

Comparing the Informational Judgements of Autistic and Typically Developing Children:

A Pilot Study

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Abstract

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The moral judgements we make, and how we make them, have a critical impact on our ability to function in any social groups we are part of. They are informed by a plethora of social factors, but less is known about how the way moral judgements are formed may vary between individuals with Autism Spectrum Disorder (ASD) and their neurotypical peers. Previous research suggests autistic individuals may differ in the way they form and implement moral judgements, however, often the way these studies are implemented do not play to strengths of autistic individuals.

This study gathered qualitative data from four typically developing and four autistic 7–10-year-old children, using a novel task that asked them to consider four scenarios focused on peer altercations in a school context. Each scenario manipulated different information about the victims and the perpetrators, to determine if there was any variation between the two groups in the way this information was interpreted and used toward forming a moral judgement. Many similarities were found between groups, as well as several variations that suggest there may be different underlying assumptions between the two groups about the information given in each scenario. These variations were most salient in the areas of apologizing, the accidental nature of the incident, focusing on specific story details, and focusing on others' feelings and intentions. These findings indicate that autistic individuals may hold different assumptions about the world around them that influence their interpretation of moral scenarios.

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Comparing the Informational Judgements of Autistic and Typically Developing Children: A Pilot Study

The ability to recognize, define and act on social and moral transgressions depending on their surrounding context is critical to functioning in society (Shulman et al., 2011). However, what constitutes a moral or social transgression, and how these two facets are divided, is highly debated. In the rationalist tradition, many suggest that the moral domain centres on dilemmas involving competing interests of people (Gilligan, 1982; Graham et al., 2011; Haidt & Joseph, 2008; Kohlberg, 1984; Turiel, 1983). However, Haidt and Kesebir (2010) propose a more function-based definition of the moral domain, in which morality consists of interlocking value systems and institutions that serve to regulate selfish instincts and increase social possibilities. Social domain theory, as developed by Turiel (1983, 2014), Smetana (2006) and Nucci (2001), acknowledges that morality is constructed through social events, and is separate, but interlinked, with societal and psychological knowledge. Throughout these various viewpoints, studies have been conducted that look at moral judgements, moral reasoning and to a lesser extent actual moral behaviours. However, considerably less work has been done surrounding neurodivergent individuals, such as those with autism spectrum disorder (ASD), and how their unique social context and viewpoint may impact their moral reasoning process.

Autism spectrum disorder (ASD) is characterized by deficits in social communication and interaction, particularly in areas of social-emotional reciprocity, and nonverbal communicative behaviours (American Psychiatric Association [APA], 2013). As part of their difficulty with social-emotional reciprocity and relationship building, studies have also shown autistic individuals have difficulty with theory of mind (ToM) and perspective taking (Baron-Cohen et al., 1985; Baron-Cohen, 1995). These skills are often considered necessary for moral

development due to their role in judging another person's intentionality; this has led some researchers to suggest these delays could lead to atypical moral development (Zalla & Leboyer, 2011). Furthermore, ASD can also be accompanied by intellectual impairment, which can make thinking about abstract concepts – which moral decisions often are – challenging, if not impossible (APA, 2013). Many measures of moral judgement require thinking about hypothetical scenarios, particularly those based on Kohlberg's (1958) Moral Judgement Interview. However, despite potential difficulties on moral reasoning tasks, many people with ASD are fully capable of distinguishing between moral and conventional transgressions (Buon et al., 2013; Shulman et al., 2011). This suggests there may be a need for a different way of evaluating moral reasoning that allows autistic individuals to utilize their unique viewpoints.

Considering these methodological difficulties, and the multifaceted nature of social and moral transgressions, how can a researcher be sure that a measured deficit is actually a deficit in moral reasoning ability, rather than a poor measure or another confounding variable? Social domain theory does acknowledge the difference between social conventional and moral transgressions. Wainryb (1991; 2004), however, splits moral judgements even further into two defined categories. Evaluative judgements are those that are most often thought of when the term "moral judgement" is used, and includes "prescriptive concepts of worth and value, or right and wrong" (Wainryb, 1991, p. 841). Informational judgements (also called informational assumptions, factual assumptions, or factual beliefs), on the other hand, "entail descriptive concepts regarding the nature of reality" (Wainryb, 1991, p. 841). Examples of informational judgements given by Wainryb include beliefs and assumptions made about contentious social issues, such as whether people believe that life begins at conception or at birth. The premise of her argument is that people make different informational judgements about issues based on their

own belief systems, and it is these informational assumptions that account for much of the variation in the evaluative judgements people make surrounding whether a moral action is right or wrong.

To use the example of abortion rights suggested by Wainryb (1991), if an individual has made the informational judgement that life begins at conception, then they will make the evaluative judgement that abortion is wrong because you are taking a life. Similarly, if an individual makes the informational judgement that life begins at birth, then their evaluative judgement is that abortion is morally permissible because removing a fetus does not constitute taking a life. The key for Wainryb is that *both* of these individuals believe on an evaluative level that taking a life is wrong; the point of contention for them is actually their informational belief surrounding when life begins. According to social domain theory, informational judgements, as well as evaluative judgements following from them, are constructed from an individual's experience of social phenomena (Killen & Smetana, 2015; Smetana 2006; Turiel 1983). Consider, then, that an autistic individual has diagnosed deficits in social interaction and social communication (APA, 2013). It stands to reason that the way an autistic individual constructs their informational judgements is inherently different than that of a neurotypical person, as the way they experience the social world is inherently different. Meaning, the evaluative judgements made by autistic individuals, and their subsequent moral reasoning, could differ from typical individuals due to differences in informational beliefs shaped by their unique experience of their social environment.

Review of the Literature

There is debate in both academic and non-academic circles surrounding the correct way to refer to people with ASD, primarily between disability-first language (e.g., “autistic person”) and person-first language (e.g., “a person with autism). The language we use to describe a disorder as broad as ASD is incredibly important and should be considered in any academic discourse on the subject. In a survey of 3470 adults in the UK (500 of which were autistic individuals), Kenny and colleagues (2016) found a disagreement in terminology between people with and without autism. Many autistic respondents preferred disability-first language, while many professionals preferred the use of person-first language. However, the term “on the autism spectrum” was highly endorsed by both groups. As part of this ongoing discussion, this project will favour terms such as “on the autism spectrum” and will use disability-first language, when possible, out of respect to autistic voices.

Approaches to Moral Development

Kohlberg’s Moral Stages

In the field of child development, the name synonymous with moral development is often Laurence Kohlberg (1958; 1984) and his stages of moral development. This tradition follows Piaget’s (1932) framework of a child’s cognitive development and includes six distinct stages divided into three levels (Kohlberg, 1984; Kohlberg & Hersh, 1977). Each stage is considered a self-contained, organized system of thought, and individuals are said to move through the hierarchy in a linear, invariable way (Kohlberg, 1984). The first two stages encompass the pre-conventional level, in which a young child interprets right and wrong in a non-nuanced way, with understandings of these concepts based largely on authority figures and straightforward consequences (Kohlberg, 1984). The conventional level encompasses the third and fourth stage.

At this level people actively strive to maintain the existing social order, which stems from a desire to support and justify this order due to an increased identification with the individuals in it (Kohlberg, 1984). Lastly there is the postconventional level, which includes stage 5 and 6. It is at this level that individuals seek to define moral values outside of their relationship to social groups, instead seeking to define moral codes that have value apart from group authority (Kohlberg, 1984). However, many people never reach this stage, and remain at the conventional level for their entire lives (Kohlberg, 1984).

Determining which stage people are in often consists of asking individuals to consider preconstructed moral dilemmas, as originally done by Kohlberg (1958) in his Moral Judgement Interviews. Perhaps the most famous of these is the classic Heinz Dilemma, in which a person is asked if they would steal a drug to save their dying wife. At its core this question asks if it is morally permissible to put the interests of yourself and a loved one (the dying wife) above the best interest of the person acquiring monetary wealth through selling the drug. This also asks an individual to consider whether societal values surrounding money and private property outweigh the value of a human life. Since then, Kohlberg's (1958) interview methods have been developed further by others into the Defining Issues Test (DIT), in which individuals are asked to rank 12 issue statements associated with different moral schema considerations (Thoma & Dong, 2014). At the DIT's inception in the 1970s this measure was generally considered a more methodological alternative to Kohlberg's interviews (Rest, 1979; Thoma & Dong, 2014). However, the formal development of the DIT, and later the DIT-2, expanded on Kohlberg's original methodology to the extent that it can no longer be considered synonymous with Kohlberg's moral stages (Thoma & Dong, 2014).

Kohlberg's (1984) moral stages gave researchers a framework under which to operate for decades and offered a way to approach moral reasoning from a developmental perspective (Killen & Smetana, 2015). However, his theory has also been widely criticized by researchers both within and outside of his theoretical framework (Killen & Smetana, 2015). One of the most notable of these criticisms is that of Kohlberg's contemporary, Carol Gilligan (1982). While Gilligan's (1982) theories will be explored more below, her primary criticism of Kohlberg's moral stages is that they represented a very male-dominated view of morality, emphasized by Kohlberg's (1958) all male sample. Thus, the views of morality held of non-male participants was omitted and devalued (Gilligan, 1982). This logic could be further extended to the exclusion of a neurodivergent view of morality – such as that of those with ASD – as Kohlberg's sample was of typically developing people. The notion that individuals move invariably through one stage to the next was also widely criticized, as it was never able to be empirically validated (Killen & Smetana, 2015).

Gilligan's Ethics of Care

Carol Gilligan's (1982) work is often viewed in opposition to Kohlberg's (1984) model of moral development, despite Gilligan herself not intending this. When viewed alongside Kohlberg's (1984) linear model of moral development, Gilligan's much more fluid concept of "care" as the basis for moral decision making does seem to be antithetical. Unlike Kohlberg (1984), Gilligan does not propose a precise model for moral decision making. Instead, she suggests that Kohlberg's model, and the research from which he draws it, caters to a very narrow demographic of people; specifically, cisgender men. Gilligan found that women, who often failed to perform on Kohlberg's (1958) moral reasoning tasks, based their moral decision making on a feeling of responsibility to care for others, often at their own expense. She argues, "In this

conception, the moral problem arises from conflicting responsibilities rather than from competing rights and requires for its resolution a mode of thinking that is contextual and narrative rather than formal and abstract” (Gilligan, 1982, p. 19). It has been suggested that Gilligan’s work is the same as Kohlberg’s in the way it focuses solely on the harm/care aspect of morality (Graham et al., 2011). However, to Gilligan, care is not simply the opposite of harm, but rather an all-encompassing way of living that prioritizes thinking about the needs of others in relation to the self.

Gilligan’s (1982) concept of care-based morality is not, then, in opposition to Kohlberg’s (1984) moral stages, but rather an alternative lens to view moral decision making in a population with vastly different lived experience than cisgender men. Her work can be taken to encompass not only women, but anyone who does not fit into the neurotypical, male-defined box from which Kohlberg’s (1984) work is derived. A component of this is the relational nature of Gilligan’s concept of care. Where Kohlberg’s (1984) later stages of moral development are marked by increasing individualization, Gilligan’s ethics of care is characterized by increasingly intricate relationships to one another. The need for relationship does not suggest a lack of a sense of self, or a lack of an innate moral compass (Gilligan & Farnsworth, 1995). So, under this view relying on relationships for feedback on moral decision making should not be viewed as a deficit in an individual’s capacity to make these critical decisions. The ethics of care does not require the individual to be able to make moral decisions in isolation, but rather embraces the fact that these moral decisions are not made without input from social surroundings (Gilligan, 1982; Skoe, 2014; Adams, 2015).

It is this focus on relationship, Gilligan (1982) argues, that male-centered psychology has long omitted. Within the field of psychology, men have long determined what is considered the

predominant view, even when their subjects are very different from themselves (Gilligan, 1982; Friedman, 2020). Similarly, much in the same way Gilligan argues that men have long dictated what is considered the predominant view in psychology, neurotypical people have been responsible for current assumptions surrounding ASD, partially due to difficulties autistic people may face attending university, (Cage et al., 2020). Considering this, the title of Gilligan's seminal work, *In a Different Voice*, seems to be especially pertinent. Gilligan's primary critique of Kohlberg (1984) was not his theory itself, but his methodology, as she focused more heavily on letting people be heard, rather than putting people into tidy moral stages (Jorgensen, 2006). It is important when studying moral development that as researchers we strive to listen to what people are telling us about their interaction with the world and their own morality. This is especially important considering that the voices of individuals on the autism spectrum are often represented by those other than themselves.

Moral Foundations Theory

Moral Foundations Theory suggests humans have five innate moral foundations, and the differential prioritization of these foundations between groups is the basis for different moral systems (Haidt & Joseph, 2008; Graham et al., 2011). The five foundations identified are harm/care, fairness/reciprocity, in-group/loyalty, authority/respect, and purity/sanctity (Haidt & Joseph, 2008). A key aspect of this theory, aside from the identification of these specific moral foundations, is that these foundations are innate, meaning, organized in advance of experience (Haidt & Joseph, 2008; Graham et al., 2011). What this means to the authors is that these moral foundations are innate building blocks in the human psyche, which are later edited through our experience with other humans (Haidt & Joseph, 2008). It does not suggest that these foundations are unalterable, or unrelated to social experiences.

While this approach does offer valuable insights into certain areas of moral reasoning, it has been criticized on several factors. Suhler and Churchland (2011) criticize the theory heavily for its unclear distinction between “innateness” and something being easily learned. As such, these authors argue that Haidt and Joseph’s (2008) approach undervalues the social aspect of moral development. In fact, contemporary research on the subject, particularly with autistic individuals, has largely disregarded this concept of innateness, and instead evaluates the differential prioritization of the moral foundations themselves (Dempsey, et al., 2020; Dempsey et al., 2022). Suhler and Churchland (2011) also argue against the moral foundations themselves, suggesting that the five moral foundations outlined by Haidt and Joseph (2008) are not all-inclusive when considering the vastly different ways humans experience the world.

One particularly appealing aspect of Moral Foundations Theory is its apparent ability to account for variations in moral reasoning without considering these variations as deficits. For example, Graham and colleagues (2011) argue that this way of considering moral systems, rather than individual moral beliefs, allows researchers to look more objectively at systems that include moral beliefs they find abhorrent themselves. Dempsey, Moore, Richard, and Smith (2020) consider this to be an advantage, considering the emergence of autism as a distinct culture. However, the primary difficulty with Moral Foundations Theory is that its notion of innate moral foundations makes it difficult to account for the power of social learning and influence. Haidt and Joseph (2008) argue, for example that children are born with an innate preference for sweetness against bitterness, but in this example there could be social factors that contribute to what foods are considered “sweet” by an individual. If we consider, then, that autistic people interact with the social world very differently, using the framework of innate moral foundations seems as though it would omit critical social elements.

Social Domain Theory

Social domain theory, as developed by Turiel (1983; 2014), Nucci (2001) and Smetana (2006), suggests our knowledge of the social world is split into three interrelated domains: moral, social conventional, and personal/psychological. In this framework moral knowledge refers to how individuals conceptualize the welfare and rights of others, as well as issues of fairness and justice (Killen & Smetana, 2015; Turiel 1983). However, when evaluating complex events, such as those often associated with moral judgements, any number of these domains of knowledge may be drawn upon by the individual (Killen & Smetana, 2015). Furthermore, these domains of knowledge are constructed by the individual based on their interaction with the social world and is generalizable across multiple contexts (Killen & Smetana, 2015; Turiel 1983). The separation of moral knowledge from social conventional knowledge suggests moral prescriptions of what is right and wrong exist independently from group consensus, social rules, or authority figures (Nucci, 2001).

This counters Kohlberg's (1984) stages of moral development in numerous ways. First, under social domain theory, morality does not emerge as a function of young children's interaction with authority figures and rules (Killen & Smetana, 2015; Nucci, 2001; Turiel 1983). In a seminal study in this area, Smetana (1981) found preschool children as young as 2.5 years of age were able to evaluate moral transgressions (such as hitting another child) as wrong even in the absence of rules. A similar distinction between moral and social transgressions was found by Nucci and Nucci (1982) in their study of second, fifth and seventh grade classrooms. More recently, in a study of first, third, fifth and seventh graders, Turiel (2008) found children viewed morality as prescriptive, and not contingent on authority figures or social rules. These studies suggest that counter to Kohlberg's (1984) stages, even very young children can distinguish moral

transgressions from those based on social conventions. Depending on the transgression in question and the social context surrounding it, children may evaluate an event with concern for social rules (Perkins & Turiel, 2007; Wainryb 1991). This suggests unlike Kohlberg's (1984) linear, invariable stages, an individual at any age will draw upon different domains of social knowledge depending on their evaluation of the social phenomena in front of them (Killen & Smetana, 2015; Perkins & Turiel, 2007).

Social domain theory challenges developmentally based theories, as developmental theories suggest one form of reasoning to be more present in an individual at any given stage (Killen & Smetana, 2015). It also addresses a key criticism of moral foundations theory, namely that Haidt and Joseph's (2008) concept of "innate" moral foundations undervalues the socially constructed aspect of morality. Unlike moral foundations theory, social domain theory takes a constructivist approach to social knowledge, suggesting that all three social domains are informed and constructed as humans interact with each other (Killen & Smetana, 2015; Nucci, 2001; Turiel, 1983). It is for this reason that this theoretical framework is the most apt approach for evaluating informational and evaluative moral judgements in autistic individuals, as it acknowledges that the way in which an individual interacts with the world is critically important for the development of their moral knowledge. This is important, as autistic individuals interact with the social world differently due to diagnosed differences in various aspects of neural functioning (APA, 2013) and other social factors.

Moral Development and Autism Spectrum Disorder

While moral development in children has been a subject of research for decades, there is still very little research on moral development in autistic children (Dempsey, Moore, Johnson et al., 2020). Studies have been done using several different theoretical frameworks such as

Kohlberg's (1984) moral stages (see Senland & Higgins-D'Alessandro, 2016), social domain theory (see Shulman et al., 2011) and surrounding intent-based moral judgements (see Margoni et al., 2019). Small differences in moral reasoning and decision making between autistic and typically developing individuals have been found in different areas (Senland & Higgins-D'Alessandro 2013, 2016; Ringshaw et al., 2022, Vyas et al., 2017). The reasons for these variations are inconclusive, and in some studies the moral reasoning differed between autistic and typically developing individuals, despite very similar moral judgements (Dempsey et al., 2022). The following section explores various facets of moral development that could impact potential moral reasoning, and the informational judgements informing that reasoning.

Empathic Capabilities of Individuals on the Autism Spectrum

Empathy is an important element of human social interaction and can be divided into two highly intertwined components (Baron-Cohen, 2013). Cognitive empathy consists of the ability to read others' emotional states and intentions through theory of mind and perspective taking, whereas affective empathy refers to the ability of an individual to respond to another's emotion with an appropriate emotion (Baron-Cohen, 2013). Considering ASD is characterized by deficits in social-emotional reciprocity (APA, 2013), it is important to consider potential differences in both cognitive and affective empathic abilities between autistic and typically developing individuals, and how this may impact moral reasoning processes. While cognitive and affective empathy are intertwined, a growing body of research suggests autistic individuals may experience an imbalance in the two components, which could lead to emotional distress or difficulties navigating certain social situations (Mazza et al., 2014; Rueda et al., 2015; Bos & Stokes, 2019). As such, this may be one contributing factor to the formation of informational assumptions in autistic individuals.

Empathic abilities impact the way we view and behave in the world in a multitude of ways. For example, Karnaze and colleagues (2022) found that people with high levels of empathy and compassion were more likely to believe in the importance of sheltering in place during the COVID-19 pandemic. In this example, empathic abilities directly influenced the individuals' informational judgements surrounding whether sheltering in place was necessary for the preservation of human life. Considering examples such as this, it is possible any potential differences in empathic abilities between autistic and typically developing individuals could impact informational judgements about the world around them. It is also important to consider that this empathic imbalance, or a difficulty in processing cognitive empathy specifically, can cause great personal distress to autistic people when asked to make moral decisions (Senland & Higgins-D'Alessandro, 2013, 2016).

Theory of Mind and Perspective Taking in Individuals on the Autism Spectrum

Theory of mind (ToM) is defined as the ability to conclude that others may have mental states different than your own, and to correctly make inferences about the content of those mental states (Baron-Cohen et al., 1985). This ability is considered an important prerequisite for the processing of social information, as understanding others' states as unique from our own is critical in processing our own mental states in addition to the social world around us (Mazza et al., 2017). There is a body of research dating back decades that suggests that as part of their difficulty with social-emotional reciprocity and relationship building, autistic individuals have deficits in ToM capabilities (APA, 2013; Baron-Cohen et al., 1985; Baron-Cohen, 1995). This has critical implications for their moral reasoning and moral judgements, as healthy development of ToM is often considered a cognitive precursor for generating intent-based moral judgements (Killen et al., 2012; Margoni et al., 2019; Smetana et al., 2011). It is important, then, to consider

how differences in autistic individuals' ToM capabilities could impact their own informational judgments regarding certain moral scenarios, as well as their ability to consider others' intentions in both informational and evaluative judgements.

There is evidence, however, that autistic individuals can generate intent-based moral judgements, despite recorded ToM deficits. Margoni and colleagues (2019) found that young autistic children's intent-based moral judgements did not differ significantly from mental age matched typically developing peers, so long as the task had low cognitive demands. In their task, children watched 2 movies featuring puppets, one which depicted attempted harm and one that depicted accidental harm. The children were then asked whether the transgressing puppet should be placed in the "good box" or the "bad box". Both groups of children put the puppet who attempted harm in the "bad box" more often than the puppet who accidentally harmed. However, the authors suggest that while this competence is clearly intact, the ability to express it in an environment with higher cognitive demands may be inhibited due to multiple factors. Everyday moral decisions often place high demands on individuals due to the variety of social and emotional factors involved. Furthermore, moral conflicts in everyday life often arise spontaneously, and generating spontaneous ToM judgements may be harder still for autistic individuals (Senju, 2012).

This can be seen in a study done by Ringshaw and colleagues (2022), which required autistic and typically developing boys aged 6-12 to engage in the equitable sharing of resources based on wealth, merit, and health. While both groups allocated more resources to the morally deserving person on the merit condition, the wealth and health conditions showed group disparity. These conditions required participants to consider fairness based on empathic concerns for the person's circumstances rather than their actions, and the authors found autistic individuals

tended to divide resources equally despite the different circumstances. The authors found that ToM capabilities were predictive of increased resource allocation to a morally deserving recipient, particularly in the wealth and health conditions. The authors suggest this is due to ToM being required to integrate empathic arousal with actual moral action.

How then, could ToM capabilities potentially influence the informational judgments made by autistic individuals? Wainryb (1991; 2004) found a significant relation in what an individual believes to be true, and how they evaluate moral acts. Wainryb (2004) also suggests that while the ability to recognize that other people hold beliefs that may be contrary to your own is typically developed by age 4-5, at this age this understanding is contingent on individuals having access to different information. It is only at the age of 7-8 years old that children begin to understand that people have different factual beliefs even when they have access to identical information (Wainryb, 2004). Thinking in this way requires the individual to engage in perspective-taking and seems highly dependent on developmental age. Considering informational assumptions are informed by the way an individual interacts with the social world, which includes interactions with others' beliefs, there is reason to suspect that this may then be a site of difference between autistic individuals and their typically developing peers.

Differential Experience of the Social World

The various social challenges faced by autistic people due to their difficulty with social skills can greatly influence how an autistic individual experiences the social and moral world around them. However, it is also important to consider how an autistic person's diagnosis and social behaviour may change the way the world interacts with them. In a Canadian-based survey, Cappadocia and colleagues (2012) found that autistic children face far more victimization in school due to bullying compared with the general population. Similarly, Ochi and colleagues

(2020) found that the onset of school refusal (ie. The refusal to attend school, difficulty remaining in school for the entire day, skipping classes etc.) in a sample of Japanese children was younger in children with autism than those without. Considering moral views develop through socially constructed events (Killen & Smetana, 2015; Nucci, 2001; Turiel, 1983), it is important to consider that autistic individuals may be subject to different social events due to their autism diagnosis, in addition to interpreting commonplace social events differently than their typically developing peers.

For example, Cappadocia and colleagues (2012) found that in addition to autistic children experiencing higher rates of bullying than the general population, this victimization was also generally verbal or social in nature. We must then consider how this high rate of victimization could impact the development of this population's informational judgements surrounding moral events. If informational assumptions are shaped based on social experiences, then high rates of negative social experiences (such as being bullied by peers) or social exclusion could have a critical impact on the beliefs autistic individuals hold about the world. Furthermore, there is evidence that social exclusion can even extend to the parents of disabled children (Carpenter & Austin, 2007; Currie & Szabo, 2020; Williams & Murray, 2015), which would have significant impacts on the child's socialization.

This is further suggested by another study done by Dempsey and colleagues (2022) which found, against their hypothesis, that autistic people used rules and their ascribed consequences in their moral reasoning less frequently than neurotypical children. The authors suggest this could be due to a different coding method used by the authors, which they posit could have yielded more diverse themes due to not using pre-existing categories for their sample's responses. However, this could also be due to different informational assumptions

being held by autistic individuals about the importance of social rules. Autistic individuals have long experienced a lack of social inclusion and discrimination from the general population, which can change the way they view the social world outside of the safety of their close network (Cappadocia et al., 2011; Jones et al., 2022). Considering this, it is possible that autistic and neurotypical individuals have begun to develop different informational judgements surrounding the importance of conforming to social norms.

Methodological Considerations from the Literature

Considering the lack of research in this area and the novel nature of this study, different methodologies used to study moral development in children with autism were reviewed. One of the primary difficulties encountered in this body of research, is that most measures designed to test various aspects of moral reasoning require reflecting upon hypothetical moral situations or past events. These methods do not lend themselves to the strengths of children with ASD, who may have difficulty with the autobiographical memory skills required to recall past events in their own lives (Westby, 2022). Unfortunately, much of the research being done with children with ASD is “being conducted ‘to’ the research participants and not ‘with’ them” (Fayette & Bond, 2018, p. 362). This presents an ethical problem, as a majority of people doing research on people with autism are not autistic themselves; so, methods that do not seek to accommodate autistic children’s neurodivergence risk misrepresenting the voices of a population that already has a history of not being heard (Fayette & Bond, 2018). The following section will review different methodological considerations that were taken into consideration for developing a protocol to evaluate potential differences in autistic individual’s informational judgements.

Issues of Consent

For an individual to consent to participating in research, the consent must be given voluntarily, be properly informed and be an ongoing process throughout the process (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada & Social Sciences and Humanities Research Council, 2022). There are considerations to be taken regarding the consent of autistic children for each of these facets. First, it is important to consider that differences in the way autistic people communicate may impact their ability to give consent freely (Lloyd, 2012). Lloyd (2012) suggests that visual approaches explaining the research may be more conducive to acquiring freely given consent, as it is more understandable to the participant. Similarly, Harrington and colleagues (2013) suggest having two formats of consent forms to better accommodate different communication styles – the first consisting of clear written language, and the second consisting of visuals with more basic words. Social Stories (as developed by Carol Gray, 1998) have also been suggested as a way of communicating the purpose of the research and what it entails to autistic individuals (Harrington et al., 2013; Lloyd, 2012). It is also important to acknowledge that some autistic children may not feel comfortable withdrawing their consent verbally, so it is important to look for nonverbal signs of consent withdrawal (Harrington et al., 2013). Methods such as these can not only assist in ethically obtaining consent from autistic children but can also help in acquiring more valuable data due to increased participant comfort.

Another issue underlying all three facets of ethically obtaining consent from an autistic child is centred on the power dynamic between the child and the researcher. Winstone and colleagues (2014) suggest that if an autistic child has difficulty understanding the motive of the adult researcher, they may assume there is a “right” answer they are supposed to give and can

become anxious if they feel they cannot give it. This can be a particular problem of traditional interview methods (Winstone et al., 2014). This power dynamic can also contribute to the autistic child feeling uncomfortable verbally expressing their wish to discontinue. One suggestion to circumvent this is to offer the child a physical “stop card” that they can hand the researcher should they not wish to continue (Harrington et al., 2013). Additionally, presenting a Social Story introducing the interviewer can help put the child at ease about the interviewer’s motivation (Harrington et al., 2013). It is critical that methods such as these are considered so the consent obtained is truly freely given and continuous, as well as to allow for data that is more fully representative of the strengths of the participant.

Issues with Verbal Interview Methods

While interview methods are the primary methodology of qualitative research, there is evidence that traditional interview methods do not cater to the strengths of autistic individuals (Cridland et al., 2015; Harrington et al., 2013; Winstone et al., 2014). If interviews are being conducted, a strong interview guide should be developed to allow researchers to notice potential participant discomfort, rather than focusing on interview protocol (Cridland et al., 2015). Furthermore, it is important to consider the child as an individual rather than a diagnosis and be aware of any diagnostic-related assumptions you may carry as a researcher (Harrington et al., 2013). Harrington and colleagues (2013) also found greater success in soliciting answers to open-ended interview question when it was preceded by a simple closed question. Visual supports can also be used to elicit richer responses, such as visual supports to potential interview answers (e.g., pictures of emotions), a visual schedule of what will be discussed in the interview and allowing extra time for question processing (Harrington et al., 2013).

It is also important to consider how alternative interview methods may provide better qualitative data when working with autistic children. Winstone and colleagues (2014) developed an activity-oriented interview method, which they felt better captured the strengths of their autistic participants. In this study on the topic of self-identity, one group of autistic boys participated in traditional interviews, and another group of autistic boys participated in activity-oriented interviews. The activity-oriented interviews involved talking about art (such as self-portraits) the boys had created with their art teacher two weeks prior, as well as looking in a small mirror and describing what they felt, saw, and thought others would see. Winstone and colleagues found that the activity-oriented interviews resulted in a greater amount of dialogue with participants, and also resulted in the participants showing more strengths in skills such as perspective taking. The authors suggested that these successes were due to increased participant preparedness for the interview, providing a shared reference point for the participant and researcher, the concrete nature of the activity, and the fact that this method did not insinuate a need for prolonged eye contact (Winstone et al., 2014). Given the success of this study in elucidating more strengths of their participants, activity-oriented methods should be considered more when doing research with autistic children.

The Present Study

Within the framework of social domain theory (Nucci, 2001; Smetana, 2006; Turiel, 1983; 2014), looking specifically at the role of informational judgements on moral reasoning (as conceptualized by Wainryb, 1991; 2004), could offer valuable insight into how autistic children develop morally. While it has been shown that preadolescent autistic children can differentiate between social and moral transgressions (Shulman et al., 2011), there are still frequent disagreements across the literature as to *why* and *how* the moral reasoning and judgements of

autistic children vary on tasks including both social conventional and moral transgressions. There is a lack of research in this area, and what studies do exist lead to inconclusive results when taken together (Dempsey et al., 2020). One potential reason for these varied differences could be that autistic children form different informational judgements due to a variety of factors, which would not necessarily be elucidated through other measures of moral reasoning.

The lack of research available, combined with methodologies designed to find deficits rather than strengths (Winstone et al., 2014), point to a need for more research on this topic that strives to represent autistic voices in a way that highlights their strengths, rather than searching for deficits. Developing a better understanding of how autistic children view the moral world, as constructed by their interaction with the social domain, could also offer insight into potential educational avenues for these individuals. Wainryb (1991; 2004) concludes that different informational assumptions do impact people's evaluative judgements. There are many possible reasons for why informational assumptions may vary between individuals, such as age, social conventions, and other cultural factors. Wainryb (2004) also suggests that following the constructivist process, some factual beliefs may even stem from previous moral decisions. This closely aligns with how social domain theory posits that our moral domain is constructed through our interaction with social phenomena (Killen & Smetana, 2015). As such, the variety of ways in which an autistic child's interaction with the social world differs from that of a typical child could result in very different informational judgements, and consequently lead to different evaluative judgements in certain cases.

This thesis looks at potential sites of different informational judgements in autistic and neurotypical individuals to evaluate whether this is an avenue for further testing. The goal of this project is not to provide a fully comprehensive model of how autistic children's moral domain

differs from that of a typically developing child, but rather to explore whether this is an appropriate avenue for further testing (see Bowen et al., 2009). As such, qualitative data was taken on the nature of autistic children's informational judgements that allows their voices to be represented more directly, according to the following research questions:

- 1) In what way does the reasoning behind each participant's evaluative judgement vary between children with ASD and their neurotypical peers?
- 2) In what ways do these variations suggest underlying differences in the informational assumptions of each group?

Aim and Purpose of the Study

The purpose of this study was to provide preliminary qualitative data surrounding the informational judgements autistic children have that may differ from their neurotypical peers to better understand their moral reasoning processes. Considering the lack of research on moral development in children with autism generally, and the inconclusiveness within the studies that do exist (Dempsey et al., 2020), it is critical to explore possible avenues that account for the different variations in moral reasoning seen in this population. The data collected could serve as a basis for future study, or for developing more adequate educational materials for autistic children.

Methods

Participants

A total of 4 participants were selected for the ASD group using purposeful sampling based on criteria established to participate in the study: 1) Having a confirmed diagnosis of ASD with or without intellectual disability, 2) Having communicative abilities that allows them to engage in dialogue, either verbally or through Augmentative and Alternative Communication

(AAC) systems, 3) Being comfortable communicating in English, 4) Attending a regular or specialized school full-time with same-age peers, 5) Being between the ages of 7 and 10 at the time of the study. Considering the exploratory nature of this study, it was determined that whether a participant had intellectual disability was not relevant, so long as the author was aware of whether it was present. Pseudonyms were assigned to all participants to protect participant privacy. Participants consisted of Megan (female, age 7), Sophia (female, age 10), Nicole (female, age 10) and George (male, age 8). All four children attended their local school, although several of them received special supports within the school setting. According to her mother, Megan had “some emotional and behavioral issues, but is doing very well in school”. She was a shy but fun-loving seven-year-old, who turned 8 at the beginning of the 2023 school year. Sophia did not have any accommodations in school. She was very outspoken and seemed to have an easy time communicating. Nicole had a diagnosis of ASD, Level 1, which she received shortly after her eighth birthday. She had very strong opinions and was not afraid to voice them. George was a very happy boy, who loved to tell stories and talk about shows and videos he had seen. While George did have some speech difficulties, that did not stop him from expressing himself and telling stories about topics of interest to him.

A total of 4 participants were selected for the typically developing (TD) group based on criteria established to participate in the study: 1) Not having a diagnosis of any psychiatric conditions, 2) Being comfortable communicating in English, 3) Attending a regular or specialized school full-time with same-age peers, 4) Being between the ages of 7 and 10 at the time of the study. Pseudonyms were assigned to all participants to protect participant privacy. Participants consisted of Michael (male, age 10), Isaac (male, age 8), Sarah (female, age 9) and Jessica (female, age 10). Michael was very outspoken and outgoing, and enjoyed talking about

different activities and topics of interest to him. Isaac was less outgoing, but still enjoyed talking about a variety of interests. Sarah had a very mature outlook on life and was easy to mistake for being older than she is. Jessica was a bubbly girl who was very strong in her opinions, and who loved to socialize. This age group was chosen due to the middle childhood being associated with increased independence, greater social awareness, and the rapid development of critical thinking skills (Centre for Disease Control and Prevention, 2021). In addition, this age range allowed for greater variation in the types of social phenomena experienced by participants due to the number of years they have been in a school setting.

Measures

Sociodemographic and Family Characteristics. Considering the multi-faceted nature of moral development, and potential influences of sociodemographic and family characteristics on the formation of informational judgements, it is important to understand each child's background. As such, standard demographic information was collected on the parent's marital status, mother-tongue, family income, and parental education. Furthermore, parents were also asked if their family has any religious affiliations, as this could hold significant sway over the formation of the child's belief systems. Additionally, to increase comfort levels of research participants, parents of both the TD and the ASD group were asked if there was anything they wished to disclose about their child's particular social or communication needs (Harrington et al., 2013). Parents of children with ASD were also asked if there is any relevant diagnostic information surrounding their child's ASD diagnosis that they wished to disclose.

Activity-Oriented Task. Using the framework first used by Wainryb (1991) a novel task was developed designed to look for potential variations in informational judgements between the TD and ASD group. Winstone (2014) suggests the use of an activity, rather than a traditional

interview which offers more rich data that allows children with ASD to better showcase their strengths. This is due to having a common referent, reducing the need for eye contact, and the more concrete nature of the task (Winstone, 2014). In this task, the activity consists of the reading of visual stories depicting different scenarios to be discussed (see Appendix B).

Harrington and colleagues (2014) found in their review that autistic children were more able to answer open-ended questions when preceded by a close ended question, and so the interview protocol was developed in this way.

First, the child was presented with a social story depicting a prototypical moral violation (PMV) of Child 1 pushing Child 2, with no other information given. The straightforward nature of this scenario lends itself to very concrete welfare-based moral judgement of whether harming another is wrong, which should be easily distinguishable for both groups, based on previous research (Killen & Smetana, 2015; Shulman et al, 2011). Furthermore, this PMV and all following scenarios were designed with the intention of being as close to a real-life experience as possible. It has been shown that autistic individuals often have difficulty with tasks that require reflecting on past events (Harrington et al., 2013), so it was determined that presenting a fabricated close-to-life scenario would elicit more valuable data than asking participants to recall a scenario from their own lives.

Following this, three variations of the event were presented in the format of a social story, designed to add different information that makes the violation more goal directed. The first goal directed scenario (GD-1) informs the participant that Child 2 has been bullying the best friend of Child 1, so Child 1 is pushing them in retribution for their friend. This information is designed to measure how the child views the concept of retribution in relation to justice, as well as attitudes toward group loyalty. Dempsey and colleagues (2020) found that autistic youth

valued ingroup loyalties less than other domains, so it is predicted that the ASD group may hold a different view on this scenario than the TD group. The second goal directed scenario (GD-2) tells the participant that Child 2 has cut in front of Child 1 in a line-up to get the last ice cream, even though Child 1 has spent all day helping the teacher serve it. There have been variations found between individuals with ASD and TD peers surrounding equitable resource allocation (Ringshaw et al., 2021), so it is suspected that ASD and TD groups may have different views surrounding whether this is justified. Finally, a third scenario (GD-3) will inform the participant that Child 1 and Child 2 were playing tag, and Child 1 unintentionally pushed Child 2 by running too fast during the game. Given variations in autistic individuals' ability to account for intentionality (Jameel et al., 2019; Margoni et al., 2019), it is suspected that the two groups may vary in the extent to which they value the intentions behind the action.

Modeled after Wainryb's (1991) initial task to measure differences in informational judgements, this task is designed to evaluate how the two groups may view the PMV differently when presented with information that alters the scenario. Following the presentation of each scenario, an interview protocol was followed that is designed to elicit views surrounding *why* the information may or may not have altered the child's initial judgement (whether pushing another child is wrong). While these visual stories are designed to with the specific intention of better representing the strengths of the ASD group, the same stories will be used with the TD group for consistency. This way both groups have a visual referent for each scenario, which should assist in making generally abstract concepts more concrete for both groups (Winstone et al., 2014).

Procedures

Prior to the administration of the parent questionnaire, a consent form was sent to the parent to explain the research project and acquire their written consent. These forms also

explained to the parent how verbal consent would be obtained from their child. Due to variations in parental comfort levels when speaking with professionals and scheduling limitations due to parent work schedules and the increased parental load of caring for a child with ASD (Currie & Szabo, 2019, 2020), parents of both groups were given the opportunity to complete the questionnaire either in writing via email, or verbally via phone call or zoom interview. The parents of all participants chose to complete the questionnaire either in writing via email, or by printing the questionnaire and filling it out on paper. For the parents that filled the questionnaire out on paper, the paper copy was collected by the interviewer prior to the start of the activity-oriented interview.

The child activity-oriented interviews were conducted in a variety of locations throughout Montreal, Quebec and Calgary, Alberta, and were all audio recorded using an iPhone 11. To increase child comfort, all locations were familiar to the child being interviewed, and included a pullout room at a child's summer camp, a university meeting room, and quiet study spaces at several local libraries. At the beginning of the interview, the child was asked to read a short social story introducing the interviewer and explaining the purpose of the research. They were also offered the option of having the interviewer read the story to them to decrease stress on the participant. To increase child comfort and ensure the child did not feel coerced into participating due to being anxious voicing their wish to stop verbally (Harrington et al., 2013), the child was also given a small card in the shape of a red stop sign and told that they may hand the card to the researcher should they wish to stop the interview. Following this, each scenario was presented to the child and the corresponding questions administered. Following the interview, the child was given the option of taking a small sticker to thank them for participating, but the child was not made aware of this until the interview was complete. Interviews ranged in length from 10

minutes to 30 minutes, and the length of the interview depended largely on the participant's communicative abilities.

Table 1

Interview Guide

Scenario	Questions
Prototypical Moral Violation (PMV)	<ol style="list-style-type: none"> <li data-bbox="873 562 1427 682">1. Is it okay for the child to push the other child? <li data-bbox="873 709 1427 745">2. Can you explain why? <li data-bbox="873 779 1427 898">3. Is it okay if the teacher didn't see what happened? <li data-bbox="873 926 1427 1045">4. Should the child who pushed the other child be punished? <li data-bbox="873 1073 1427 1108">5. Can you explain why?
Goal-Directed Scenario 1 (GD-1)	<ol style="list-style-type: none"> <li data-bbox="873 1220 1427 1339">1. Is it okay that the child pushed the bully? <li data-bbox="873 1367 1427 1402">2. Can you explain why? <li data-bbox="873 1436 1427 1556">3. (If no) What should the child have done instead? <li data-bbox="873 1583 1427 1766">4. (If yes) Is there something else the child should have done to fix the bullying problem?

5. Should the child be punished for pushing the bully?

6. Can you explain why?

Goal-Directed Scenario 2 (GD-2)

1. Is it okay that the child pushed the child trying to cut in front of them in line?

2. Can you explain why?

3. Which child do you think deserves the last ice cream?

4. Can you explain why?

Goal-Directed Scenario 3 (GD-3)

1. Is it okay that the child pushed the other child while playing tag?

2. Can you explain why?

3. Should the child still get in trouble for pushing the other child even though it was an accident?

4. Can you explain why?

All interview recordings were manually transcribed to ensure data accuracy, as 3 out of 4 ASD participants had speech impediments that made it difficult for transcription programs to pick up their language. Throughout the coding process, the researcher engaged in analytic memo

writings, which Saldaña (2016) suggests as a way of engaging with and enriching qualitative data. The transcript went through two rounds of coding. The first was In Vivo, as it allows participants' own words to be used as coding categories (Saldaña, 2016). This is particularly important for this project, as it hopes to represent the voices of the child participants in an authentic way to explore potential differences in informational judgements between the two groups. Following this, the data was then coded through a second cycle using the focused coding method. This allowed the researcher to develop major categories of codes (Saldaña, 2016) which were then be used for the purpose of looking for qualitative variations between groups. The categories within each scenario were looked at in terms of whether that category was prominent in both the TD and ASD groups or featured more prominently in one group than the other. Based on this information the categories were analyzed as potential sites for different informational assumptions between groups.

Findings

First, the aggregated information of the sociodemographic questionnaire are presented to offer initial insight into each participant. Following this, the results of coding and analysis are presented by scenario, as each scenario presented information associated with different aspects of morality.

Sociodemographic Questionnaire

As seen in Table 2, 50% of the child participants were age 10 within each group, with the other two children in each group being slightly younger. The TD group was 50% male, 50% female, while the ASD group was 75% female and 25% male. All participants have mothers with some post-secondary education, with 50% holding a bachelor's degree. All participants except 2

held some sort of religious affiliation, including Catholicism, unaffiliated Christianity, and Islam. Participants resided in 5 different communities within 2 different provinces.

While this sociodemographic was not analyzed in isolation, it was used to look for any patterns that may be impacting participant group responses to different moral scenarios. Within the TD group gender parity was achieved, however the ASD group is comprised of 75% female and 25% male. Additionally, within the ASD group 75% of participants are affiliated with one religion. While it is impossible to know for certain if these factors impacted the ASD group responses, due to the highly complex nature of moral decision making it is important to note that these factors may have some impact on participant response. Other than these factors, the

Table 2

Snapshot of Participant Sociodemographic Information

Name	Age	Sex	City of Residence	Maternal Education Level	Religious Affiliations
TD Group					
Isaac	8	M	Calgary, AB	Bachelor's Degree	No
Jessica	10	F	Montreal, QC	PhD or Higher	Catholicism
Michael	10	M	Calgary, AB	Bachelor's Degree	No
Sarah	9	F	Montreal, QC	College/CEGEP	Unaffiliated Christianity
ASD Group					
George	8	M	Saint-Leonard, QC	Bachelor's Degree	Islam
Megan	7	F	La Prairie, QC	Master's Degree	Islam
Nicole	10	F	Vaudreuil-Dorion, QC	Bachelor's Degree	Catholicism
Sophia	10	F	La Prairie, QC	Master's Degree	Islam

participant group represents both sexes, a range of municipalities, ages, maternal education levels and religious affiliations.

Prototypical Moral Violation (PMV)

In this scenario a child pushes another child on the playground, with no contextual information given (see Appendix B for scenario). The purpose of this scenario was to act as a

Table 3

Categories Based on Individual Subcategories After Second Cycle Coding – PMV

Category	Subcategories	
	ASD Group	TD Group
Getting in Trouble	Adults, Telling, Trouble	
Acknowledging Ambiguity	Ambiguity	Different Conditions, Different Possibilities
Adding Details	Playground Locations, “Little” Children	Playground Activities, Locational Information
Hurt	Physical Harm, Hurt, Bullying	Hurt, Hurt
Other Peoples’ Actions	Others’ Actions	Assigning Blame, Having a Reason
Strong Action Words	“Teach a lesson”	“targeted”, “force”
Uncategorized	Relating Personally, Saying Sorry, Knowing, Can’t Push, Negative Response	Absolutes

Note. Replicated categories indicate this category was present in multiple participants.

baseline for both groups, as it's straightforward nature would create an easily distinguishable moral judgement for both groups (Killen & Smetana, 2015; Shulman et al, 2011). As expected, within this category there were many similar categories within the responses between groups, with most categories being comprised of subcategories from both groups.

The one exception was the category of "Getting in Trouble", which was comprised solely of subcategories from the ASD group. This was interesting, as all participants were asked if the pushing would still be okay/not okay if the teacher saw, but only George and Nicole discussed getting in trouble at length in their responses. When asked if pushing was okay if the teacher did not see what happened, Nicole responded with "but then the kid would tell the teacher and you would get in trouble". This was an interesting response as it implies that the reason pushing remains "not okay" if the teacher didn't see it is due to the impending threat of adult intervention, rather than the morality of the act itself. When asked whether the other child should get in trouble for pushing, George responded with "maybe just go and tell the... adult". While both responses have different contexts and implications, it is interesting that both George and Nicole both focused heavily on an adult intervening in the scenario. This could suggest both children hold informational assumptions that place heavy emphasis on the importance of adult intervention in the pushing scenario.

The category "Hurt" was comprised of responses from 2 participants per group, including Sophia, George, Isaac and Sarah. Of all the categories in this scenario, this was the one featured most heavily across the greatest number of participants. George described pushing as "bad", the reason being that "you could hurt somebody and they [the child pushing] know that". Similarly, Sarah said pushing was not permissible because "the child can get hurt" and Isaac said pushing "would hurt the other child". Sophia's emphasis on hurting was based on physical harm leading

to the child deserving a more severe punishment. When asked if the child who pushed the other one should get in trouble, Sophia responded with “if the child is okay, well, I guess no punishment, but if like a bone is broken, well...”. To all four of these children the potential of physically harming the other children were critically important in how they viewed whether pushing is permissible, as well as the overall severity of the act. This suggests all four children hold strong informational assumptions about how physically harming another person is unacceptable.

Goal-Directed Scenario 1 (GD-1)

This scenario featured a child pushing another child in retribution for bullying their best friend (see Appendix B for full scenario). Within this scenario there were many similarities between groups, with both groups suggesting that the pushing was not permissible, despite being more sympathetic to the reason for pushing. For example, when asked if it was okay that the purple child pushed the bully, George responded with, “Yes and no at the same time... because the yellow child has been bullying the purple guy’s best friend for one month and, but it’s also bad because pushing’s not okay”. Jessica expressed a similar sentiment stating, “No. But it’s not okay that this child has been bullying their best friend”. Similarly, both groups focused heavily on how the children should both get in trouble, and on the importance of telling an adult so they can intervene. Nicole, for example expressed, “they all get in trouble and detention for them both”. This suggests both groups share a common informational assumption that violence is not acceptable, even in retribution for intentional harm, and that this action deserves an adult-delivered consequence.

Table 4*Categories Based on Individual Subcategories After Second Cycle Coding – GD-1*

Category	Subcategories	
	ASD Group	TD Group
Time		Length of Time, Length of Time
Not Permissible	Not Okay, No Pushing	Not Permissible, Not Right
Acknowledging Ambiguity	Different Eventualities, Ambiguity, Uncertainty	Multiple Scenarios
Trouble/Punishment	Trouble, Punishments	Getting in Trouble, Trouble
Other Peoples' Actions	Others' Actions	Assigning Blame, Having a Reason
Physical Harm		Violence, Physical Nature of Bullying
Use of Words	"Stop" Phrases	Using Words
Telling/Adult Intervention	Grown Ups, Telling	Telling an Adult, Telling
Amounts	Number of Bullies, Quantifying Actions	
Uncategorized	Reaction of Others, Self-Insertion, Type of Person	Protecting Yourself, Both Children, Revenge

Note. Replicated categories indicate this category was present in multiple participants.

However, while there were many similarities between groups, there were also several categories that only featured heavily in one group or the other. Within the TD group, both Jessica

and Sarah found the length of time the bullying had been occurring to be significant to the scenario. Jessica said, “even more so that it is for one month... cause it could mean like a lot of time for bullying”. Sarah did not make an overt statement about the length of time like Jessica, however she did bring up the length of time on several occasions throughout this portion of the interview. Additionally both Michael and Sarah focused heavily on whether or not the bullying consisted of physical violence. When asked if pushing the bully was acceptable, Sarah responded with “if the yellow child has been physically bullying their best friend for a month I’d say yeah, but if it was just with words I’d say no.” She later added, “in physical it can... give them a lot of like injuries, but with, with words it’s not like, it doesn’t give a permanent mark. It just, it just stays there for a while and then leaves”. Michael also placed similar importance on whether the bullying consisted of physical violence. He said, “if he was going to punch his friend then he could push him out of the way”. Through these statements, both participants engaged in comparing the pushing to the actions of the bully. This suggests they believe the permissibility of the pushing is linked to whether the pushing was comparable to what the bully was engaging in.

Within the ASD group, Sophia, George and Megan all expressed uncertainty or ambiguity about the bullying scenario. Megan seemed to find this scenario particularly difficult, as she often expressed “I don’t know” in response to questions surrounding whether the bully should get in trouble. Similarly, when asked if the child who pushed the bully should get in trouble Sophia said, “I mean maybe?... The person could, uh, get in trouble because I, I mean it’s still pushing.” George responded in a similar way with “Yes, and no at the same time”. While both groups did show instances of uncertainty when asked to compare the two actions, the ASD group did seem to see greater nuance in comparing the two scenarios. This could suggest different informational assumptions surrounding whether the act of retribution was permissible

but could also suggest that a scenario with a large amount of ambiguity was more difficult to process for the autistic participants.

Additionally, only Megan and Sophia within the ASD group engaged heavily in quantifying different aspects of this scenario. Sophia, for example used words such as “medium” and “a pretty long time” to describe the amount of trouble the student who pushed the bully should get in. Megan began assigning numbers to the scenario based on the visual representation of it, saying “there’s three bullies. And this one kid”. This could be an example of the autistic participants thinking looking at more literal aspects of the scenario, but it could also suggest they place higher importance on the quantifiable nature of the actions.

Goal-Directed Scenario 2 (GD-2)

This scenario asked participants whether pushing was permissible in response to another child cutting in front of a child in line who was waiting for a hard-earned treat (see Appendix B for full scenario). This scenario featured the greatest disparity between the ASD and the TD groups. The only category split equally between the two groups was that of “Waiting”. Both Michael and Sophia placed a high level of emphasis on how the child had been waiting in line when the other child cut in front of them. Sophia said, “he cut in line when there was other people waiting for the ice cream, and I think they’ve been, uh, waiting pretty long for the line”. Similarly, when asked who deserves the last ice cream Michael responded with “the purple one because he’s been helping and waiting”. This response was particularly interesting, as it suggests that the fact that the child has been helping the teacher and waiting for a period of time are equally important to this participant’s calculation of who is most deserving of the ice cream.

Table 5*Categories Based on Individual Subcategories After Second Cycle Coding – GD-2*

Category	Subcategories	
	ASD Group	TD Group
The Line	Cut in Line, Referencing the Line	
Pushing	Pushing, Pushing	
Helping	Helping, Helping	
Hurt	Hurting, Examples of Injury	
Negative Descriptors	Being Mean, Bullying, Cheating	
Waiting	Waiting	Waiting
Not Permissible	Not Good	Not Okay, Not Okay, Not Okay
Solutions	Possible Solutions, Possible Solutions	
Reference to Ice Cream	Loss of Ice Cream, Buying More Ice Cream, Last Ice Cream	
Uncategorized	Feelings, Fairness, Being First	Both of Them, Telling

Note. Replicated categories indicate this category was present in multiple participants.

Within the TD group, both Sarah and Isaac focused heavily on the fact that the purple child had been helping the teacher, while nobody within the ASD group placed a large amount of focus on this information. Isaac expressed that the purple child was more deserving of the ice cream because, “he helped to serve it”. Sarah responded to the same question similarly with “Because they’ve been helping, helping with serving it”. Jessica was the only participant who focused on whether physical harm resulted from the push, saying “if it’s a big push then they could... get into more trouble cause like, they could have gotten like severely hurt. Maybe like a fractured arm or something like that”. This was interesting considering there was a large amount of focus on whether the child was hurt in the GD-1 scenario.

Within the ASD group Megan, Sophia and George all focused on the ice cream itself, whereas not a single participant within the TD group focused on the ice cream itself. Sophia suggested a possible solution to the problem, saying, “you can go buy some ice cream at the store”. George expressed, “this child just cut in line just to get the last ice cream and that wouldn’t be fair because it’s the last ice cream”. He went on to speculate, “maybe what they meant was the last *flavour* of ice cream”. Megan seemed particularly focused on the ice cream itself, stating “you can’t push the people in the line or else they will lost their ice cream... If you give this ice cream to this person they have zero ice cream.” This shows a heightened focus in the ASD group with the acquisition or loss of the ice cream, which suggests a potential difference in informational assumptions surrounding the importance of physical objects.

Along this line, Megan, George and Nicole all engaged in the use of negative descriptors to describe the student who cut in line. Nicole said, “he cut in line and that’s cheating”. Megan also made a similar remark saying, “You can’t cut in line, or else, or else you’ll be cheating”. Nicole and Megan also placed higher significance on the line itself than did other participants.

Finally, only Sophia and George engaged in finding possible solutions to the problem, with Sophia suggesting rather than cutting in line child could simply buy more at the store, and George suggesting that the student who cut in line should be sent “home for the rest of the day”. Not only does this suggest a higher attention to the individual details of the scenario within the ASD group, but also potential differences in informational assumptions between groups. For example, it is possible that the increased importance of the physical object – the ice cream – for the ASD groups has led them to feel more negative about the student who cut in line, as well as increased their desire to find a solution that will lead to a positive outcome for the child.

Goal-Directed Scenario 3 (GD-3)

In this scenario, participants were asked whether pushing was permissible if it was committed by accident during a game of tag (see Appendix B for full scenario). Like all scenarios, there was crossover between groups, with a majority of categories comprised of subcategories from both the TD and ASD groups. Both groups discussed equally the possibility of getting in trouble, with Michael saying the child who pushed the other one “should get in a bit of trouble if he doesn’t do anything or ask if he’s okay” and George saying, “you don’t need to get in trouble because accidents aren’t bad”. One participant from each group also engaged in inserting themselves into the scenario. Jessica compared the scenario to one in her own life in which “we were doing twirls and all that and I hit someone in the face like really hard... And I, I felt so bad. But it was accidental because I didn’t see their face”. Immediately after hearing the scenario George asked, “Do you know what I would do if I couldn’t catch somebody?” This suggests a large number of commonalities in informational assumptions between groups for this scenario.

Table 6*Categories Based on Individual Subcategories After Second Cycle Coding – GD-3*

Category	Subcategories	
	ASD Group	TD Group
Personality Descriptions	Being Mean, Nice/Friendly	Nice or Mean
Trouble	Trouble, Trouble	Getting in Trouble, Trouble
Making Sure the Child is Okay		Making Sure He's Okay, Making Sure They're Okay
Others' Feelings	Solutions to Make the Other Person Feel Better	Feelings of Self and Others
Hurt	Hurt	Hurt
Apologizing	Saying Sorry	Apologizing, Apologizing, Apologizing, Apologizing
Accidents	Accidents, Accidents, Accidents, Accident v. On Purpose	Accidents, On Purpose
Intentions		Unintentional, Intentions
Game Play	Being on Teams	Over Competitive, Playing Games
Pushing	No Pushing, Pushing	
Self-Insertion	Self-Referencing	Relating Personally

Uncategorized

Helping, “Attacking”,
Comparative Strength of
Action

Note. Replicated categories indicate this category was present in multiple participants.

However, the main two points of deviance between the groups center on apologizing, and the fact that the push was accidental. All four participants from the TD group focused heavily on the importance of apologizing as the primary way for making reparations for the push. When asked whether the push was acceptable, Isaac responded with “Yeah, because it’s on accident. You just say sorry, and it should, and it’s okay”. Sarah responded in a similar way with “they should say sorry and like excuse themselves”. From the ASD group only Sophia focused significantly on apologizing, “it was an accident but like it pushed the child so like I guess you could say sorry”. In a similar line of reasoning, only Isaac and Michael talked at length about ensuring the other person’s well-being. According to Isaac, “You have to make sure they’re okay”. This could point to a difference between the groups surrounding informational assumptions on the importance of apologizing and making reparations.

In the ASD group George, Sophia and Nicole all spoke at length about the fact that the push was an accident, whereas only Isaac in the TD group spoke significantly about this. When asked if the accidental push was permissible, Sophia responded with “it was an accident, so I guess it’s okay” and George responded almost identically with “yeah because it was just an accident”. He even went to explain further, “because it was an accident and accidents, if there were accidents it, you, you don’t need to get in trouble because accidents aren’t bad”. Nicole expressed a similar sentiment with “an accident’s okay so, so they’re technically not being mean”. Considering the ASD group focused predominantly on the accidental nature of the

perpetrator's actions and the TD group focused more heavily on apologizing for the accidental transgression, there could be a large difference in informational assumptions between the two groups. This difference would suggest that the ASD group may feel less need to apologize for the transgression because of the informational assumption that accidents are not bad, which may lead them to view the transgressor as less responsible for the action.

Discussion

Sites of Variation

While there were some differences in the reasoning behind each participant's evaluative judgement between groups, there were also many similarities. Between the groups there was a common theme of focusing on the consequences of the child's action, particularly whether it resulted in the child getting in trouble by an adult. This is in line with the developmental age of the group, as while children in this age range are starting to gain independence, they are still reliant on adult intervention (Centers for Disease Control and Prevention, 2021). However, while this theme did exist between groups, it was highlighted only by the ASD group within the Prototypical Moral Violation (PMV) scenario. Considering this scenario did not offer any extraneous information, this suggests that while both groups do place a high level of value on adult intervention and getting in trouble, this focus may be more salient for the ASD group.

Similarly, both groups engaged in elaborating story details by adding in details themselves, ascribing personality traits to the children in the scenario, or adding details about the gameplay of the scenario. However, the ASD group seemed more inclined to reference specific details within the scenario. For example, in GD-2 only the ASD group focused heavily on the detail of the children being lined up, and on the ice cream treat described in the scenario. Similarly, in GD-1 only the ASD group focused heavily on assigning numbers to different

aspects of the scenario, such as the fact that the image depicted three bullies. This could be due to autistic children finding salience in details that their neurotypical peers deemed irrelevant.

Perhaps the largest variation in the reasoning between the two groups exists in the way in which participants focused on others. In the PMV scenario both groups did focus on others' actions, however, in Goal-Directed scenario 3 (GD-3) only the TD group engaged heavily in focusing on others. Within this scenario participants focused on apologizing, others' feelings, the intentions of others and making sure the other is okay. The ASD group, however, focused heavily on the accidental nature of this scenario. This is in line with previous research that suggests due to deficits in theory of mind capabilities, autistic individuals may have difficulty with perspective taking and reading the intentions of others (Baron-Cohen et al., 1985; Baron-Cohen, 1995). This could also be linked to researched differences in empathic capabilities of autistic individuals (Mazza et al., 2014; Rueda et al., 2015; Bos & Stokes, 2019), as apologizing and placing importance on the feelings of others' require some degree of empathy.

Possible Differences in Informational Assumptions

Informational judgements “entail descriptive concepts regarding the nature of reality” (Wainryb, 1991, p. 841). While it is difficult to pinpoint these exact informational assumptions due to their highly complex nature, these sites of variation do point to potential differences between groups, as well as some similarities. The focus of both groups on getting in trouble and adult interventions suggests both groups hold similar beliefs surrounding adults as protective figures, or potentially surrounding concepts of justice and the importance of receiving consequences for your own actions. However, the fact that this concept seemed to be more salient for the ASD group suggests these participants may believe more strongly in the importance of these concepts. If we consider how social domain theory posits that our moral

domain is constructed through our interaction with social phenomena (Killen & Smetana, 2015), it is important to note that autistic children do generally experience higher dependence on adult caregivers than their neurotypical peers (Currie & Szabo, 2019, 2020; Jones et al., 2022).

Additionally, autistic children do experience higher rates of bullying (Cappadocia et al., 2011), which would likely result in an increased need for adult intervention in their daily lives.

Considering these factors it seems likely that this group would be more heavily reliant on adults, and as such would hold different informational assumptions surrounding how important adult intervention was across scenarios.

Another potential site of different informational assumptions between groups could be in the different views toward the importance of apologizing and the accidental nature of the push in GD-3. All four participants from the TD group focused heavily on the importance of apologizing as the primary way for making reparations for the push, whereas this was not a primary focus within the ASD group. However, in the ASD group George, Sophia and Nicole all spoke at length about the fact that the push was an accident, whereas only Isaac in the TD group spoke significantly about this. Taken together, this suggests a potential difference in the informational assumptions between groups surrounding whether you are responsible for the consequences of an action you did not commit intentionally. Apologizing for an action does suggest taking responsibility for it in some way, even if there is no other consequence for the perpetrator. Considering the TD group focused heavily on apologizing and less heavily on the accidental nature of the push, this suggests this group may hold the belief that you do remain responsible for your actions even if they are unintentional. Similarly, the focus of the ASD group on the accidental nature of the push, with considerably less focus on apologizing, suggests this group may view the accidental nature of the push as alleviating their responsibility for the consequence.

This does seem to reflect the potential social experiences of the ASD group, as ASD does cause many involuntary actions such as repetitive motor movements, difficulties adjusting behaviour to different contexts and increased or decreased reactivity to the environment (APA, 2013). As such, many of these students may have increased levels of conversations along the line of “it’s not your fault you behaved that way”, which in turn could impact the way they view actions that occur by accident.

Another major sites of difference surround referencing specific details in the scenario. Referencing specific details in the scenario could be due to different informational assumptions surrounding the importance of material objects. For example, within GD-2 Megan, Sophia and George all focused on the ice cream itself, whereas not a single participant within the TD group focused on the ice cream. Considering ASD is characterized by fixated interests that are often focused on specific objects (APA, 2013), it is quite possible that these participants hold an informational assumption that places a higher level of importance on material objects due to their own experiences. However, it is also possible that the focus on the ice cream, as well as on other specific details are related to the way in which individuals with ASD process information, rather than on any specific beliefs about those objects. Autistic individuals may focus on details of stories many others would consider irrelevant or abnormal, so this is one possible explanation that is unrelated to their actual belief systems.

Similarly, a primary site of difference was found in GD-3 surrounding focusing on others, their intentions, and their feelings. As in the previous instance, this could be due to a different set of informational assumptions, or due to other information processing factors. Autistic individuals do have documented difficulty with theory of mind capabilities (Baron-Cohen et al., 1985; Baron-Cohen, 1995), which could cause difficulties in autistic participants

ability to think about the intentions of others in a moral scenario (Zalla & Leboyer, 2011). Along these lines documented differences between cognitive and affective empathy could also impact autistic participants' ways of thinking (Mazza et al., 2014; Rueda et al., 2015; Bos & Stokes, 2019). However, considering this difference was found in the same scenario in which autistic participants focused heavily on the accidental nature of the push, it is also possible that beliefs surrounding your culpability for accidental actions would impact whether autistic participants focused heavily on others. It is possible that due to believing you are not responsible for the result of accidental actions, the participants would not see it as their responsibility to check in on the other.

Notes on the Activity-Oriented Interview Task

Due to the novel nature of this task, notes were taken on any potential issues or successes with the task itself. All participants seemed to find the visuals helpful and interesting, however Megan and George in the ASD group were particularly engaged with them. When the page was turned to GD-2, Megan even exclaimed "Oh, that's my favourite". The concrete visual did seem to help children in both groups understand the scenario better, and it did seem to make the scenarios clearer to all participants. Additionally, the presence of a visual referent did seem to put autistic participants at ease due to eliminating any perceived need for eye contact with the researcher. However, the attempt to not associate a specific gender with any of the children did cause some confusion within the scenarios, particularly GD-1 and GD-2. Additionally, for participants like Megan with lower language skills, changing the colour of the two children did not seem to be enough to differentiate the two, and she often confused which child was which. One possible solution to this could be to visibly differentiate the children in another way, such as by putting different hats on them in the image.

Conclusion

Moral decision making is a highly complex process, which requires utilizing information from the individual's surroundings, as well as drawing from your own social experiences (Killen & Smetana, 2015; Smetana 2006; Turiel 1983). Wainryb (1991; 2004) splits moral judgements even further into two defined categories: Evaluative judgements and informational assumptions. A multitude of factors impact moral judgements, such as empathic capabilities, theory of mind and social experiences, all of which are potentially experienced differently by children with and without autism spectrum disorder. This pilot study looked at whether there are sites of difference in the moral reasoning of children with and without autism, in order to determine if there are potential differences in informational judgements between the two groups. Even within this small sample, several sites of difference were found that could be the result of the two groups holding different informational assumptions about key moral issues. These sites primarily included the importance of adult intervention, views surrounding whether you are at fault for an accidental action, the importance of material objects, the focus on specific story details, and focusing on others' feelings.

The purpose of this study was not to draw generalizable conclusions about the differences between groups, but rather to determine using a small sample whether this is a potential avenue for further study. Given that differences were found in critical places that may suggest different informational assumptions between groups, even in this small sample, further study is warranted. Although no broad conclusions can be drawn, this study does offer valuable insight into the way autistic and non-autistic children view different moral scenarios, and the potential informational assumptions associated with those views. These findings could inform educational programming designed to support autistic students in navigating these moral dilemmas. Additionally, they

could also offer new insight to educators pertaining to how they approach these issues in a classroom setting.

Limitations and Future Directions

The primary limitation of this study is the small sample size of each group. In future studies it would be interesting to expand the groups to gather data from a larger number of participants, to see if the qualitative differences between groups maintain with a larger sample. Additionally, there were several sociodemographic factors that could have impacted the results but would be difficult to fully account for. While gender parity was achieved in the TD group, the ASD group consisted of 3 girls and 1 boy. This could have impacted the results, particularly given the higher rate of diagnosis of autism among boys, and the general trend in research on ASD to have male-dominated samples. Additionally, 75% of the autistic participants noted their religious affiliation as Islam, which was not present in the TD group. Given the importance of moral rules to different organized religions and the way these are interpreted through religious texts, the ASD group being primarily affiliated with one religion could have impacted the sites of difference between groups.

The final limitation of this study surrounds the difficulty of separating information processing differences and different informational assumptions between participant groups. One primary site of difference centered around the importance of material objects and focusing on specific story details. This area was difficult to analyze, as the methodology did not make it possible to differentiate which of these differences may be due to autistic participants processing the information given by the story in a non-typical way, and which may be due to different underlying beliefs. In future studies, one potential solution could be to introduce a second PMV scenario with extraneous information given that was not in any way associated with the pushing

incident being described. This way, researchers would have an indication of the extent to which each participant was able to focus on the key details of the goal driven scenario, and which would potentially struggle to focus on relevant information.

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Appendix A**Sociodemographic Questionnaire**

1. Which city do you currently live in? _____
2. What language do you speak at home?
 - a. English
 - b. French
 - c. Other: _____
 - d. Prefer not to say
3. What is your marital status?
 - a. Single
 - b. Married
 - c. Common-Law
 - d. Other: _____
 - e. Prefer not to say
4. Do both parents currently live at home?
 - a. Yes
 - b. No
 - c. Prefer not to say
5. What is the highest level of education you have completed?
 - a. Some High School
 - b. High School Diploma
 - c. College/CEGEP diploma
 - d. Bachelor's Degree

- e. Master's Degree
- f. Ph.D. or higher
- g. Trade school
- h. Other: _____
- i. Prefer not to say

6. Does your family have any religious affiliations?

- a. No
- b. Yes, Catholicism
- c. Yes, Protestantism
- d. Yes, Judaism
- e. Yes, Buddhism
- f. Yes, Islam
- g. Yes, Hinduism
- h. Yes, Other: _____
- i. Prefer not to say

7. Is there anything about your child's particular communication or social needs that you wish to disclose?

8. (ASD Group Only) Is there any relevant information about your child's autism diagnosis you wish to disclose?

Appendix B

Visual Stories Created for the Activity-Oriented Interview

Figure B1

Prototypical Moral Violation (PMV)



Figure B2

Goal-Directed Scenario 1 (GD-1)



Figure B3

Goal-Directed Scenario 2 (GD-2)

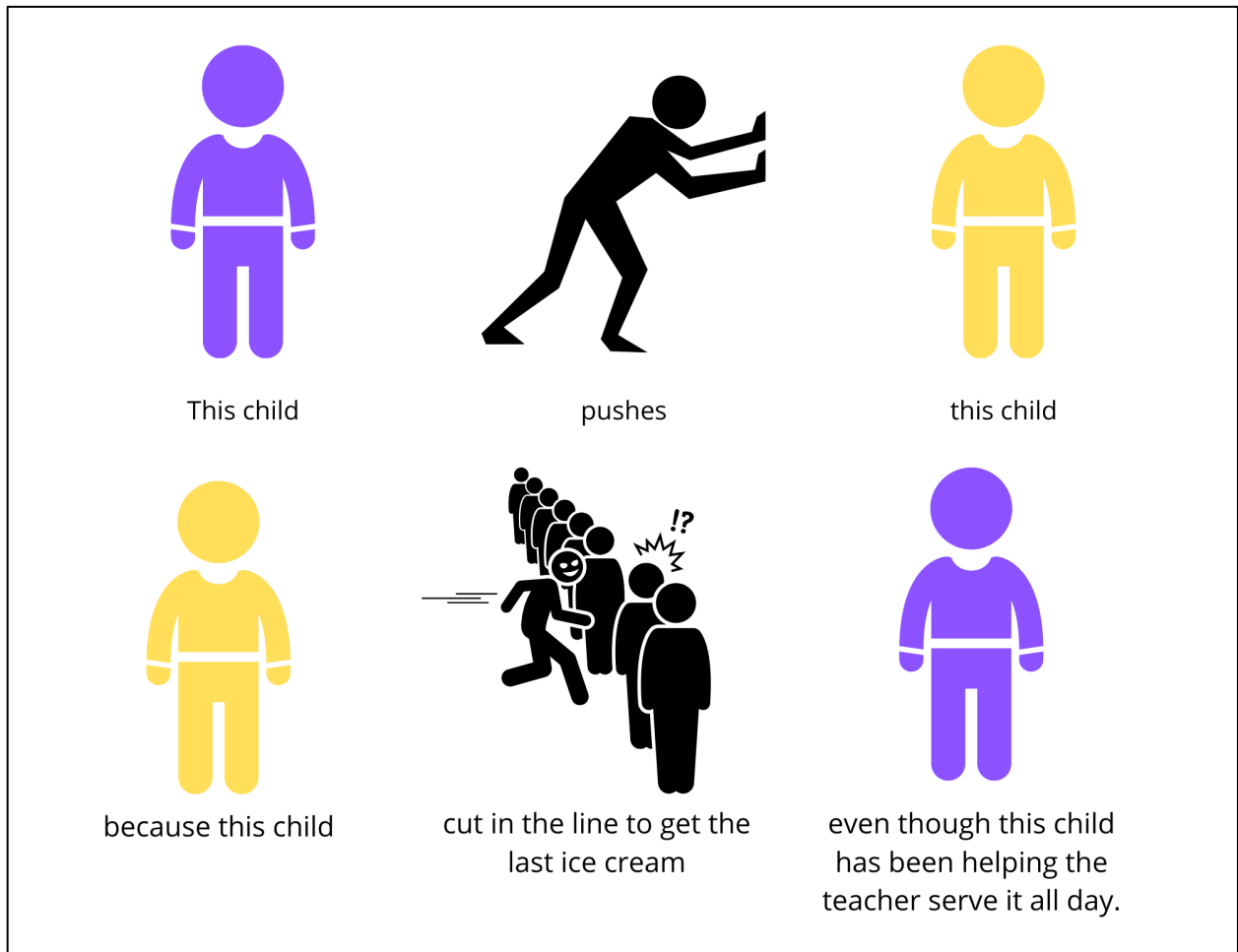
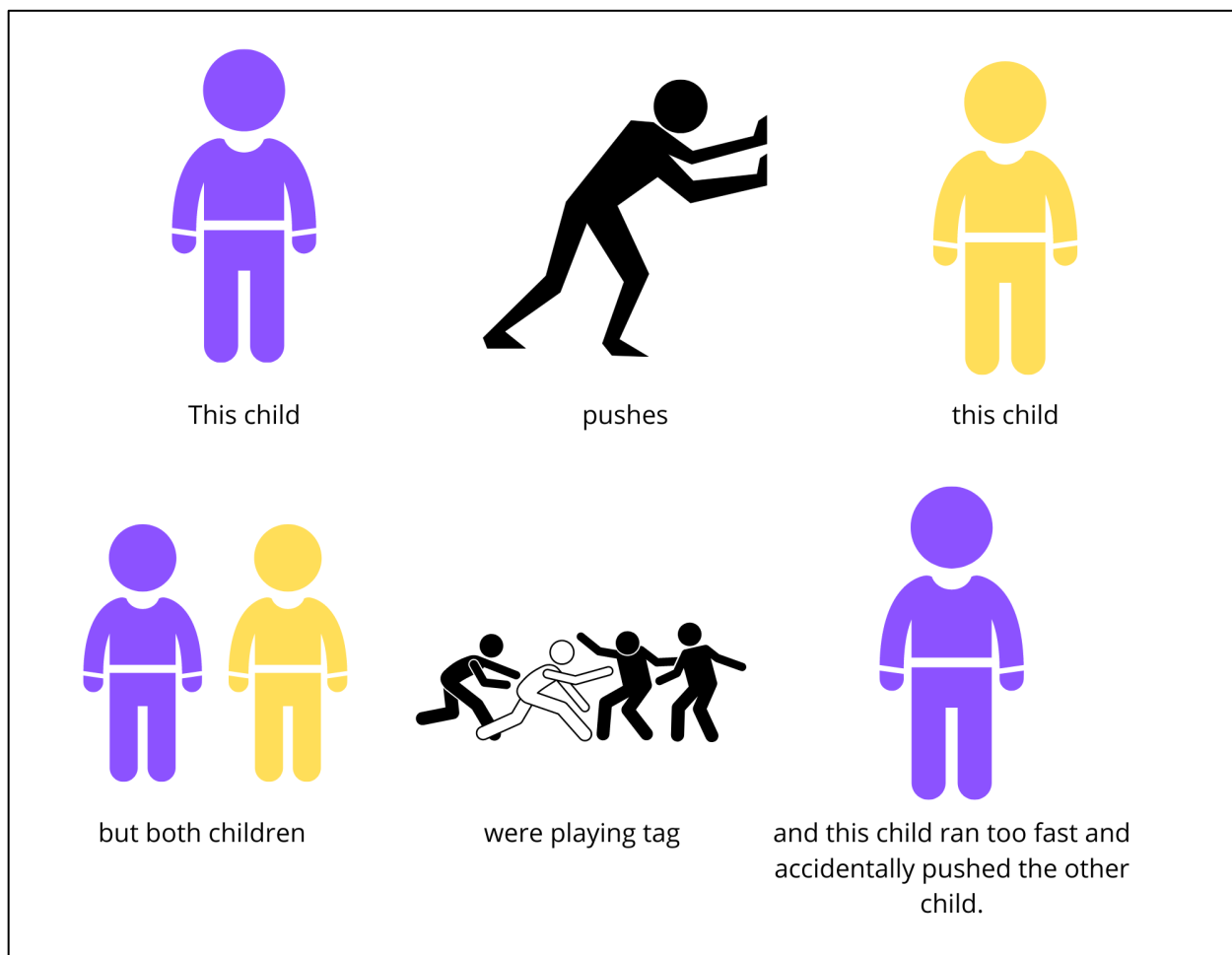


Figure B4*Goal-Directed Scenario 3 (GD-3)*

Appendix C
Interview Guide

PMV

6. Is it okay for the child to push the other child?
7. Can you explain why?
8. Is it okay if the teacher didn't see what happened?
9. Should the child who pushed the other child be punished?
10. Can you explain why?

GD-1

7. Is it okay that the child pushed the bully?
8. Can you explain why?
9. (If no) What should the child have done instead?
10. (If yes) Is there something else the child should have done to fix the bullying problem?
11. Should the child be punished for pushing the bully?
12. Can you explain why?

GD-2

5. Is it okay that the child pushed the child trying to cut in front of them in line?
6. Can you explain why?
7. Which child do you think deserves the last ice cream?
8. Can you explain why?

GD-3

5. Is it okay that the child pushed the other child while playing tag?
6. Can you explain why?

7. Should the child still get in trouble for pushing the other child even though it was an accident?
8. Can you explain why?

Prompting Questions

1. That's a really interesting thought. Can you explain it more to me?
2. I'd like to hear more about that thought.
3. That's a really good point. Can you tell me more?

Appendix D

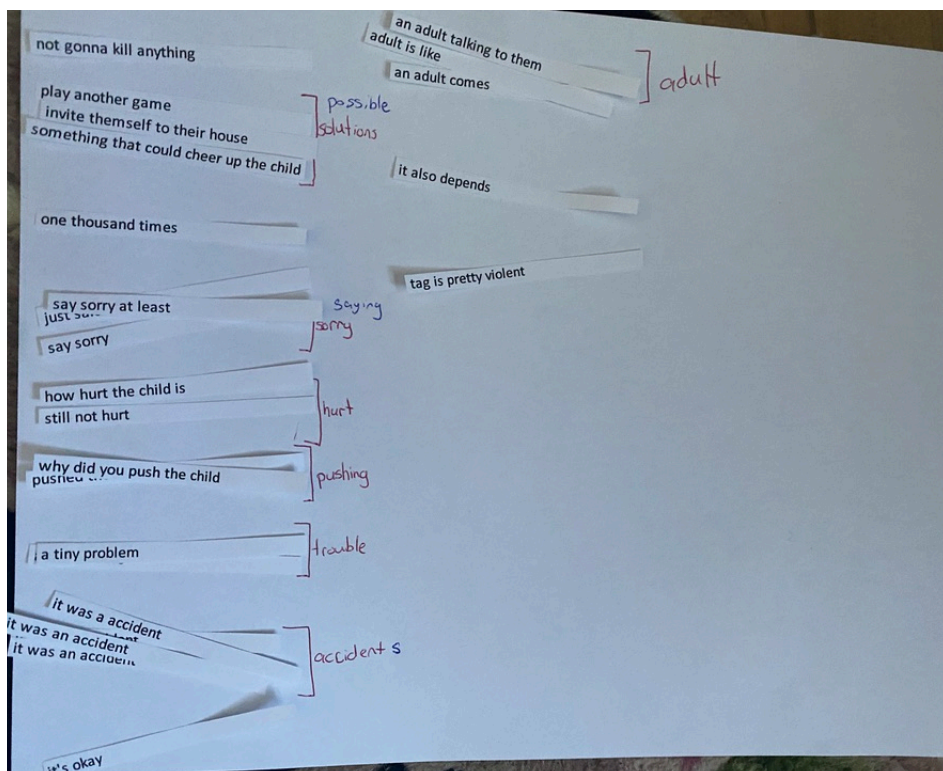
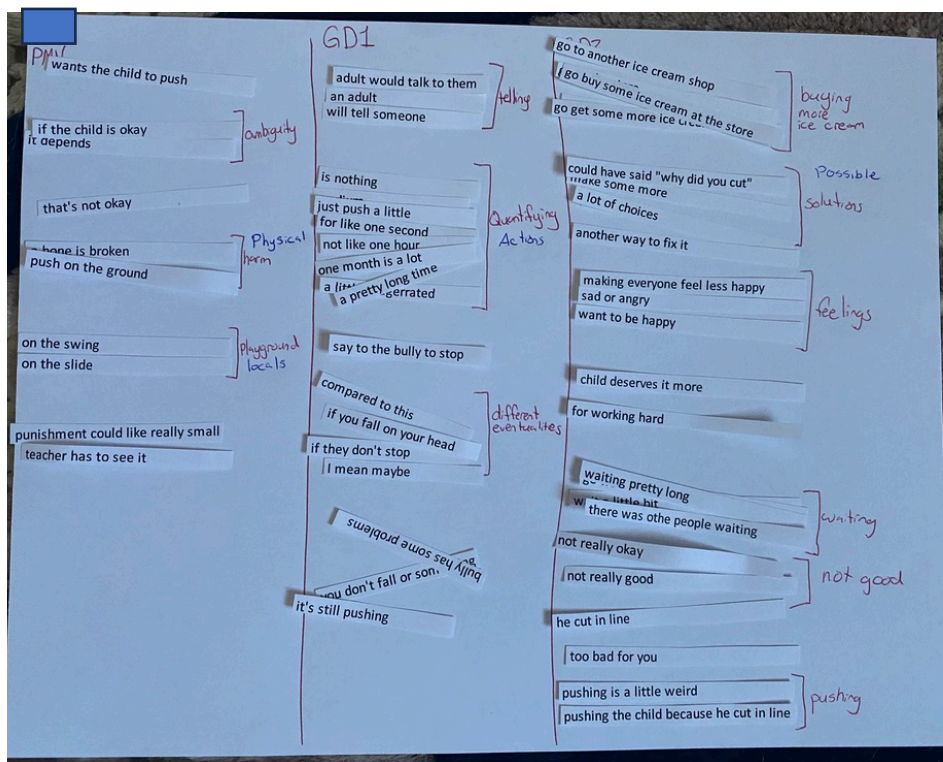
Example of Transcript with First Cycle Coding Markings - Sophia

<p>Researcher: So even though you think <i>this</i> [purple] child deserves the last ice cream, do you think the child should have pushed the other one?</p> <p>Sophia: No.</p> <p>Researcher: No? Can you tell me some things they could have done instead?</p> <p>Sophia: Well, I mean this child could have said "Why did you cut in line? You can go get some more ice cream" or I don't know go to the store and get some more ice cream or go to another ice cream shop and go get some ice cream. There's a lot of choices instead of cutting in line and making everyone feel, uh, less happy.</p> <p>Researcher: Yeah, that totally makes sense. So do you think keeping people happy is important?</p> <p>Sophia: Yeah.</p> <p>Researcher: Yeah? Why do you think that?</p> <p>Sophia: Because like no one wants to be sad or angry. They want to be happy.</p> <p>Researcher: That makes sense. We don't want any of the kids to be unhappy or angry.</p> <p>Sophia: Yeah.</p> <p>Researcher: Yeah. That makes a lot of sense. Alright. Now we have this one. So <i>this</i> child pushes <i>this</i> child, but both of the children were playing tag, and <i>this</i> child ran too fast and accidentally pushed the other child. So do you think it's okay that <i>this</i> child pushed <i>this</i> child while they were playing tag?</p> <p>Sophia: Well I mean it was an accident so I guess it's okay.</p>	<p>"could have said 'why did you cut'"</p> <p>"go get some more ice cream"</p> <p>"go to the store"</p> <p>"get some more ice cream"</p> <p>"go to another ice cream shop"</p> <p>"a lot of choices"</p> <p>"making everyone feel less happy"</p> <p>"sad or angry"</p> <p>"want to be happy"</p> <p>"it was an accident"</p> <p>"it's okay"</p>
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<p>Researcher: Mm</p> <p>Sophia: But I mean it also depends how hurt the child is when he fell.</p> <p>Researcher: Mmmm. Do you think this child should still get in trouble for pushing them, even if it was an accident?</p> <p>Sophia: Well maybe a tiny problem, just an adult talking to them and that's it maybe?</p> <p>Researcher: Mm</p> <p>Sophia: Yeah like an adult comes and say, 'why did you push the child' and then like the child says like 'it was an accident' so like the, uh adult is like 'um okay, so if it was an accident can you say sorry at least or something?' so, yeah that's like a tiny trouble.</p> <p>Researcher: Mmhm. That makes sense! So you think the child should still have to say sorry to the other child?</p> <p>Sophia: Yeah, I mean still it was an accident but like it pushed the child so like I guess you could say sorry</p>	<p>"it also depends"</p> <p>"how hurt the child is"</p> <p>"a tiny problem"</p> <p>"an adult talking to them"</p> <p>"an adult comes"</p> <p>"why did you push the child"</p> <p>"it was an accident"</p> <p>"adult is like"</p> <p>"it was an accident"</p> <p>"say sorry at least"</p> <p>"a tiny trouble"</p> <p>"it was an accident"</p> <p>"pushed the child"</p> <p>"say sorry"</p>
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Appendix E

Tabletop Focused Coding Example - Sophia



Appendix F

Group Comparison Coding Categories

PMV

PMV	George	Relating Personally	
PMV	George	Saying Sorry	
PMV	George	Adults	Getting in trouble
PMV	Nicole	Telling Trouble	
PMV	Nicole	Trouble	
PMV	Michael	Absolutes	
PMV	Sophia	Ambiguity	acknowledging ambiguity
PMV	Michael	Different Conditions	
PMV	Jessica	Different Possibilities	
PMV	Megan	"Little" Children	Details
PMV	Sophia	Playground Locations	
PMV	Isaac	Playground Activities	
PMV	Isaac	Locational Information	
PMV	Isaac	Playground Activities	
PMV	Sarah	Hurt	Hurt
PMV	George	Hurt	
PMV	Sophia	Hurt Physical Harm	
PMV	Isaac	Assigning Blame	Others' actions
PMV	Megan	Others' Actions	
PMV	Sarah	Having a Reason	
PMV	George	Knowing	
PMV	Megan	Can't push	
PMV	Megan	Negative Respons	
PMV	George	"Teaching a lesson"	Strong action words
PMV	Isaac	"targeted"	
PMV	Michael	"force"	

GD-1

GD-1	Jessica	Length of Time	Time
GD-1	Sarah	Length of Time	
GD-1	Michael	Protecting Yourself	
GD-1	George	Not Okay	Not permissible
GD-1	Isaac	Not Permissible	
GD-1	Jessica	Not Right	
GD-1	Megan	No Pushing	
GD-1	Michael	Multiple Scenarios	Acknowledging ambiguity
GD-1	Sophia	Different Eventualities	
GD-1	George	Ambiguity	
GD-1	Megan	Uncertainty	
GD-1	Isaac	Getting in Trouble	Trouble/punishment
GD-1	Sarah	Trouble	
GD-1	Nicole	Trouble	
GD-1	Nicole	Punishments	
GD-1	George	Grown Ups	Telling/Adult intervention
GD-1	Isaac	Telling	
GD-1	Sophia	Telling	
GD-1	Michael	Telling an Adult	
GD-1	Megan	Number of Bullies	Numbers
GD-1	Sophia	Quantifying Actions	
GD-1	Michael	Violence	Physical harm
GD-1	Sarah	Physical Nature of Bullying	
GD-1	Sarah	Using Words	Words
GD-1	George	"Stop" phrases	
GD-1	Jessica	Both Children	
GD-1	Nicole	Reaction of Others	
GD-1	Michael	Revenge	
GD-1	George	Self Insertion	
GD-1	Megan	Type of Person	

GD-2

GD-2	Nicole	Cut in Line	Referencing the Line	the line
GD-2	Megan	Pushing	Pushing	pushing
GD-2	Sarah	Helping	Helping	helping
GD-2	Isaac	Helping	Helping	helping
GD-2	Jessica	Hurting	Examples of Injury	hurt
GD-2	Jessica	Hurting	Examples of Injury	hurt
GD-2	Sophia	Feelings	Feelings	
GD-2	Isaac	Both of them	Both of them	
GD-2	Michael	Telling	Telling	
GD-2	George	Fairness	Fairness	
GD-2	Megan	Being Mean	Being Mean	negative descriptions
GD-2	George	Bullying	Bullying	negative descriptions
GD-2	Nicole	Cheating	Cheating	negative descriptions
GD-2	Michael	Waiting	Waiting	waiting
GD-2	Sophia	Waiting	Waiting	waiting
GD-2	Sophia	Not Good	Not Good	not permissible
GD-2	Jessica	Not okay	Not okay	not permissible
GD-2	Michael	Not Okay	Not Okay	not permissible
GD-2	Isaac	Not okay	Not okay	not permissible
GD-2	George	Possible Solutions	Possible Solutions	solutions
GD-2	Sophia	Possible Solutions	Possible Solutions	solutions
GD-2	Megan	Loss of Ice Cream	Loss of Ice Cream	ice cream
GD-2	Sophia	Buying More Ice Cream	Buying More Ice Cream	ice cream
GD-2	George	Last Ice Cream	Last Ice Cream	

GD-3

GD-3	Nicole	Being Mean	Being Mean	person descriptions
GD-3	Isaac	Nice or Mean	Nice or Mean	person descriptions
GD-3	Megan	Nice/Friendly	Nice/Friendly	person descriptions
GD-3	Michael	Getting in Trouble	Getting in Trouble	trouble
GD-3	Jessica	Trouble	Trouble	trouble
GD-3	George	Trouble	Trouble	trouble
GD-3	Sophia	Trouble	Trouble	trouble
GD-3	Isaac	Making sure they're okay	Making sure they're okay	making sure the person is okay
GD-3	Michael	Make sure he's okay	Make sure he's okay	making sure the person is okay
GD-3	George	Solutions to Make the Other Person Feel Better	Feelings of Self and Others	helping others' feelings
GD-3	Jessica	Feelings of Self and Others	Feelings of Self and Others	helping others' feelings
GD-3	Jessica	Hurt	Hurt	hurt
GD-3	Sophia	Hurt	Hurt	hurt
GD-3	Michael	Apologizing	Apologizing	apologizing
GD-3	Isaac	Apologizing	Apologizing	apologizing
GD-3	Jessica	Apologizing	Apologizing	apologizing
GD-3	Sarah	Apologizing	Apologizing	apologizing
GD-3	Sophia	Saying Sorry	Saying Sorry	apologizing
GD-3	George	Accidents	Accidents	accident
GD-3	Sophia	Accidents	Accidents	accident
GD-3	Isaac	Accidents	Accidents	accident
GD-3	Nicole	On purpose	On purpose	intentions
GD-3	George	Accidents	Accidents	intentions
GD-3	George	Accident vs. On Purpose	Accident vs. On Purpose	intentions
GD-3	Sarah	Unintentional	Unintentional	intentions
GD-3	Jessica	Intentions	Intentions	intentions
GD-3	Jessica	Over Competitive	Over Competitive	game play
GD-3	Jessica	Playing Games	Playing Games	game play
GD-3	George	Self-Referencing	Self-Referencing	self insert
GD-3	Jessica	Relating Personally	Relating Personally	self insert
GD-3	Megan	No pushing	No pushing	pushing
GD-3	Sophia	Pushing	Pushing	pushing
GD-3	Jessica	Helping	Helping	
GD-3	Isaac	"Attacking"	"Attacking"	
GD-3	Jessica	Comparative Strength of Action	Comparative Strength of Action	

Appendix G

Across Group Categories

KEY

Only/Primarily TD
Only/Primarily ASD
50/50 Split Between Groups
Mix of Participants

SCENARIO	CATEGORY
PMV	Getting in Trouble
PMV	Acknowledging Ambiguity
PMV	Adding Details
PMV	Hurt
PMV	Others' Actions
PMV	Strong Action Words

SCENARIO	CATEGORY
GD-1	Length of Time
GD-1	Not Permissible
GD-1	Acknowledging Ambiguity
GD-1	Trouble/Punishment
GD-1	Telling/Adult Intervention
GD-1	Numbers
GD-1	Physical Harm
GD-1	Using your Words

SCENARIO	CATEGORY
GD-2	The Line
GD-2	Pushing
GD-2	Helping
GD-2	Hurt
GD-2	Negative Descriptors
GD-2	Waiting
GD-2	Not Permissible

GD-2	Solutions
GD-2	Reference to Ice Cream

SCENARIO	CATEGORY
GD-3	Personality Descriptions
GD-3	Trouble
GD-3	Making sure the person is okay
GD-3	Others' Feelings
GD-3	Hurt
GD-3	Apologizing
GD-3	Accidents
GD-3	Intentions
GD-3	Game Play
GD-3	Self-Insertion
GD-3	Pushing

Only/Primarily ASD	Only/Primarily TD
Getting in Trouble	Length of Time
Acknowledging	Physical Harm
Ambiguity	Helping
Numbers	Hurt
The Line	Not Permissible
Pushing	Making sure the person is okay
Negative Descriptors	Others' Feelings
Solutions	Apologizing
Reference to Ice Cream	Intentions
Accidents	
Pushing	

50/50	Mix
Adding Details	Acknowledging
Hurt	Ambiguity
Not Permissible	Others' Actions
Trouble/Punishment	Strong Action Words
Telling/Adult	Personality Descriptions
Intervention	Game Play
Using your Words	

Waiting
Trouble
Hurt
Self-Insertion