal her *[den Kindern die Sticker-Box zeigen]* Schaut, da sind ganz viele verschiedene Sticker drin. *[die Kinder gerne ein paar der Sticker benennen lassen]*

Wenn ich später „Los“ sage, müsst ihr euch wie Flippy Flamingo und seine Freunde hinter den orangenen Kegeln in einer Reihe anstellen. Das Kind das ganz vorne in der Reihe steht, darf sich dann als erstes einen Sticker aus der Sticker-Box aussuchen, das Kind als Zweites in der Reihe darf sich als zweites einen Sticker aussuchen, usw. und das Kind, das als letztes in der Reihe steht, muss den Sticker nehmen, der übrig geblieben ist.

Wenn ich später „Los!“ sage, habt ihr 2 Minuten Zeit, um euch in einer Reihe anzustellen, um eure Sticker auszusuchen. Die Reihe beginnt dort drüben bei den orangenen Kegeln *[zu den Kegeln zeigen]*, so wie in der Geschichte im Buch „Flippy Flamingo“ *[die Seite zeigen, auf der sich die Tiere um ein Sticker anstellen]* Ihr macht euch untereinander aus, wer in der Reihe ganz vorne steht, wer in der Mitte steht, und wer am Schluss steht. Wir werden euch nicht sagen, in welcher Reihenfolge ihr euch anstellen sollt.

Habt ihr noch Fragen zu dem Spiel? Seid ihr bereit?

Los geht's! Ihr dürft euch anstellen. [Stoppuhr auf 2 Minuten stellen]

Falls Kinder um Hilfe bitten:

Wir werden euch nicht sagen, in welcher Reihenfolge ihr euch anstellen sollt. Das müsst ihr euch selbst ausmachen.

Okay, die Zeit ist um! Alle bleiben in ihrer Position stehen.

Jetzt darf das erste Kind zwischen den Kegeln durchgehen, um sich einen Sticker auszusuchen.

[Die Kinder laufen einzeln durch die zwei Kegel durch. Falls mehrere Kinder gleichzeitig durch die Kegel durchlaufen, aufhalten und sagen]

Nur immer ein Kind auf einmal!

Position des Kindes und Namen des Kindes beim Durchlaufen laut sagen.

1.Helping Game Script

Ein:e Versuchsleiter:in und die Kinder setzen sich wieder in den Sitzkreis; der:die zweite Versuchsleiter:in steht außerhalb des Sitzkreises.

Plüschtiere sind in Beuteln bei Versuchsleiter:innen.

So, jetzt kommen wir alle zurück in den Sitzkreis und ich erkläre euch das dritte Spiel.

Es ist ein Bewegungsspiel. Ihr bekommt gleich alle einen Oktopus aus Plüsch *[die sitzende Person zeigt einen Oktopus beispielhaft]* und der Oktopus möchte einen Ausflug machen. Und zwar nicht irgendwie, der Oktopus möchte sich bei diesem Ausflug auf euren Kopf rauf setzen.

Mit dem Oktopus auf dem Kopf macht ihr euren kleinen Ausflug hier im Raum, ihr wandert durch den Raum, den Oktopus balanciert ihr auf eurem Kopf. *[die stehende Person platziert den Oktopus auf dem eigenen Kopf und geht ein paar Schritte hin und her]*

Und was passiert, wenn der Oktopus von eurem Kopf runterfällt? *[die stehende Person lässt den Oktopus vom Kopf fallen und bleibt in einer auffallenden Position stehen]*

Wenn der Oktopus runterfällt, dann müsst ihr stehen bleiben und seid eingefroren.

Wisst ihr was das bedeutet? *[Antwort der Kinder abwarten, in jedem Fall nochmal wiederholen]* Ihr dürft euch nicht mehr bewegen. Das heißt sobald der Oktopus auf den Boden gefallen ist, dürft ihr euch nicht mehr bewegen und dürft auch den Oktopus nicht aufheben.

Aber das macht gar nichts. **Ein anderes Kind kann euch euren Oktopus aufheben und zurück auf den Kopf setzen. Dann seid ihr nicht mehr eingefroren, sondern wieder aufgetaut**

[die sitzende Person steht auf und geht zur eingefrorenen Person, setzt den Oktopus wieder auf den Kopf; die Person beginnt sich wieder zu bewegen. Ganz wichtig: NICHT „DANKE“ SAGEN und das Vorzeigen mit so neutralem Gesichtsausdruck wie möglich machen; danach wieder in den Sitzkreis zu den Kindern setzen]

Habt ihr noch Fragen zu diesem Spiel? Habt ihr Lust dieses Spiel auch zu spielen?

Die Plüschtiere werden an die Kinder verteilt, die Kinder dürfen sich ihren Oktopus aussuchen.

Jetzt habt ihr alle euren Oktopus bekommen und wir probieren das mal aus. Setzt euch den Oktopus auf den Kopf und versucht mit ihm rumzulaufen. Wie klappt das? *[weniger als 1 min. üben lassen]*

Okay, wir werden das Spiel jetzt starten. Ich werde Musik anschalten und sobald das Lied startet, geht das Spiel los. Wenn das Lied vorbei ist, endet das Spiel.

Seid ihr bereit? Los geht's! *[wenn Kinder bereit sind, die Musik starten und das Spiel beginnt]*

Ethogram

FI = focal individual

COLOR CODE:

- **State:** Describes current state of FI. Output as duration.
- **Event:** Single occurrence of one behavior. Output as single time points.
- **Bout:** Series of events that occur within a specified period. Output as duration.

INFO TO PUT INTO EXCEL SHEET:

- **NA:** For individuals, that are not participating in focal session.

CODING BEHAVIORS:

All games:

- **Out of sight:** FI is not visible on screen. Start state as soon as FI leaves screen. End state as soon as FI is back on screen.

Game 1 (contest competition):

By hand into Excel:

- **Toy:** Type of toy used in focal session
- **Neighbor (right):** Child sitting next to FI on the RIGHT side.
- **Neighbor (left):** Child sitting next to FI on the LEFT side.
- **Rank:** Indicate rank for toy possession. 1st child in possession has rank 1, 2nd has rank 2 and so on. If a child, that has been in possession before, gets the toy again, it is not assigned a second rank, but this specific rank is skipped until another child gets the toy for the first time. It will then get the next rank in line.

Informative:

- **G1 start:** Code this as a marker to indicate the START of G1. The variable is coded as soon as the sand clock has been turned by the experimenter.
- **G1 end:** Code this as a marker to indicate the END of G1. The variable is coded as soon as the toy has been handed back to the experimenter. Must be set exactly 3 or 5 minutes after *G1 start*.

Requ
est
G1:

- **Request (ID):** FI requests the toy from (ID) at least once. Start bout as soon as the first request starts. End bout if child has stopped asking for ≥ 3 seconds.

Get possession:

- *Pick up*: FI picks up toy from ground and touches it for ≥ 3 seconds. Code as soon as at least one finger of at least one hand touches toy.
- *Receive from (ID)*: FI receives toy from (ID) and touches it for ≥ 3 seconds. Code as soon as at least one finger of at least one hand touches toy.
- *Take by force from (ID)*: FI takes toy by force from (ID) and touches it for ≥ 3 seconds. Code as soon as at least one finger of at least one hand touches toy.
 - *Failed attempt to take by force from (ID)*: FI attempts to take toy by force from (ID) but does NOT touch it for ≥ 3 seconds. Code as soon as at least one finger of at least one hand touches toy.
 - *Undecided take/receive from (ID)*: FI gets toy from (ID) in a way that cannot clearly be defined as *take by force* or *receive* and touches it for ≥ 3 seconds. Code as soon as at least one finger of at least one hand touches toy.

Possession:

- *Possession*: FI touches toy with at least one part of at least one hand. Start coding as soon as at least one finger of at least one hand touches toy. End coding as soon as FI is not touching toy anymore.

Leave possession:

- *Place on ground*: FI places toy on ground. Code as soon as the child does not touch the toy anymore.
- *Give to (ID)*: FI gives toy to (ID). Code as soon as the child does not touch the toy anymore.
- *Failed attempt to give to (ID)*: FI attempts to give toy to (ID) for ≥ 3 seconds, but (ID) does not get into possession (i.e. touch for ≥ 3 seconds). Code as soon as the child offers the toy by holding it towards (ID), while looking at them or calling out (ID)s name and verbally offering the toy.
- *Taken by force from (ID)*: FI is forcefully taken away toy by (ID). Code as soon as the child does not touch the toy anymore.
- *Undecided give to/taken from (ID)*: FI loses possession to (ID) in a way that cannot clearly be defined as *taken by force* or *give*. Code as soon as the child does not touch the toy anymore.

OPTIONAL: Co-possession:

To be coded "over" possession

- *Friendly*: FI as well as one or more other children (IDs) touch toy with at least one part of at least one hand. FI does not try to gain sole possession (= takes no action to stop other IDs from touching toy).
- *Unfriendly*: FI as well as one or more other children (IDs) touch toy with at least one part of at least one hand. FI attempts to gain sole possession by verbally demanding it, physically manipulating another child (e.g., push, move fingers) or the toy (e.g., pull on it)
- *Undecided*: FI as well as one or more other children (IDs) touch toy with at least one part of at least one hand for. The co-possession cannot clearly be defined as *friendly* or *unfriendly*.

Game 2 (scramble competition):

By hand into Excel:

- *Comprehension*: Number of comprehension questions answered right (0 – 1 – 2).
- *Rank*: FIs position in the queue (1 to n , with n = no of participants for the experimental session).

Game 3 (helping game):

Informative:

- *G3 start*: Code this as a marker to indicate the START of G3. The variable is coded as soon as the first song starts playing.
- *G3 end*: Code this as a marker to indicate the END of G3. The variable is coded as soon as the 2nd song ends. Must be coded exactly 5 minutes after *G3 start*.

Proximity:

- *Proximity (ID)*: FI is located within a radius of ca. 0.5 meter around (ID). Ca. 0.5m = one arm-length, FI could touch (ID) if arm was put out. Multidirectional variable (FI can be in proximity of multiple other children at once).

Request G3:

- *Request (ID)*: FI asks another child (indicate ID) for help/ to pick up their squid at least once. Start bout as soon as FI starts first question. End bout if child has stopped asking for ≥ 3 seconds.

Squid action:

- *Drop*: Squid leaves FIs head and FI freezes for ≥ 3 seconds. Code as soon as FI freezes.
- *Pick up (self)*: FI picks up their squid themselves. Code as soon as FI has continued moving with squid on their head.
- *Pick up (ID)*: FI picks up another child's squid and either hands it to them or places it back on their head. Code as soon as FI does not touch squid anymore and (ID) has continued moving with squid on their head.
- *Undecided*: FI has continued moving with squid on their head after a *drop*. It is not clear, whether this is due to self- or other-pick-up.

Pädagoginnen-Fragebogen

Kind 1

Beste Freunde/Freundinnen (max. 5)

Wer sind die besten Freunde/Freundinnen des Kinds in der Gruppe? Bitte verwenden Sie nur die entsprechenden Zahlen (z.B. 2,4 & 15). Maximal 5 Nennungen möglich.

1) _____ 2) _____ 3) _____ 4) _____ 5) _____

Eigenschaften

Zeichnen Sie bitte mit einem senkrechten Strich auf den unteren Skalen ein, wie sehr jede einzelne Aussage auf das Kind zutrifft.

	Trifft nicht zu	Trifft sehr
„Durchsetzungsfähig“	-----	-----
„Hilft anderen Kindern“	-----	-----
„Dominant“	-----	-----
„Teilt bereitwillig mit anderen“	-----	-----
„Behauptet sich selbst“	-----	-----
„Bietet anderen Hilfe oder Trost an“	-----	-----
„Sagt anderen, was zu tun ist“	-----	-----
„Scheint besorgt zu sein, wenn andere Kinder beunruhigt sind“	-----	-----